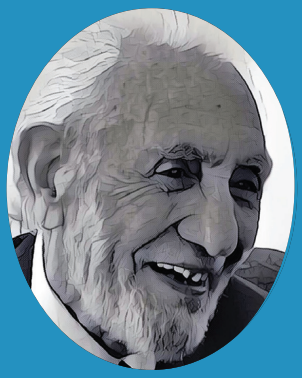

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Editorial Note

Health of the people is essential for sustainable development of any country. Since 2003, the Government of Islamic Republic of Afghanistan with support of international community has been engaged in restructuring the health system weakened by decades of unrest and conflict. The Government of Afghanistan has recognized the global call for evidence based national health policy formulation and decision making at all levels of management. The efforts of Ministry of Public Health (MoPH) in this direction is significantly paid to strengthening and consequently sustaining an evident data generation and production of the balanced scorecards over the last many years which has been the basis of taking decisions in performance monitoring and resource allocation in the MoPH ever since 2004.

As a next step to strengthening the MoPH's evidence based planning and decision making, the leadership of the Ministry aptly decided to develop and strengthen the research environment in the country. The MoPH has already established a public health research department that has been expanded over the years and now has considerably strengthened in health research management and oversight within Afghanistan National Public Health Institute (ANPHI).

Towards the end of 2009, the MoPH leadership felt the need for developing the Health Research Policy for the country in order to systematically develop research in health care with an understanding to encourage evidence based policies, strategies and decision making, which the initiative supported by WHO.

ANPHI has established Ghazanfar Medical Journal with the objective to publish up-to-date and high-quality research papers. The journal is available online from the MoPH's website. We highly appreciate the submission of any research papers either individually or collaboratively contributing to the development and success of the journal. We wish and thank all who have contributed in the development of the current Ghazanfar Medical Journal issue.

Effects of early childhood malnutrition on later cognitive development, a review of the literature

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ABSTRACT

Introduction: Childhood malnutrition causes the mortality of millions of children under five and affects the health and development of millions of other children. In particular, cognitive development may be negatively affected by early childhood malnutrition.

Background: Early childhood is a critical period for both nutrition and cognitive development. Malnourished children are more likely to experience educational failure and a reduction in adult productivity. Malnutrition and its effects on cognitive development can be prevented by nutritional and early childhood development interventions. This review aims to explore whether malnutrition has negative effects on cognitive development and if these effects can be reversed.

Methods: A comprehensive literature review was conducted. Criteria were set to establish the viability of studies according to sampling, statistical robustness, length of the study and the appropriateness of the measures used.

Results: Early childhood malnutrition has negative effects on cognitive development in childhood and adolescence but can be partially or fully reversed by appropriate interventions.

Conclusion: To prevent these adverse effects, the interventions need to focus first and foremost on children aged 0-2 years old; this can be more cost effective. Parents should be included in the interventions, and cultural and environmental context should be considered.

Keywords: Negative effects of stunting, cognitive development, the first two years of life, literature review, childhood malnutrition and adulthood productivity

چکیده

مقدمه: سؤتغذی دوران طفولیت عامل مرگ و میر میلیونها طفل زیر پنج سال در جهان میباشد؛ برعلاوه صحت، رشد و انکشاف میلیونها طفل دیگر را نیز متأثر میسازد. بخصوص سؤتغذی مراحل ابتدایی دوران طفولیت، میتواند اثرات منفی بالای رشد ذهنی و فکری اطفال داشته باشد.

پس منظر: دوره مهم و حیاتی برای تغذیه و رشد فکری، همانا مراحل ابتدایی دوره طفولیت میباشد. اطفال مصاب به سؤتغذی معمولاً دوره تعلیمی ناموفق را تجربه مینمایند، در ضمن در بزرگسالی دستآوردها و میزان مؤلدی کمتر را نظر به افراد سالم میداشته باشند. تغذیه خوب و مداخلات مناسب در مراحل ابتدایی دوره طفولیت، تا حدی میتوانند سؤتغذی و اثرات منفی آنرا بالای رشد ذهنی و فکری اطفال وقایه نمایند. این تحقیق به هدف بررسی اینکه آیا سؤتغذی اثرات منفی بالای رشد ذهنی و فکری اطفال دارد یا خیر؟ آیا میتوان این اثرات منفی را تغییر داد؟ اجرا گردید.

میتود: مرور و بررسی جامع و دقیق مطالعات و تحقیقاتی که قبلاً در مورد صورت گرفته بود، انجام پذیرفت. براساس آن معیارات تحقیق تعیین و شناسایی گردید، تا زمینه برای انجام تحقیق معتبر مبنی بر نمونه گیری، ارقام و آمار دقیق، طول زمان تحقیق، تناسب و دقت شمارش ارقام ایجاد گردد.

نتایج: سؤتغذی مراحل ابتدایی دوران طفولیت اثرات ناگوار و منفی بالای رشد ذهنی و فکری اطفال و نوجوانان دارد. این اثرات منفی با مداخلات مناسب میتواند، به طور قسمی یا کامل از بین برده شود.

نتیجه گیری و سفارشات: برای جلوگیری از این اثرات منفی، مداخلات مناسب باید بیشتر به اطفال سنین ۰-۲ ساله متمرکز باشد. این شیوه از نظر هزینه نیز مؤثر میباشد. والدین باید در مداخلات لازم دخیل گردند، و شرایط فرهنگی و محیطی نیز در نظر گرفته شوند.

Introduction

Globally, over a third of deaths in children under five are attributable to undernutrition, recognized as a severe public health issue (World Health Organization [WHO], 2013). In addition to its devastating impact on child mortality, undernutrition has a long-term damaging effect on intellectual and psychological development, (Grantham-McGregor et al., 2007).

Development in the first years of life involves very rapid brain and cognitive development affected by the nature of an environment, which may impact negatively or positively on the rest of a child's life (Laus, Vales, Costa, & Almeida, 2011).

Malnutrition is the clinically inadequate or excess intake of protein, energy, and micronutrients (WHO, 2015). According to this definition, inadequate or excess intake of micronutrients also causes malnutrition and iron is one of the most important elements among micronutrients.

Cognitive development as defined in this review includes analytical skills, mental problem solving, early mathematical and memory skills (Naudeau, 2011). The early years of development include conception to age six or seven years old, but 0-2 years old is the most critical period, because uniquely during this period neurological studies have shown that synapses, connections or pathways between neurons in the nervous system develop rapidly, forming the basis of lifetime cognitive functioning (Naudeau, 2011Khan et al., 2015). Therefore, a child's first years of life are a unique window for proper early childhood nutrition (Illig & California State Library, 1998). Children from poor and disadvantaged societies are at the greatest risk of being deprived in this critical period of life. Investment in childhood development is an important and cost-effective way to empower children to grow into capable, responsible and skilled citizens (Jolly, 2007) potentially improving adult health, productivity, education, reducing violence, and promote environmental sensitivity (Jolly, 2007). Despite being exposed to greater malnutrition and preventable diseases (Irwin, Siddiqi, & Hertzman, 2007), children from the poorest community are least likely to have access to Early Childhood Development programs.

The goal of this review was to establish whether evidence shows that "early childhood malnutrition affects subsequent cognitive development?"

The objectives are to:

- Ascertain from existing research the state of knowledge regarding the relationship between malnutrition and cognitive development;
- Examine whether studies show that there is a critical stage during which malnutrition has the most impact on the child's cognitive development
- Establish whether there is evidence of later catch up

Establish whether the research shows that the impact is more marked those who had greater exposure to malnutrition (a dose response effect)

Methodology

To have an appropriate review, first the inclusion and exclusion criteria were set.

Inclusion. Quantitative research; studies concerning children aged 0-3.5 years; studies exploring the effects of malnutrition on cognitive development; studies presented in English language; studies conducted within the past 25 years

Exclusion. Non quantitative research; non research evidence; studies of children over 3.5 years old; studies exploring the relationship of nutrition with other aspects of development; studies exploring the relationship between cognitive development and other issues than nutrition; studies focusing on problems such as low birth weight, prematurity, congenital problems; studies associated with overweight or obesity; unpublished literature; papers not in English...

The Bournemouth University (BU) search portal was used for the literature search. This provides access to a range of databases, including Cinhal Science Direct and Medline Complete. The advanced search option

was utilized, using features such as Boolean operators, and date and language limiters (Aveyard, 2014). The search included: malnutrition, child development, growth, cognition, child nutrition and infant development. There is limited research in this field; therefore the search timespan was from 1990 to 2013. The search was conducted twice, to ensure nothing was missed adding the term longitudinal in the second search.

To increase the comprehensiveness of this review, two additional methods were used:

1. Reference chaining. The relevant papers were retrieved by searching the reference list and assessing the abstract of papers.

2. Key author's studies. Papers were searched for Grantham-McGregor's studies, as one of the key authors in this field. These studies were explored together with studies from the electronic search.

The literature search identified 558 hits, from the 3 methods 167 papers were duplicates; 133 papers not relevant; 181 papers did not match the inclusion criteria; the exclusion of these reduced the number to 43 relevant papers, of these 28 papers were excluded as they did not directly answer the study question; 15 papers remained. On reading the full texts of 15 articles, four were found to be review papers, not primary research leaving a total of 11 papers comprising 10 longitudinal and one case-control study. Studies' selected spanned from 1994 to 2013, including data from Vietnam, Peru, Philippines, Mauritius, Ghana, Ethiopia, Jamaica, and Costa Rica. Most of the studies included were based on a secondary analysis of large scale population cohort studies in countries where a high proportion of children have been exposed to malnutrition at an earlier date. See Figure 1 below for the numbers of papers and studies. The papers were reviewed for quality using the Critical Appraisal Skills Program (CASP), high quality tools designed at the public health research unit of the University of Oxford (Aveyard, 2014). The findings from across the studies were synthesized using a process of narrative synthesis.

Approval was obtained from the Bournemouth University Research Evaluation Committee (BUREC) consideration was also given to ethical issues when evaluating the quality of the research papers.

The papers which met the criteria were collated and tabulated with: authors' name; sample size; date, aim, type; main findings; ethical considerations; strengths and limitations. The majority were longitudinal studies, so details of timing of the participants and assessments were included, see Table 1 below. A coding system and themes were developed to assess the strength of evidence. Key themes were noted, recorded, and universal themes and differences noted. Finally the results were written up.

Results

Relationship between malnutrition and cognitive development

All the papers provided evidence of the negative effects of malnutrition on subsequent cognitive development. A key finding was that malnutrition aged 0-2 has an adverse effect on cognitive development. Ten of the papers were longitudinal; the exception (Drewett & Wolke, 2001) only studied the children's development at 2 years, but found a signficiant effect on cogntiive development in comparison with a control group.

The 10 longitudinal papers examined the outcomes from 4 to 17, some following the children on up to 4 occassions (Raine, Liu, Venables, & Mednick, 2004; Grantham-McGregor, Powell, Walker, Chang, & Fletcher, 1994; Park et al., 2011; Lukowski et al., 2010). These studies provided the opportunity to study the detailed progress of the children's projectory over time, showing a significant difference between the children who suffered malnutrition and matched controls in cognitive outcomes as shown in Table 1 below.

Evidence of a critical stage during which malnutrition has most effect on the child's cognitive development

Seven of the eleven papers first studied the children at age 2, but for three studies (Watanabe, Flores, Fujiwara, & Tran, 2005; Park et al., 2011; Raine et al., 2004) the children were already 3 – 3.5 years and in one study two groups were compared following a famine, one aged 0-2 and one aged 4-6 (Ampaabeng & Tan, 2013). Eight of the 11 papers found that 0-2 years of life was a critical period for the association between nutritional status and cognitive development. The first two years of life had more adverse effects on cognitive development than later stunting, and it was these two years that were most strongly associated with cognitive impairment in later childhood (Ampaabeng & Tan, 2013; Berkman, Lescano, Gilman, Lopez, & Black 2002; Crookston et al., 2010; Grantham-McGregor et al., 1994;

Lukowski et al., 2010; Mendez & Adair, 1999; Park et al., 2011; Watanabe et al., 2005). One paper did not discuss 0 -2 years old as a critical period (Park et al., 2011).

This review evidence strongly points to a critical, sensitive period age 0-2 years for nutrition and cognitive development.

What is the evidence of catch up? The children's outcomes were followed up between 2-17 years. Six of the 11 papers reported on the children's degree of catch–up in-cognitive gains when their nutritional status was improved.

The three main findings about catch-up were:

Severity. The severity of stunting before or at two years of age was a key predictor of catch-up; those less stunted were more likely to experience catch-up growth. Children with severe stunting at age two years appeared to sustain cognitive deficits at age 11, even when they had recovered from early stunting (Mendez & Adair, 1999). Children who had severe vs. moderate malnutrition had much lower scores in cognitive testing and were less likely to experience catch up growth (Barkman et al., 2002).

Timing. The timing of stunting was also relevant to catch up. Children who had severe stunting in the second year of life had the most substantial impairment in cognitive function, while children who had severe stunting in late childhood achieved catch up growth (Berkman et al., 2002; Crookston et al., 2010; Mendez & Adair, 1999). Berkman et al. also found the persistence of malnutrition during infancy and later childhood affects the degree of catch-up growth Persistence was not discussed in other included papers.

Socio-economic, environmental and genetic influences. Other influences apart from nutritional status examined included pre-schooling, schooling, maternal height, grandparents present, age of mother, maternal education, urban vs rural location, family size, socioeconomic condition (Ampaabeng & Tan, 2013; Crookston et al., 2010; Mendez & Adair, 1999; Park et al., 2011). In addition, Watanabe et al. (2005) suggests the importance of Early Childhood Development interventions. Adverse socio-economic and family situations contributed to outcome, but were not consistently explored.

Dose-response: Is there evidence in these studies of a link between the degree of malnutrition and cognitive development?

Seven of the eleven papers found a dose-response between malnutrition and cognitive or behavioral outcomes. Three of them were between the severity of malnutrition and cognitive development (Berkman et al., 2002; Grantham-McGregor et al., 1994; Watanabe et al., 2005) between the severity of famine and cognitive development (Ampaabeng & Tan, 2013). The remaining three papers showed different dose-response: between severity of malnutrition and externalizing behavior, (Raine et al., 2004); between- age at the first onset and the severity of stunting (Mendez & Adair, 1999 Crookston et al. (2010).

The overall evidence was, therefore, that whilst catch up is possible, it relates to the severity of malnutrition, and to the timing and duration of the impact of malnutrition measured by the stunting of development.

Discussion

Evidence in this review suggests that 0-2 years old is a sensitive period for nutritional status and cognitive development. This finding is supported by other research studies outside the remit of this review (Dewey & Adu-Afarwuah, 2008; Martorell et al., 2010). Dewey and Adu-Afarwuah's study assessed the impact of complementary feeding of children of 6–24 months in developing countries. Martorell et al. (2010) studied weight gain in the first two years of life as a predictor of schooling outcomes. They also found that 0-2 years of age was the most critical age when intervention was crucial.

The evidence in this review also confirmed that catch up is possible but is dependent upon the severity, timing and duration of stunting. It shows that 0 - 2 is a sensitive time to maximize the effect of supplementation programs for malnourished children (Grantham-McGregor & Baker-Henningham, 2005). Stein et al. (2008)'s study shows more benefits in reading comprehension and reasoning at the age of 25-42 in participants who received supplementation within 0-24 months than the participants who were supplemented later.

The findings of this review about dose-response between the severity of malnutrition and cognitive development are consistent with previous studies. Children hospitalized for severe malnutrition showed long lasting cognitive deficits in childhood in

comparison with their siblings (Grantham-McGregor & Baker-Henningham, 2005). Laus et al. (2011), who completed an extensive review also found that the effect of malnutrition depends on its severity, its duration and its timing.

This review has also highlighted the confounding factors such as socioeconomic issues, parents' education, schooling and socio-economic status, considered in many but not all previous studies. Due to lack of consistency across the studies, it is difficult to identify the most important factors. Stein et al. (2008) considered the household socioeconomic status and the parental characteristics parental schooling, age as parents and the quality of schooling, this was also considered by Martorell et al. (2010). Genetic factors were not assessed in any of the reviewed papers, none, for instance, had any measure of parental IQ (intelligence quotient) whereas there is widespread agreement that genes also play a role in cognitive ability (Illig & California State Library, 1998).

The opportunity to study the impact of malnutrition on cognitive development is limited by the opportunity to capitalize on natural experiments; researchers need the opportunity to access large data samples in areas of severe food shortages. The sample sizes in the studies presented were generally large and provided statistical robustness to demonstrate the findings and the majority were able to follow up the samples (see Table 1 below). The researchers used standardized measures of malnutrition, but the measures of cognitive ability ranged from brief verbal ability tests to neurocognitive, spatial and memory tests (Lukowski et al., 2010) depending of the age of the children and detail of the study.

Few studies examined mechanisms between malnutrition and cognitive development. This is despite the evidence of the impact of malnutrition on the developing brain, that sub nutrition inhibits brain growth and development (Lui, Raine, Venable, Dalais & Mednick, 2003). Mechanisms include iron deficiency anaemia,however, Berkman et al.'s (2002) study did not report on the effect of iron deficiency anemia, despite 25% of children under four in the study suffering from this condition.

Conclusion

The conclusions from this review are that age 0-2 years is a sensitive period for nutritional status affecting cognitive development. This review suggests that the nutritional interventions should be focused first and foremost on this period, and then continues for older children. If poor nutritional status persists, later catch up is possible, but the preference would be to prevent early childhood malnutrition in the first place.

This review has highlighted that whilst malnutrition in early childhood strongly influences cognitive development, further research into the mechanisms such as iron deficiency anemia would be beneficial. Despite the evident negative impact of malnutrition on children's development this area is not widely researched, nor are there adequate strategies in place to prevent what could be an avoidable outcome. Appropriate early interventions to improve nutrition, involving parents and adapted to the local cultural and environmental context are needed.

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Table 1: Summary appraisal and the main findings									
Author/date/ country	**Aim of study**	**Type of study**	**Sample size**	**Recruitment time**	**Effects assessment**	**Main finding**	**Strength of study**	**Limitation of study**	**Ethical consideration**
Watanabe et al., 2005 Vietnam	To assess whether an early childhood development intervention had effects on cognitive development	Longitudinal	313	0 - 36 months	4 - 5 years old	Early childhood interventions increase the potential for cognitive development	Standardized and pre validated tests, Data analysis done by standardized models. 95% CI.	The implementer was involved with the study so bias could be possible	Done
Crookston et al., 2010 Peru	To assess the children with catch-up has lower cognitive ability than those who did not have stunting	Longitudinal	1674	6 - 18 months	4.5 - 6 years old	Children with catch-up have cognitive ability similar to the children who had no stunting.	CI was 95%. A reliable system was established through the study.	Frequency and the duration of stunting were not measured. The finding is different from those had a different definition.	Done
Park et al., 2011 International	To assess the association between nutritional status and motor/cognitive development	Longitudinal	58	<3.5 years old	3, 6, 12 months after initial assessment	Poor nutrition was associated with higher rates of cognitive and motor developmental delays.	A good reliability and validity as all the tests used in the study were standardized and pre-validated.	Children with good motor development were not taken to the clinic and it would affect the result	Done + informed consent
Mendez and Adair, 1999 Filipins	To assess stunting is associated with poor cognitive development in late childhood	Longitudinal	2131	0 - 2 years old	8 - 11 years old	There is a direct effect of early stunting on cognitive development later in childhood.	Standardized models and tests and a reliable system to minimize bias with 95% CI.	The inherited ability, the quality of care and stimulation was not studied.	No ethics, no consent
Crookston et al., 2011 Peru	To compare the impact of early and late stunting on cognitive ability	Longitudinal	1674	6 - 18 months	4.5 - 6 years old	The concurrent stunting is more important in predicting the cognition than early stunting.	95 % CI. Every test and questionnaire was modified and piloted locally. Standardized and previously used tests	Children received anthropometric assessment in the early 6-18 month shown growth restriction after assessment	Done + informed consent
Lukowski et al., 2010, Costa Rica	To assess the behavioral difficulties in young adults who had chronic, severe iron deficiency as infants	Longitudinal	33/81	12 - 23 months	5 years, 11-14 and 19 years old	Adults with chronic, severe iron deficiency in infancy had difficulty in their behavior	A range of appropriate methods and tests were used	Small sample size and unknown iron status in prenatal period	No ethics but parental consent

Raine et al., 2004 Mauritius	To test malnutrition at age 3 predisposes to antisocial behavior at age 8, 11 and 17.	Longitudinal	353/1206	3 years old	3, 8, 11, 17 years old	Malnutrition at age 3 is associated with externalizing behavior problems at age 8, 11 and 17.	Standardized tests and data analysis three different instruments were used for three different ages.	Malnutrition was assessed only at age 3; it was not assessed after age 3 or before it.	Done
Ampaabeng and Tan, 2013 Ghana	To assess the long- term cognitive outcomes of famine in children	Longitudinal	557	0 - 8 (0 -2) (3 - 8) years old	9 years and above	The negative effects of famine (malnutrition) on cognitive development persist into adolescence.	Different tests result consistent with each other. The data were checked for validity	The small sample size has affected the estimation of the advance version of the tests.	No ethics, no consent
Drewett and Wolke, 2001 Ethiopia	To test the first months of life as a sensitive period for effects of malnutrition on cognitive development	Case-control	27/70/100	0 - 24 months	2 years old	Early malnutrition does not have adverse effects on cognitive development in the second year of life.	The standard test used and the interviewer was trained and were assessed/supervised.	Not a proper conclusion, the early and late malnutrition was not differentiated properly.	Done
Grantham-McGregor et al., 1994, Jamaica	To investigate the benefit of intervention on severe malnourished children	Longitudinal/ case-control	17/18cases/19 control	6 - 24 months	7, 8, 9, 14 years old	Severely malnourished children maintained their developmental delays in 14 years old than their peers.	Standardized and pre-validated tests were used. A reliable system was established	One test did not consistent others.	Done
Berkman et al., 2002, Peru	To examine the effect of stunting, diarrheal diseases, and parasites on cognitive functions	Longitudinal	239	1 - 2 years old	9 years old,	Severely stunted children in the first two years of life had the most significant cognitive impairment	A good internal validity and 95% of CI	Iron deficiency was not tested while 25% of children in this community had anemia.	Done

Rush of health workforce to urban settings: reluctance to work in rural areas in Afghanistan

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ABSTRACT
Background: Globally, half of the population lives in rural areas but they are only served by one fourth of all doctors and one third of all nurses. In Afghanistan there is a geographical, skill and gender imbalance in distribution of health workforce. This study aims to determine the proportion of health workers who are willing or unwilling to work in rural areas and identify factors affecting their choice.

Methods: A cross sectional study on new graduated health workers, who were under training of public health management course in the Ministry of Public Health, was conducted to collect data on their willingness and relevant reasons to be deployed in rural areas. Fresh graduated medical doctors, nurses, technicians and pharmacists from public medical universities and institutions were enrolled and asked to fill the self-reported questionnaires from four rounds of courses during 2011-2015. Data were entered using Epi Info v.7 and analysis was done using SPSS v.20.

Results: Totally 329 participants filled and returned the questionnaire of whom 62% were males and 38% were females; their mean age and standard deviation was 28 ±4.91 years. Almost half were single and the rest were either married or engaged. More than two thirds were medical doctors, 12.2% were pharmacists, 8.2% were technologists and the rest were dentists (stomatology), nurses and midwives. Three-fourths were willing to work in central cities (areas), 14.7% were willing to work in rural/peripheral areas and 11.4% were not sure where to work after graduation. According to their perception factors such as no exposure previously to rural areas, political concern such as security, being female, conducive environment to run personal business in rural areas, losing current income, like and loving rural weather and environment and sex of participants had significant relationship with willingness to work in peripheral settings.

Conclusion: Imbalance distribution of health workers should be rectified focusing on factors affecting their willingness to work in rural areas. This study recommends strengthening of education and training programs, enforcement of rules and regulations, provision of financial incentives, improvement of working climate and living conditions and finally focusing on human resource management.

Keywords: Health worker, willingness, human resource, rural, Afghanistan

چکیده
پس منظر: درسطح جهان، نصف نفوس جهان در مناطق روستایی زندگی دارند، اما خدمات توسط یک چهارم دوکتوران و یک سوم پرستار ها به آنها صورت می گیرد. در افغانستان عدم تعادل جغرافیایی، مهارت و جنسیت در توزیع کارمندان صحی وجود دارد. هدف این مطالعه عبارت از تعین میزان علاقمندی یا عدم علاقمندی کارکنان صحی برای کار کردن در مناطق روستایی و شناسایی فکتورهای مؤثر به این انتخاب میباشد.

میتود: این مطالعه مقطعی روی کارکنان صحی جدید الفارغ که در کورس مدیریت امور صحت عامه در وزارت صحت عامه شامل شده بودند، اجرا گردید؛ تا اینکه معلومات لازم در مورد علاقمندی آنها برای جابجایی در مناطق روستایی جمع آوری گردد. دوکتوران جدید الفارغ، پرستارها، تکنیشن ها و فارمسست ها که از دانشگاه ها یا موسسات دولتی طبی عامه فارغ شده بودند در این مطالعه شامل شده و از آنها درخواست صورت گرفت تا پرسشنامه قابل خانه پوری توسط خود ایشان را از چهار دوره کورس سالهای ۲۰۱۱ الی ۲۰۱۵ که در کابل دایر

شده بود، بعد از خانه پوری دوباره تسلیم نمایند. ارقام خام در سافت–ویر اپی انفو ۷ داخل و تحلیل آنها توسط سافت ویر SPSS v.20 صورت گرفت.

نتایج: در مجموع ۳۲۹ فرد سوالنامه را تکمیل و تسلیم نمودند، که از جمله آنها ۶۲ فیصد مردها و ۳۸ فیصد خانم ها بودند. اوسط سن آنها ۲۸ سال با انحراف معیاری ۴.۹۱ سال بود. تقریباً نصف آنها مجرد و متباقی یا اینکه متاهل و یا نامزد بودند. زیادتر از دو سوم آنها دوکتوران طب، ۱۲.۲ فیصد فارمسست، ۸.۲ فیصد تکنالوژست و باقی دوکتوران دندان (ستوماتولوژی) و پرستار ها یا قابله ها بودند. دو سوم آنها علاقمند اجرای کار در مراکز شهر ها بودند در حالیکه ۱۴.۷٪ علاقمند کار در مناطق اطراف و یا روستایی و حدود ۱۱.۳ فیصد مطمین نبودند که بعد از فراغت کجا مصروف کار شوند. مطابق برداشت آنها یک سلسله فکتور ها مثل عدم مواجه بودن قبلی به مناطق اطرافی، مشکلات سیاسی مثل بد امنی، زن بودن، محیط مناسب به خاطر راه اندازی تجارت های شخصی، از دست دادن عاید موجوده، مطبوعیت محیط و آب و هوای اطراف و جنسیت رابطه با مفهوم یا علاقمندی به اجرای فعالیت در مناطق اطراف و یا روستایی دارند.

نتیجه گیری: لازم است تا عدم تعادل توزیع کارمندان صحی با در نظر داشت علاقمندی فعالیت در مناطق روستایی و فکتور های موثر بر آنها حل گردد. این مطالعه پیشنهاد مینماید تا تعلیم و برنامه های آموزشی، تنفیذ قواعد و مقررات، تدارک امتیازات مادی، بهبود محیط کاری و شرایط زندگی و بالاخره مدیریت منابع بشری تقویه گردد.

کلمات کلیدی: کارمند صحی، علاقمندی، منابع بشری، مناطق روستایی، افغانستان

Introduction

Health workforce, being the key component, has direct impact on health system. Worldwide there are approximately 59 million people as paid full time health workforce but still there are challenges to achieve health related goals. World Health Organization (WHO) estimates that 57 countries have a critical shortage of health workers, equivalent to a global deficit of about 2.4 million doctors, nurses and midwives (1). Globally, half of the population lives in rural areas but they are served by 24% of all doctors and 38% of all nurses. Therefore, in rural areas access to well-trained health workers is a global challenge (2-3). Shortage of health workers combines with other existing problems such as poor infrastructure, poor health services, difficult terrains and low population densities in rural areas adversely affects access to health services (5).

Uneven distribution of health workforces is a universal challenge. In Bangladesh, 15% of urban population served by 35% and 30% of official doctors and nurses (6). In Nicaragua, around 50% of the health personnel are serving only for 20% of the country's population (7). In India, 74% of physicians practice in urban areas, where only 26% of the populations live (8). In Cambodia, health staff is heavily skewed toward urban areas, with approximately 54% of physicians employed in the capital city, Phnom Penh, where only 9.3% of the populations live (9). In a district of Pakistan almost 30% of doctors were willing to work in rural health facilities while 70% were unwilling (10). In the U.S, about 21 percent of the population lives in rural areas while the rural physicians comprise only about 10 percent (11-12). In Tanzania and Croatia, although most medical students had grown up in rural areas, more than half are unwilling to work in rural settings (13-14). In Hungary, according to a survey more than one-third of the respondents alleged they wanted to work in Budapest (15). In India, two-third of graduate doctors live in urban areas serving only 28% of Indian population (16).

The global imbalance of health workforce could be imagined by comparing the ratio of health workers to population. In Africa, there are 2.3 healthcare workers per 1,000 population while that is 24.8 in Americas. Only 1.3% of the world's health workers care for people who experience 25% of the global disease burden (17). High income countries have more than 10 doctors/nurses per 1000 while of the poor countries with higher burdens of disease may not have even one doctor-nurse per 1000 population (2). In Nepal, there is a marked difference in physician-to-population ratios in urban (1:1000) and rural (1:41000) areas (18). In the U.S., as a whole there is one primary care physician per 1300 persons while in rural areas the ratio is one primary care physician per 1910 persons (19). In Yugoslavia, the range of population per general practitioners (GP) varies from 3200 per GP in an urban to a low of 6500 per GP in a rural area (20). In Ghana, there was just 0.15 physicians per 1000 people (21) and probably now it is getting better. Usually the health workers are interested to move in search of better living and

working conditions, improved salaries and opportunities for professional development, within their own country, from rural to urban areas, or from public to private sector, or out of birth place from one country to another (22). Rural health staff recruitment and retention is associated with several factors including financial rewards, career development, continuing education, work environment, resource availability, recognition/appreciation, and social factors (18, 23). Furthermore, the literature depicts that a range of factors such as nature of the work, the personal needs, medical education, practice conditions, health system, regulatory, community, family and financial considerations, rates of remuneration, career advancement, quality of life, access to amenities and educational opportunities for children, geographical affinities, appreciation by managers, a stable job, income and training, ability to handle emergencies, residency training in rural areas, rural background, spouses' conditions, legal obligations, quality of the medical staff, improved working conditions, supervision and management, improved equipment, supportive management, shorter contracts and salary bonuses, superior housing, more autonomy at work, having a spouse/partner with a rural background, clinical teachers and mentors, rural based undergraduate learning experience, war, conflict, political domination have been associated with recruitment and retention of health workforce (24-44).

In Afghanistan years of war and conflict have affected all dimensions of health system including health workforce. Despite of many reforms the health workforce placement continues to be in major imbalances (45). Despite of 75% of population living in rural areas, there are shortages of health workforce which impedes the accessibility of health services (46). There has been great improvement in health workers-population ratio in rural areas from 0.45 in 2009 to 1.67 for 1000 population. Furthermore, there was 3.57 health workers for 1000 population in urban settings in 2010 (47). By this study, we aim to determine the proportion of health workers who are willing or unwilling to work in rural areas and identify factors affect the choice of location of work.

Methods

Annually a group of new graduate health workers are completing their institutional requirements and enter to health market with insufficient knowledge and skill of management and public health. Therefore, Afghanistan National Public Health Institute (ANPHI) at Ministry of Public Health (MoPH) designed a six-week training course on core public health and managerial topics for new graduate health workers. Participants for these courses including medical doctors, nurses, technicians and pharmacists from government institutions were enrolled. Catching this opportunity, a descriptive study was designed and conducted to collect data during training program to know the status of willingness to work in rural areas and factors affect the choice. In this study, participants from four courses were enrolled which were conducted during 2011-2015. A questionnaire was developed, revised and distributed to course participants to voluntarily fill and returned it to the training department. The operational definitions used in this questionnaire were: health workers are medical doctors or physicians, pharmacists, intermediate health workers including nurses and technologists. Newly graduates are health workers who are recently graduated from public medical universities in Afghanistan or those who are on the verge of graduation. Furthermore, those who have newly appointed (since three months) in some positions are also considered as new graduate health professionals. Urban areas are all cities, towns and capital of provinces which is easily accessible and secure. Rural area is an area which is not an urban area.

Our main outcome variable was to know the pattern willingness and unwillingness to work in rural areas. It was tried to include those variable that is supposed to have associations with willingness and unwillingness to work in rural settings such as demographic, socio economic, financial, education and regulatory and so on. To estimate sample size with confidence level of 95%, we assumed that 50% of newly graduate health workers were willing to work in rural areas in Afghanistan. However, in determining the sample size, it is required to strike a balance between precision and operational feasibility including time, human resources and cost. So that to keep a proper balance the desired precision is taken 5%. The estimated sample size for this study was equal to 384. Data were entered in epi info v.7 and analyzed by SPSS v.20. The protocol was approved by Institutional Review Board (IRB) at Ministry of Public Health.

Results

Totally 329 participants filled the questionnaire and returned it back to the training department. Due to being self-reported, few data (responses) were

missing in some forms. Out of all participants, 317 responded about their ages with mean and standard deviation of 28 ±4.91 years. Half of participants were in age group of 25-30 years which is valid for graduation. Almost 62% were males and 38% were females; 53% were single and the rest were either married or engaged. More than two-third were medical doctors, 12.2% were pharmacists, 8.2% were technologists, 7.6% were dentists (stomatology) and the rest were nurses and midwives. The majority of respondents (78.7%) were graduated from Kabul and 82.5% did not have job at the time of course participation. Two-third of those having job were at central level. Table 1 summarizes the demographic characteristics of the participants in this study.

Table 1: Frequency distribution of the demographic characteristics of study participants

Variables	Subgroups	Study Participants		
		Number	Simple %	Cumulative %
Age Groups				
18 - 25		91	28.7	28.7
25 - 30		167	52.7	81.4
30 - 35		37	11.7	93.1
35+		22	6.9	100
Gender				
Female		204	62	62
Male		125	38	100
Marital Status				
Married		123	37.5	37.5
Single		174	53	90.5
Engaged		31	9.5	100
Professional Graduation				
Nurse/Midwife		5	1.5	1.5
Technologist		27	8.2	9.8
Pharmacist		40	12.2	22
Medical Doctor		231	70.4	92.4
Stomatology		25	7.6	100
Graduation Province				
Kabul		258	78.7	78.7
Balkh		27	8.2	86.9
Nangarhar		14	4.3	91.2
Khost		2	0.6	91.8
Hirat		14	4.3	96
Kandahar		1	0.3	96.3
Kapisa		10	3	99.4
Others		2	0.6	100
Having job				
Yes		57	17.5	17.5
No		268	82.5	100
Job Location				
Central		67	69.1	69.1
Peripheral		30	30.9	100

Like to work (location)			
Country Inside	293	93.6	93.6
Country Outside	20	6.4	100
Job Interest (area)			
Health	297	94.9	94.9
Non-Health	16	5.1	100

During study period, just 6.4% of participants were interested to work outside of the country and 5% were inclined to work in non-health areas as finance officers, interpreters, bankers and so on.

Table 2: Perception of health workers (study participants) for willingness to work in rural/peripheral areas

Variable Categories	Male		Female		Total	
	N	%	N	%	N	%
Permanent Residence						
Yes	49	33.3	30	30.6	79	32.2
No	98	66.7	68	69.4	166	67.8
High financial incentives (salaries)						
Yes	71	54.2	40	42.6	111	49.3
No	60	45.8	54	57.4	114	50.7
Other Additional Incentives						
Yes	70	53.8	38	41.3	108	48.6
No	60	46.2	54	58.7	114	51.4
Less Opportunities in cites						
Yes	74	56.9	39	42.9	113	51.1
No	56	43.1	52	57.1	108	48.9
Personal Business Opportunities						
Yes	45	34.4	19	21.1	64	29.0
No	86	65.6	71	78.9	157	71.0
Love Rural Environment						
Yes	64	49.2	35	38.5	99	44.8
No	66	50.8	56	61.5	122	55.2
Pleasant weather and friendly people						
Yes	75	57.7	39	43.3	114	51.8
No	55	42.3	51	56.7	106	48.2
Opportunity for Family Living						
Yes	38	29.2	23	25.3	61	27.6
No	92	70.8	68	74.7	160	72.4
Understanding the Culture and Language						
Yes	32	24.6	24	26.7	56	25.5
No	98	75.4	66	73.3	164	74.5
Less Workload						
Yes	15	11.5	21	23.3	36	16.4
No	115	88.5	69	76.7	184	83.6

Enforcement by Government						
Yes	20	15.5	19	20.9	39	17.7
No	109	84.5	72	79.1	181	82.3
No Other Choice						
Yes	55	42.6	27	30.0	82	37.4
No	74	57.4	63	70.0	137	62.6

The reasons for low interest of working in their own profession was mentioned as 31.2% due to less opportunity of working, 22.2% due to good incentives in non-health professions, 6.1% due to no opportunities in cities, 3% unwillingly being in this profession and 8.8% due to other reasons. Totally, 74% were interested and willing to work in central cities (areas), 14.7% were willing to work in rural/peripheral areas and 11.3% were not sure where to work after graduation.

High salaries including other incentives and poor availability of working opportunities in cities have caused health workers in approximately, 50% of the cases to be inclined toward rural areas. Personal business opportunities such as establishment of drug store and/or consultations rooms have been a reason for one third of respondents to be deployed in rural areas. Roughly half of the cases expressed they love rural areas due to pleasant weather and friendly people. Around one-third of respondents believed they want to work in rural areas due to decent environment for living and knowing the culture and language. Low workload (16.4%) and forced deployment by government (17.7%) were other reasons push them to work in rural areas.

Table 3 A to C summarizes the reasons due to which the participants were unwilling to work in rural areas against urban settings. Born and living in cities affected the interest of health workers to work (56.7%) in urban areas. Insufficient salaries in 42.2% and inadequate incentives in 46.1% of study subjects have affected health workers to be reluctant to work in rural areas. Inadequate transportation in 56% of participant was recorded as a reason causes them to not work in rural areas. Dropping the current income in 36.2% and family problems in 67.1% were reasons which prevent them to work out of cities. Poor availability of expedient living conditions such as electricity availability (51.6%), appropriate place (house) for living (65%), gas as fuel (36%) and television program facilities (26.6%) were justifications which avoid health workers along other reasons to go and work in rural settings.

Table 3 (A): Perception of health workers (study participants) for unwillingness to work in rural/peripheral areas						
Variable Categories	**Male**		**Female**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Having Background of City Life						
Yes	96	50.8	78	66.1	174	56.7
No	93	49.2	40	33.9	133	43.3
Low Salaries						
Yes	104	55.0	40	42.6	130	42.2
No	85	45.0	54	57.4	178	57.8
Poor Transportation						
Yes	102	54.5	67	58.3	169	56.0
No	85	45.5	48	41.7	133	44.0
Low Incentives						
Yes	107	56.9	34	28.8	141	46.1
No	81	43.1	84	71.2	165	53.9
Loosing Current Income						
Yes	77	41.2	33	28.2	110	36.2
No	110	58.8	84	71.8	194	63.8
Family Problems						
Yes	118	62.8	88	73.9	206	67.1
No	70	37.2	31	26.1	101	32.9
Poor Availability of Electricity						
Yes	91	48.7	67	56.3	158	51.6
No	96	51.3	52	43.7	148	48.4
Appropriate Place for Living						
Yes	110	58.5	89	75.4	199	65.0
No	78	41.5	29	24.6	107	35.0
Gas as a Fuel to Use						
Yes	65	34.6	47	39.8	112	36.6
No	123	65.4	71	60.2	194	63.4
No Television						
Yes	52	27.7	29	25.0	81	26.6
No	136	72.3	87	75.0	223	73.4

As shown in table 3 (B) physical and environmental facilities such as availability of paved roads and parks for entertainment (39.1%) were additional factors affected to choose where to work. Facilities for children such as school and kindergarten (57.6%), opportunities to conduct personal business (46.1%) were further reasons affected the choice.

Table 3 (B): Perception of health workers (study participants) for unwillingness to work in rural/peripheral areas						
Variable Categories	**Male**		**Female**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
No Park and Paved Roads						
Yes	70	37.6	48	41.4	118	39.1
No	116	62.4	68	58.6	184	60.9
School and Kindergarten for Children						
Yes	112	59.9	62	53.9	174	57.6
No	75	40.1	53	46.1	128	42.4
No Personal Business						
Yes	84	44.9	56	47.9	140	46.1
No	103	55.1	61	52.1	164	53.9
No Internet Facilities						
Yes	109	58.0	67	57.8	176	57.9
No	79	42.0	49	42.2	128	42.1
Language Problems						
Yes	52	27.5	45	38.5	97	31.7
No	137	72.5	72	61.5	209	68.3
Cultural Problems						
Yes	59	31.4	58	49.2	117	38.2
No	129	68.6	60	50.8	189	61.8
Low Supervision and Monitoring						
Yes	82	43.6	55	46.6	137	44.8
No	106	56.4	63	53.4	169	55.2
Low Capacity Building Opportunities						
Yes	147	77.8	89	76.1	236	77.1
No	42	22.2	28	23.9	70	22.9
Spouse Job is in City						
Yes	85	45.5	59	51.3	144	47.7
No	102	54.5	56	48.7	158	52.3
Being Female						
Yes	42	22.7	75	64.1	117	38.7
No	143	77.3	42	35.9	185	61.3

Availability of internet facilities in 57.9%, language barrier in 31.7%, cultural concerns in 38.2%, low monitoring and evaluations in 44.8%, poor opportunities for capacity building in 77.1%, spouse job in cities in 42.2% and being females in 38.7% of study subjects were reasons to pick up working out of rural settings. In table 3 (C), the reasons for unwillingness to work in rural areas are additionally summarized.

Table 3 (C): Perception of health workers (study participants) for unwillingness to work in rural/peripheral areas

Variable Categories	Male		Female		Total	
	N	%	N	%	N	%
Low Skilled and Professional People						
Yes	120	63.5	71	61.2	191	62.6
No	69	36.5	45	38.8	114	37.4
Professional Growth						
Yes	156	83.0	91	78.4	247	81.3
No	32	17.0	25	21.6	57	18.8
Spouse Depending (No Job Opportunities with)						
Yes	104	55.6	63	54.3	130	42.2
No	83	44.4	53	45.7	178	57.8
Low Experiences in Profession						
Yes	91	48.4	63	54.3	154	50.7
No	97	51.6	53	45.7	150	49.3
Low Supplies and Diagnostic Facilities						
Yes	128	67.7	73	62.4	201	65.7
No	61	32.3	44	37.6	105	34.3
Insufficient Drugs						
Yes	124	66.0	69	58.5	193	63.1
No	64	34.0	49	41.5	113	36.9
Political Concern						
Yes	104	55.0	76	65.0	180	58.8
No	85	45.0	41	35.0	126	41.2
No Experience of Rural Areas						
Yes	81	42.9	66	55.5	147	47.7
No	108	57.1	53	44.5	161	52.3
Lack of Possibilities for Promotion						
Yes	125	66.5	72	62.1	197	64.8
No	63	33.5	44	37.9	107	35.2
Clinical Specialty Program						
Yes	114	60.3	63	54.3	177	58.0
No	75	39.7	53	45.7	128	42.0

Existing of adequately skilled and knowledgeable professionals (62.8%), less opportunity for professional growth (81.3%) and insufficiently skilled and having professional knowledge (50%) of health workers themselves in rural areas have also been justifications to not work there. Supporting services such as quality and adequate medicines and medical equipment in 63.1% and supplies of diagnostic facilities in 65.7% of participants had an impact to stay in cities. Being part of clinical specialty program in cities or waiting for its entrance exam, lack of possibilities for promotions and not being exposed to rural areas are responded with percentage of 58%, 64.8% and 47.7% by participants as explanations for unwillingness to go in rural areas. Political concerns including security is the main reason which affected two-third of study subjects to not work in rural areas where majority of people live.

Those who were interested to work in rural areas were limited in number and out of them occasionally there were missing responses for few variables; however, we have conducted statistical analysis running chi-square and calculating odds ratio and 95% confidence interval (CI). Table 4 depicts factors which had statistical association with willingness to work in rural areas.

Table 4: Statistical analysis of key factors associated with willingness to work in rural areas

Variables/ Categories	Unwillingness		Willingness		Odds Ratio	%95CI	
	N	%	N	%		lower limit	upper limit
Sex							
Males	117	78.5	32	21.5	1	Reference	
Females	83	91.2	8	8.8	0.352	0.155	0.804
Like Rural Environment							
Yes	62	70.5	26	29.5	1	Reference	
No	93	86.9	14	13.1	0.359	0.174	0.741
Losing my Income							
Yes	79	92.9	6	7.1	1	Reference	
No	115	83.9	22	16.1	2.519	0.977	6.494
Conducting Business in Rural Areas							
No	92	92.9	7	7.1	1	Reference	
Yes	99	82.5	21	17.5	2.788	1.132	6.866
Being Female							
Yes	79	94	5	6	1	Reference	
No	110	82.7	23	17.3	3.304	1.204	9.065
Political Concern							
Yes	116	93.5	8	6.5	1	Reference	
No	78	79.6	20	20.4	3.718	1.56	8.863
No Exposure to Rural Areas							
Yes	101	94.4	6	5.6	1	Reference	
No	95	81.2	22	18.8	3.898	1.515	10.031

Therefore, the factors which had significant correlation with willingness to work in peripheral settings were sex, no exposure previously to rural areas, political concern such as security, being female, conducive environment to run personal business in rural areas, losing current income, like and loving rural climate and environment.

Discussion

Rapid turnover and vacancy of main positions in public health officials such as provincial health officers and clinical staff including physicians and female medical doctors in rural health centers is an enduring problem in Afghanistan. There are many reasons for this problem (tables 2-4).

Insecurity has been a constant challenge with significant impact on rural recruitment and retention. Majority of the students in medical universities and institutions have an urban background with a source of income, therefore, after graduation they like to be settled in health centers and hospitals which are located in capital of provinces (urban setting). Due to urbanization the big cities are crowded and polluted, therefore some of the health workers raised the issue of good environment of rural areas which everyone loves to live and work. Due to cultural factors the condition is challenging for females to work in rural areas alone or without family. Mostly half of graduated health workers were single; therefore, it is quite tough for them to be deployed in rural areas where security is a concern. Likewise, the problem of unwillingness to work in rural areas and clustering in big cities have been a global phenomenon. The findings are consistent with studies in Bangladesh, Nicaragua, India, Cambodia, Pakistan, United States, Croatia, Hungary, and Tanzania (6-13). In order to maximize the availability of health workers in rural areas following strategies are recommended that are supported generally in different settings.

Education and Training Program: establishment of public training institutions attached with hospitals out of cities followed by obligatory rural service is helpful in improvement of rural access to health workforce. Experiences shows rural training experiences and post graduate training programs encourage a desire to pursue a medical career in a rural area (47-52). Educational interventions called "rural pipeline" to target recruitment from rural areas (53), opportunities for advanced training (54), rural subsidized training, education schemes and expanding curricula to include coverage of rural health topics, recruitment and admission of medical school students from rural backgrounds (48), are found to be very effective interventions (55).

Enforcement of rules and regulations: regulatory interventions compulsory service requirements attached with financial and professional incentives would be fruitful as part of national policies. In addition, compulsory two-year service in rural area with priority of post graduate is practiced in Afghanistan and elsewhere (55-56).

Motivation packages and financial incentives: interventions that are combined and well planned with financial incentives can contribute to proper distribution and retention in rural and underserved areas. Introduction of contracting system, doubling wages in areas outside the capital have increased willingness to work in rural areas (57-59). Suitable packages such as higher salary, favorable housing loans and different types of allowances scheme has encouraged professional health workers to remain at rural facilities (60).

Improvement of living condition: despite of financial incentives some non-financial incentives such as improving of living conditions are valued by health workers. High quality living conditions (30, 40 and 58), care to living environment, transportation services, social services, telecommunications, sanitation and other facilities could improve rural recruitment and retention (42).

Improvement of work climate: improving working conditions, including safety, sound infrastructure, professional networks, and public recognition mechanisms will encourage health workers (14 and 42) to remain in rural settings. So there is a need to invest not only in health workers but in health facilities, by ensuring regular medical supplies and upgrading facilities and improving working conditions (30). Appropriate equipment in health facilities with suitable technology would improve practice out of cities (10, 55).

Focusing on human resource management: appropriate management of health workforce will improve the availability of human resource in rural and remote areas. Continuous career development (40), supportive supervision (14, 30), motivational factors, delegation of functions and decreasing workload has been useful in this regard.

In nutshell, taking into account the findings there is a need to focus both the needs of the population and the expectations of health workers for appropriate planning and distribution of health workforce (30). A set of intervention such as education facilities, regulatory framework, financial incentives, personal and professional support could be packaged, because the most effective intervention does not work in isolation (48).

Conclusion

Health workforce as part of building blocks of health system is very essential in access to quality healthcare everywhere including Afghanistan. No doubt, there is a dire need for sufficient numbers of rural health workers with the appropriate skills to meet the health requirements of people in rural and remote areas. Willingness to work or not work in

rural areas are backed by various factors which are not much different from other countries. The current shortage of health workers in rural settings to deliver quality health services could be modified if we are designing tailor made strategies and offering appropriate packages. In order to tackle the problem various interventions have been recommended, which are planned and evaluated in developing countries, could be included in remedial packages. Addressing rural and remote health workforce shortages requires multi-pronged and joint efforts at national and local levels.

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Prevalence of anemia among pregnant women in their 3rd trimester: results from a tertiary hospital in Kabul

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ABSTRACT

Background: Anemia is a common condition during pregnancy. This study was conducted to estimate the mean hemoglobin level and prevalence of anemia among pregnant women in their 3rd trimester who came for delivery to a tertiary public hospital in Kabul, Afghanistan.

Method: A cross-sectional study was conducted in the maternity ward of Isteqlal hospital using random sampling method. Data were collected through interview with 623 pregnant women at their 3rd trimester, who came for delivery. Hemoglobin level was measured in mg/dl from collected blood samples along with demographic as well as economic and pregnancy related variables.

Results: Mean hemoglobin level among our study population was 10.6mg/dl (SD=1.6), and anemia prevalence was 45.3%. Mean age was 26 (SD=5.9). Anemia prevalence was 50% both among illiterate and poor economic groups. Anemia prevalence was 54% among those with more than 4 pregnancies. 54% of those with previous miscarriage were anemic. About 70% of those with no antenatal care were anemic. Anemia prevalence was highest (68%) among those who reported no iron/folate supplement intake.

Conclusion: In our study mean hemoglobin level among pregnant women in their 3rd trimester was below the lower limit of normal hemoglobin among pregnant women, and about half of women in our study were anemic, which show the severity of this condition. Anemia was more prevalent in low literacy and poor economic status groups which shows the significance of these factors in developing anemia among pregnant women. Anemia prevalence was high among those with no antenatal care and those who did not receive iron/folate supplement. Provision of iron/folate supplements may significantly decrease the anemia prevalence among pregnant women in short term, while increasing literacy level of girls and women may have a significant effect in the long term.

Keywords: Prevalence, Anemia, Pregnant, Women, Kabul, Tertiary Hospital

چکیده

پس منظر: کمخونی یکی از مشکلات معمول در زمان بارداری میباشد. این تحقیق برای تخمین شیوع کمخونی و اوسط میزان هیموگلوبین نزد خانم های حامله که برای ولادت به یکی از شفاخانه های ثالثی در کابل مراجعه مینمایند، صورت گرفت.

میتود: این تحقیق به روش مقطعی در وارد ولادی شفاخانه استقلال کابل با استفاده از شیوه نمونه گیری تصادفی انجام شد. ارقام به وسیله مصاحبه با ۶۲۳ خانم باردار در ترایمستر سوم که برای ولادت به این شفاخانه مراجعه نموده بودند، جمع آوری گردید. میزان هیموگلوبین به میلی گرام فی دیسی لیتر و سایر متغیرات دیموگرافیک، وضعیت اقتصادی و موارد مرتبط به بارداری جمع آوری شد.

نتایج: در نفوس تحت مطالعه ما اوسط میزان هیموگلوبین ۱۰.۶ میلی گرام فی دیسی لیتر (انحراف معیاری ۱.۶) و شیوع کمخونی ۴۵.۳٪ دریافت گردید. اوسط سن مادران ۲۶ سال (انحراف معیاری ۵.۹). شیوع کمخونی در گروه های بیسواد و اقتصاد ضعیف ۵۰٪ بود. شیوع کمخونی در خانم های که بیشتر از ۴ بار باردار شده بودند، ۵۴٪ دریافت شد. از جمله خانم های که قبلاً سقط داشتند ۵۴٪ شان کمخون بودند. در حدود ۷۰٪ خانم های که مراقبت های قبل از ولادت دریافت ننموده بودند کمخونی داشتند و شیوع کمخونی نزد خانم های که متمم آهن/فولیک اسید نگرفته بودند، خیلی بلند (تقریباً ۶۸٪) دریافت گردید.

نتیجه گیری: در این تحقیق دریافت گردید که اوسط میزان هیموگلوبین در خانم های باردار در ترایمستر سوم کمتر از پایینترین حد میزان نورمال هیموگلوبین برای زنان باردار بوده و در حدود نصف خانم های شامل مطالعه کمخونی داشتند، که نیاز به اقدام جدی در این مورد را برجسته میسازد. شیوع کمخونی در گروه های با سطح پایین سواد و وضعیت خراب اقتصادی بیشتر به ملاحظه رسید، که اهمیت این عوامل را بالای ایجاد کمخونی در خانم های باردار نشان میدهد. شیوع کمخونی نزد خانم های که مراقبت های قبل از ولادت و متمم آهن/فولیک‌اسید دریافت ننموده بودند، بلند بود. فراهم آوری متمم آهن/فولیک اسید میتواند در کوتاه مدت شیوع کمخونی نزد خانم های باردار را به طور قابل ملاحظهٔ کاهش دهد، در حالیکه افزایش سطح سواد نزد دختران و زنان میتواند در این راستا در دراز مدت تأثیر چشمگیر داشته باشد.

کلمات کلیدی: شیوع، کمخونی، باردار، زنان، کابل، شفاخانه ثالثی

Introduction

During pregnancy, the fetal demand for iron increases maternal daily iron requirements from ~1 to 2.5 mg/day in early pregnancy and 6.5 mg/day in the third trimester (1).

The mean hemoglobin concentration among pregnant women in Central Asia, Middle East, and North Africa is reported 11.7 mg/dl and anemia prevalence 31.4% (2). According to World Health Organization (WHO), anemia is particularly prevalent during pregnancy (3). In developing countries, the prevalence of anemia in pregnancy averages 56%, ranging between 35% and 75% among different regions of the world (4).

In a study, the mean hemoglobin concentration in women aged 20 to 49 years was reported 13.6 g/dl with standard deviation of 0.86 by Scripps-Kaiser and NHANES III (5). According to WHO guidelines, prevalence of anemia among pregnant women is 41.8% and 11 g/dl is determined as the lower limit for normal hemoglobin level in pregnant women (6). Another study reports that the prevalence of anemia among pregnant women as 34.4%, and it showed association between anemia and multiparity (7). In a case control study conducted in Iran, the overall prevalence of anemia during pregnancy was found to be 8.6% (8).

A survey conducted in India on married women indicated that moderate-to-severe anemia was about 32.4% in rural and 27.3% in urban areas; pregnancy duration was a significant risk factor (9). In a study to determine anemia prevalence in an urban community in Pakistan, prevalence of anemia was found 90.5%; from whom 75% had mild, 14.8% had moderate and 0.7% had server anemia (10).

Afghanistan is a developing country and has suffered from three decades of conflicts. The unfavorable economic and social condition in the country has affected the nutritional status of the people, and a higher rate of anemia is expected among its people, especially pregnant women.

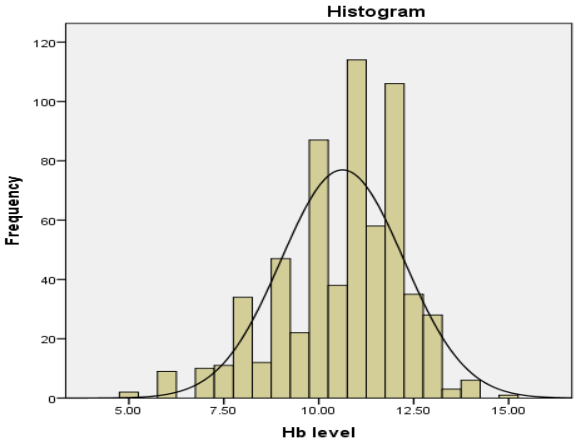
Also, traditionally Afghan women bear more children with shorter interval between pregnancies, which is one of the contributing factors for anemia. Very limited data have been available on anemia status of pregnant women in Afghanistan. In a survey, the prevalence of anemia among pregnant women in Afghanistan was reported 61% (11).

Therefore, this study was designed with the aim to estimate the prevalence of anemia among pregnant women who come for delivery in maternity ward of one of the tertiary public hospitals in Kabul, capital of Afghanistan; and ultimately producing evidence for developing measures to reduce morbidity and mortality associated with anemia.

Methods

A descriptive cross-sectional study was conducted in the maternity ward of Isteqlal hospital. In this study, data was collected through interview with pregnant women at their 3rd trimester, who come to maternity department of Isteqlal hospital for delivery.

Study Population and Sample: Our study population were the pregnant women in their 3rd trimester who came for delivery to Isteqlal hospital.



The sample size was calculated for 95% confidence level and 5% band or error, and the minimum calculated sample size was 614; we collected data using the questionnaire developed for this purpose on 660 pregnant women who were in their 3rd trimester of pregnancy and came to our hospital for normal delivery, as we expected 95% response rate. After data cleaning and validation, 623 questionnaires were selected for data analysis.

Variables and data collection: The data were collected using a structured demographic data as well as economic status, number of pregnancies, average interval between pregnancies, antenatal care, nutritional status and hemoglobin level were recorded in the questionnaire. Hemoglobin level was collected from the laboratory reports attached with the patient files. The laboratory determines the Hb level using Micro-Lab automated hematology analyzer in mg/dl. As soon as sufficient number of questionnaires was filled out, data entry was started in SPSS 17.

Results

Totally we collected data and hemoglobin for 623 pregnant women in this hospital. The mean age of our study population (pregnant women in their 3rd trimester) was 26 years (SD=5.9). More than half of these fall in the 18 to 25-year-old group. Anemia prevalence was almost similar in all age groups (42-46%).

The mean hemoglobin level among our study population was 10.6 mg/dl (SD=1.6) with minimum of 5 mg/dl and maximum of 15 mg/dl. Taking into account the threshold of 11 mg/dl as borderline for anemia, the prevalence was 45.3%.

The mean hemoglobin level in our study was 1mg/dl lower than mean hemoglobin level among pregnant women in Central Asia, Middle East, and North Africa and almost 3mg/dl less than hemoglobin level among adult women aged 20-49 (P<0.001).

More than half of the study population were illiterate, and only ~2% of them had higher education. Anemia prevalence in illiterate group was more than 50% while among literates this figure was 38% (P<0.005). Most of the study population (75.4%) had a poor economic status (monthly income of AFN 15,000 and less) around half of the poor economic groups were anemic.

Almost 70% of our study population had protein and fruit in their diets once or twice in a week. In the study, it was found that the lower the weekly protein and fruit intake, the higher was the anemia prevalence (please see table 1).

Almost 2/3 of the study population (70.6%) had become pregnant more than 2 times. The more the frequency of pregnancies, the higher was anemia prevalence. Forty two percent of our study population had 1-2 years interval between their pregnancies, while a significant number of them (29.4%) were primiparous women.

Anemia prevalence among primiparous women was lowest (31%) in the study, while in those with 1-2 years and 2-4 years interval between two consecutive pregnancies, this rate was a little more than 50%. However, in the >4 years group the anemia prevalence was also low (38%), but the number of participants in this group was very low. A significant proportion (34%) of the study population had miscarriage in their previous pregnancies and 54% of those with previous miscarriage and 41% of those without previous miscarriage had anemia.

Almost 90% of the study population had antenatal care visits during their pregnancies, of whom 37% had 2-4 antenatal care visits. Anemia prevalence was very high (70%) among those with no antenatal care visit, while the prevalence rate declined with increased antenatal care visits. Anemia prevalence was 34% among those with first antenatal care visit in their first trimester of pregnancy while this rate was 63% among those with first antenatal care visit in their third trimester of pregnancy.

Anemia prevalence was lowest (28%) among those who reported regular use of iron/folate supplement, while it was highest (68%) among those who reported no iron/folate supplement intake; it was 44% among those with irregular use of iron/folate supplement (see table 2).

Discussion

The results show that mean hemoglobin level among study population was 10.6mg/dl, which, according to WHO/CDC guidelines (6), is below the lower limit of normal value for pregnant women (11g/dl). Also, the mean hemoglobin level in the study population was found lower than mean hemoglobin level among pregnant women in Central Asia, Middle East, and North Africa which was reported 11.7 mg/dl (2). Also, the results show that anemia prevalence was 45.3%, which is higher than anemia prevalence among pregnant women in Central Asia, Middle East, and North Africa which (31.4%), but comparable to the prevalence of anemia in pregnancy in developing countries which averages 56%, and in WHO guideline (41.8%).

Most of the study population came from urban areas, and this is not surprising because our study was conducted in a tertiary hospital located in the capital of the country; but there was a slight difference in anemia prevalence between rural and urban groups.

However, according to Afghanistan Central Statistics Office, two-third of country's population live in rural areas (12) where healthcare facilities are scarce and majority of women deliver at home; and considering the poor socio-economic conditions of the country, especially rural areas, the actual anemia prevalence at the national level may be higher.

Around half of the poor economic groups (monthly income AFN 15,000 and less) were anemic. Monthly income affects purchase power of the household for food, especially protein and iron-rich food; and according to the study findings, the lower the weekly protein and fruit intake, the higher was the anemia prevalence.

The findings of the study show that more than half of our study population (pregnant women) were illiterate, and only ~2% of them had higher education; anemia prevalence in illiterate group was more than 50%. Low literacy level can have a negative effect on food quality and hygiene which in turn may, among other problems, result in anemia (13).

Based on the findings of the study, almost 2/3 of the study population (~70%) had more than 2 pregnancies; and the more the number of pregnancies, the higher was anemia prevalence. Also, around half of the women in the study had 1-4 children; anemia prevalence was higher in those who had more alive children. Furthermore, around 50% of women who had 1-2 years and 2-4 years interval between their two pregnancies were anemic. During pregnancy fetus has high demand for nutrients that come from mother's body which in turn increases the nutritional requirements of pregnant women. Also, women are more likely to have low iron stores than men because of blood loss during menstruation. Therefore, having more children may deplete iron stores of women, and make them more susceptible to anemia (7).

More than half (~54%) of those with previous miscarriage had anemia, while 41% of those with no history of previous miscarriage had anemia. Miscarriage is often associated with blood loss – an important risk factor in anemia (14).

Anemia prevalence was found very high (70%) among those with no antenatal care visit, while the prevalence rate declined with increased antenatal care visits.

Also, anemia prevalence was lowest (28%) among those who reported regular use of iron/folate supplement, while it was highest (68%) among those who reported no iron/folate supplement intake. Antenatal care and iron supplementation during pregnancy is reported to be associated with lower rate of anemia (15).

Conclusion

From the findings of the study, it can be concluded that mean hemoglobin level among pregnant women in their 3rd trimester was below the lower limit of normal hemoglobin among pregnant women, and about half of women in the study were anemic.

Anemia was more prevalent in low literacy and poor economic status groups which shows the significance of these factors in developing anemia among pregnant women. Anemia prevalence was high among those with no antenatal care and those who did not receive iron/folate supplement. Provision of iron/folate supplements may significantly decrease the anemia prevalence among pregnant women in short term, while increasing literacy level of girls and women may have a significant effect in the long term.

As our study was limited to a tertiary government hospital in an urban center and only to 3rd trimester of pregnancy, a wider study is required to determine the anemia prevalence and its risk factors among pregnant women in the country.

Table 1: Anemia Prevalence According to Demographic, Economic and Nutritional Status, Isteqlal Hospital, 2016					
Variables	**Anemic**		**Not Anemic**		**Total**
	N	**%**	**N**	**%**	
Total					
Age group					
<18	6	46	7	54	13
18-25	121	42	167	58	288
26-35	133	49	141	51	174
36-45	22	46	26	54	48
Residence					
Urban	224	46	258	54	482
Rural	58	41	83	59	141
Literacy					
Illiterate	180	50	173	50	358
Primary Education	70	38	113	62	183
Secondary Education	27	40	41	60	68
University and over	5	36	9	64	14
Economic Status (in AFN)					
<5000	81	45	98	55	179
6-15000	147	51	144	49	291
16-25000	39	33	79	67	118
26-45000	7	30	16	70	23
>45000	8	67	4	33	12
Weekly Protein Intake					
None	69	68	32	32	101
Once	119	46	138	54	257
Twice	68	35	126	65	194
More than Twice	26	37	45	63	71
Weekly Fruit Intake					
None	43	61	28	39	71
Once	104	49	109	51	213
Twice	77	41	109	59	186
More than Twice	58	38	95	62	153

Table 2: Anemia prevalence according to pregnancy related characteristics, Isteqlal Hospital, 2016					
Variables	**Anemic**		**Not Anemic**		**Total**
	N	**%**	**N**	**%**	
Parity					
1	57	31	126	69	183
2-4	108	49	114	51	222
>4	117	54	101	46	218
Interval Between 2 pregnancies (years)					
Primiparous	57	31	126	69	183
≤1	55	51	53	49	108
1-2	135	51	129	49	264
2-4	32	53	28	47	60
>4	3	38	5	62	8
Previous Miscarriage					
Yes	113	54	98	46	211
No	169	41	243	59	412
Antenatal Care Frequency					
None	42	70	18	30	60
<2	130	52	121	48	251
2-4	82	35	149	65	231
>4	28	35	53	65	81
First Antenatal Care					
None	42	70	18	30	60
First Trimester	83	34	162	66	245
Second Trimester	84	41	119	59	203
Third Trimester	73	63	42	37	115
Iron/Folate supplement intake					
None	80	68	38	32	118
Regular	49	28	126	72	175
Irregular	114	44	143	66	257
Not known	39	53	34	47	73

Conflict of Interest

The authors declare that there is no conflict of interest in this paper.

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Assessment on Capacity of Public Laboratories, Afghanistan, 2017

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ABSTRACT

Background: Laboratory services are essential and fundamental for health systems. Prevention and management of infectious and communicable diseases requires accurate laboratory diagnostic information. According to a study on investment opportunities in Afghanistan medical Laboratories by AISA (Afghanistan Investment Support Agency) there are main challenges that patients face daily, also the hardships and daily expenditure of patients going abroad for treatment, procedures are available, but only 60% of patients' demands are met. This survey shows procedures are available in about 10% of the hospitals.

Objectives: To determine the capacity, performance, methods, the reasons for not checking other laboratory exams in public hospitals in Afghanistan;

Methods: This study is cross sectional and conducted between October - December 2016 in 34 provinces including 4 regional labs & central public health laboratories was assessed. The data collected by Surveillance provincial officers, reviewed for completeness and understandability. For analysis we used descriptive, analytical, stratified, multivariate approaches.

Results: For hematologic tests public labs were 84% & regional laboratories 78%; for biochemistry tests public labs were 64% & regional laboratories 74%; for microscopic tests public labs were 62% & regional laboratories were 67%; for PCR tests public labs were 9% & regional laboratories were 40%; in rapid diagnostic test, public labs were 65% & regional laboratories are 76%; for ELISA tests in public labs were 3% & regional laboratories were 22%; and for bacteriologic culturing in public labs were 16% & regional laboratories were 22%, responsive to the patients demand. Finally, the public laboratories are 39% & regional laboratories are 76% respondent to patients' demand around the country.

Conclusion: No equitable laboratory services at all level, EPHS laboratory services are not similar, and the rural and remote population have difficulties with laboratory services and cannot provide the demands of community. For strengthening of laboratories, Ministry of Public Health, public health programs, world health organization, other departments within the government and private sector, donors and other potential organizations, e.g., news organizations should improve, investment opportunity, and strength this section in Afghanistan public laboratories.

Keywords: Assessment; Lab capacity; Afghanistan; Public hospitals; 2017

چکیده

پس منظر: خدمات لابراتواری، بنیاد و اساس خدمات صحی را تشکیل داده که جهت وقایه و کنترول انتانات و امراض ساری، موجودیت خدمات تشخیصیه لابراتواری دقیق ضروری میباشد. به اساس یک تحقیق روی فرصت های سرمایه گذاری در بخش خدمات طبی لابراتواری که توسط اداره محترم آیسا یا اداره حمایت از سرمایه گذاری صورت گرفته است، یکی از چالش های عمده که روزانه مریضان به آن مواجه اند خدمات لابراتواری طبی میباشد که زحمات و مصارفاتی را که مریضان جهت دریافت خدمات تشخیصیه و معالجوی به خارج از کشور متقبل میشوند، نیز از همین جهت میباشد. به اساس این تحقیق پروسیجر ها موجود بوده اما صرف ۶۰ فیصد از تقاضا های مریضان را برآورده میسازد. این تحقیق نشان میدهد که پروسیجر ها صرف در ۱۰فیصد از شفاخانه موجود میباشد.

میتود: یک تحقیق مقطعی بوده که بین ماه های اکتوبر الی دسمبر ۲۰۱۶ صورت گرفته است. در این تحقیق، تمامی ۳۴ ولایت افغانستان به شمول ۴ لابراتوار حوزوی و لابراتوار های مرکزی وزارت صحت عامه ارزیابی گردیده اند. ارقام مورد نیاز توسط مسوولین ولایتی سرویلانس جمع آوری گردیده و جهت تکمیل بودن و موثق بودن تحت مرور قرار گرفته است. دلایل عدم اجرای بعضی معاینات، کمبود وسایل تشخیصیه،

پیشنهادات لابراتوار های متذکره و غیره مورد پرسش قرار گرفته واز طریقه های تشریحی، تحلیلی، طبقوی و چندین متغیره ارزیابی، کار گرفته شده است.

نتایج: در اجرای معاینات هماتولوژیک، لابراتوار های عامه ۸۴ فیصد و لابراتوار های حوزوی ۷۸ فیصد؛ در اجرای معاینات بیوشیمیک، لابراتوار های عامه ۶۴فیصد و لابراتوار های حوزوی ۷۴ فیصد؛ در اجرای معاینات مایکروسکوپیک، لابراتوار های عامه ۶۲ فیصد و لابراتوار های حوزوی ۶۷ فیصد؛ در اجرای معاینات **PCR**، لابراتوار های عامه ۹ فیصد و لابراتوار های حوزوی ۴۰ فیصد؛ در اجرای معاینات سریع تشخیصیه، لابراتوار های عامه ۶۵ فیصد و لابراتوار های حوزوی ۷۶ فیصد؛ در اجرای معاینات **ELISA**، لابراتوار های عامه ۳ فیصد و لابراتوار های حوزوی ۲۲ فیصد و در اجرای معاینات کلچر باکتریولوژیک، لابراتوار های عامه ۱۶فیصد و لابراتوار های حوزوی ۲۲فیصد پاسخگو به تقاضا های مریضان میباشند. در نهایت لابراتوارهای عامه در سطح کشور ۳۹فیصد و لابراتوار های حوزوی ۶۷ فیصد پاسخگو به تمامی تقاضاها و ضروریات مریضان میباشند.

نتیجه گیری: خدمات لابراتواری در تمامی سطوح یکسان و عادلانه نبوده و لابراتوار های EPHS یا خدمات اساسی شفاخانه یی در تمامی کشور همسان نمیباشد. اهالی ساحات دور دست و روستانشینان کشور از نگاه خدمات لابراتواری به مشکلات مواجه بوده و تقاضا های جوامع ازین نگاه برآورده نمیشود. جهت بهتر شدن عرضه خدمات لابراتواری، وزارت صحت عامه، برنامه های صحت عامه، سازمان صحی جهان، ادارات مرتبط دولتی، سکتور خصوصی، تمویل کنندگان، سازمان های تاثیر گذار دیگر مانند سازمان های خبری و مطبوعات، باید در قسمت بهتر شدن و زمینه سازی فرصت های سرمایه گذاری در بخش لابراتوار های عامه همکاری و تلاش نمایند.

Introduction

Better health is key for sustainable economic and social development. But it's clear that we need major changes if we are to reach up to the standards already achieved by regional countries. Ministry of public health, National health strategy (NHS) 2016–2020 will ensure institutionalization of the required capacity and provision of necessary tools for this purpose. Strategic and effective use of information technology to promote public health will be prioritized under the NHS 2016–2020. Strengthen the laboratory capacity to rapidly confirm any emerging infectious diseases (EIDs) is an important issue in this strategy.

Our aim must be to keep people from going abroad for treatment and get them better treatment at home. According to a study by AISA (Afghanistan Investment Support Agency) investment opportunities in Afghanistan medical Laboratories (1), there are main shortages and challenges that patients face daily. Also the hardships and daily expenditure of patients going abroad for treatment must be brought into the attention of the investors.

Procedures like labs, ultrasound, operation theatres etc. are available, but according to this study data, only 60% of patients' demands are met. The mentioned study shows procedures such as dialysis, laparoscopic operations, neurosurgeries etc. are available in about 10% of the hospitals with hardly any satisfaction.

Laboratory services are an essential and fundamental part of all health systems. Reliable and timely laboratory tests are at the center of the efficient treatment of patients. Moreover, prevention and management of infectious and communicable diseases requires accurate laboratory diagnostic information. Many therapeutic decisions rely heavily on data from health laboratories and, at the time of disease outbreaks or other public health events, laboratories are at the very heart of the public health investigation and response mechanisms. Today's world cannot afford unreliable laboratory results, wasting precious time, precious samples, and too often, precious lives.

Regional and provincial-level hospitals show very little utilization of laboratories for public health testing. The central level also suffers from the absence of entomologists, microbiologists, and virologists. Surveillance currently is missing from the official PPHO structure. The overall surveillance system is weak and thus ineffective. The system also does not come under the BPHS and EPHS contract; thus it is not an obligation of the implementing NGOs.

Laboratories offer their services to many clients: patients, physicians, or public health Programs for evidence based decisions. Many medical hospital, public health, and academic laboratories - be they public or private - contribute through their diagnostic activities to healthcare and public health improvement. In addition, animal health, food safety, and

environmental health laboratories' services contribute to healthcare and public health security. Therefore, many public health programs are conducting laboratory assessments for different purposes and objectives. Some assessments focus on technical capacities of a restricted number of laboratories, such as polio or measles reference laboratories in the scope of the WHO eradication programs.

Other initiatives are aiming at assessing laboratory services widely across a country for either specific diseases (e.g. HIV or tuberculosis control programs) or in a cross-cutting manner (e.g. laboratory assessments in the scope of the Service Availability and Readiness Assessment measurement[3], surveillance[4]).

Goal and objectives of the study:
Goal: To find and know available laboratory capacity in public hospitals in Afghanistan

Objectives:

- To determine the capacity and performance level of public laboratories in Afghanistan
- To assess the current status of the laboratory service on performing tests for the NDSR target disease
- To determine the functionality of laboratories services in the public laboratories
- To provide scientific information for decision making on strengthening laboratory services

Moreover, the International Health Regulations (IHR), adopted by the World Health Assembly in 2005, have placed specific responsibilities on WHO member states for building and strengthening national capacities for the surveillance, detection, assessment, early notification and response to disease outbreaks and other emergencies of potential public health concern.

Methods

This was a cross sectional study conducted between October to December 2016. The study was technically supported by National Disease Surveillance and Response (NDSR) and World Health Organization (WHO) and the financial support was provided by Afghan Tajik FETP program lead by CDC Atlanta.

The data was collected by NDSR provincial officers in 34 provinces of Afghanistan including four regional laboratories, which are supported by Global Fund. A structured close ended questionnaire was used for data collection. The officers were trained on data collection method and questionnaires.

The study was conducted in 36 public health labs in 34 provinces of Afghanistan, including 25 provincial hospitals, four regional hospitals, four regional labs, one district hospital, one comprehensive health center and central public health laboratories of Afghanistan. These were public health laboratories with highest volume of clients in the country. The study was done by surveillance/NDSR national team and provincial officers.

The data is analyzed in two categories for all laboratories:

- All 35 laboratories analyzed together
- Then CPHL and 4 regional labs excluded from total labs and analyzed separately

The **table 1** shows the test categories and laboratory test which are observed and asked during study:

Table 1: Test categories and lab tests				
N	**Test Category**	**Number of Tests**	**Test name**	**Total score**
1	Hematologic tests	9	Full blood Count, Hemoglobin, WBC, RBC, Hematocrit, Platelet, Red cell indices, Total lymphocyte, and WBC differential count	9
2	Biochemistry tests	14	SGOT(serum glutamic-oxaloacetic transaminase), SGPT(Serum glutamic pyruvic transaminase), Alkaline phosphatase, Bilirubin, Total protein, Albumin, Globulin, Renal function test, Urea /BUN, Creatinine, Glucose, Cholesterol, Triglyceride and Electrolytes	14
3	Microscopic tests	8	Urine analysis , Urine microscopy, Stool exam, Malaria, Plague, Neisseria, Meningitis & Shigellosis	8
4	PCR Machine availability and tests	11	Influenza A/B, Hepatitis A, Hepatitis B, Hepatitis C and Hepatitis E	11
5	Rapid diagnostic test	11	Malaria, Widal test, Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis E, Pregnancy Test, Brucellosis, HIV, Influenza A&B And Syphilis	11
6	ELISA machine availability and test	11	Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis E, Measles, Rubella, CCHF, Dengue, Brucellosis, Rota Virus and Chicken pox	11
7	Bacteriologic culturing and drug sensitivity	9	Typhoid, Cholera, Shigellosis, Brucellosis, Meningitis, Pertussis, Gram Stain for bacteria, Bacilli Anthrax, Bacteria culture/sensitivity	9

The functionality of the lab for each above test category was determined by: Number of test performed /Total required test x 100

After analyzing data, the laboratories performance in term of their functionality was categorized into three levels:

Those laboratories which performed most of required Lab tests (75-100%) were considered as the highest functionality level

Those laboratories which performed required lab tests at the medium level (50-74%) were considered as the medium functionality level

Those laboratories which performed the required labs tests at low or poorly level (0- 49%) were considered as the poor functionality level

The study also found the reasons of why the laboratories were not able to perform the required lab test for communicable disease. In addition, we also discussed the system issues and gaps on performing lab testing in the public health laboratories.

Results

Overall Functionality of Public Laboratories:

Hematologic tests: About 63% of lab studied indicates the highest functionality level, while 31% of them were categorized in the medium functionality level. Only 6% of provinces had poor functionality level on performing the hematologic test. Overall, all studied labs were able to perform 84% of required hematologic tests and 84% were responsive to the patients' demand.

Biochemistry tests: Almost less than half of provincial laboratories (49%) had the highest functionality level, 23% with medium level functionality and 29% of provincial laboratories are had poor functionality in performing the biochemistry tests. Totally these labs are responsive to 64% of patients' demand.

Microscopic tests: For doing the microscopic tests, 23% of provinces are with high level functionality, 63% with medium level functionality and 14% of provinces are with poor functionality. In this area, they are responsive to 62% of patients' demand.

PCR Machine & tests: Eighty percent of the provinces do not have access to the PCR Machine and only 20% of provinces have this machine, of which just 3% of required tests are performed at high functionality level, 3% of tests are performed at medium level & 94% of tests are not performed. Totally these labs are responsive to 9% of patients' demand.

Rapid diagnostic test: The rapid diagnostic test is performed with highest level of functionality in 11% of provincial laboratories, with medium level of functionality in 80% of laboratories and with poor level of functionality in 9% of public health laboratories. Totally these labs are responsive to 65% of patients' demand.

Rapid diagnostic test are available just in 11 percent of laboratories with high level functionality

ELISA machine & tests: Just 17% of provinces have access to ELISA machine, while 83% of provinces do not have access to the ELSIA machine. Among them, 3% of them are able to test at medium level, while 97% of laboratories' tests are performed at poor level & these labs are responsive to 3% of patients' demand.

Bacteriologic culturing: For the bacteriologic culturing, 46% of provinces have the machine, while 54% of provinces do not have access to this machine. Of this 46% of provinces, only 6% of them can culture required tests at highest level, 11% at medium level and 83% at poor level. So these labs are responsive to 16% of patients' demand.

And finally according to this study, the public laboratories are responsive to only 39% of patients' demand at the country level. For details and verification of data please refer to table (2)

The provincial public laboratories are responsive to only 39% of patients' demand at national level.

Figure 1: Proportion of required test performed by provinces, regional and central public labs

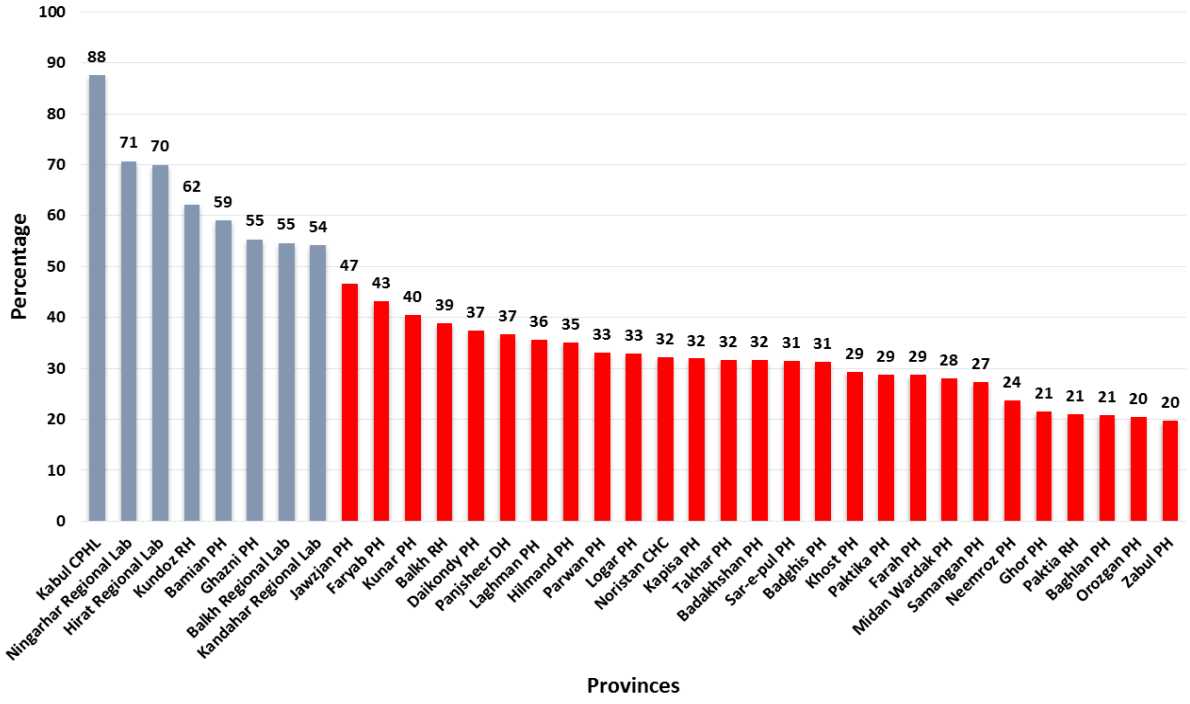


Table 2: The score card of laboratories in selected laboratories

Provinces	Hematology	Biochemistry Test	Microscopic test	PCR Functionality	PCR Tests	Rapid diagnositic tests	ELISA Functionality	ELISA Tests	Bacteriology Functionality	Culture (Bacteriology)
Badakhshan PH	100	86	57	0	0	73	0	0	0	0
Badghis PH	67	14	57	0	0	64	0	0	100	11
Baghlan PH	78	14	43	0	0	73	0	0	0	0
Balkh Regional Lab	0	0	0	100	100	73	100	18	100	56
Balkh RH	56	86	43	0	0	36	0	0	100	67
Bamian PH	100	93	86	100	40	73	0	0	100	0
Daikondy PH	44	71	86	0	0	73	0	0	100	0
Farah PH	78	79	57	0	0	73	0	0	0	0
Faryab PH	100	93	57	100	0	82	0	0	0	0
Ghazni PH	56	57	57	100	20	64	100	0	100	0
Ghor PH	100	71	43	0	0	0	0	0	0	0
Hilmand PH	100	71	57	0	0	0	0	0	100	22
Hirat Regional Lab	100	93	71	100	0	91	100	0	100	44
Jawzjan PH	100	79	57	0	0	64	0	0	100	67
Kabul CPHL	100	100	100	100	40	73	100	64	100	100
Kandahar Regional Lab	100	93	86	0	0	64	0	0	100	100
Kapisa PH	89	71	86	0	0	73	0	0	0	0
Khost PH	89	93	57	0	0	55	0	0	0	0
Kunar PH	100	79	71	0	0	55	0	0	100	0
Kundoz	100	100	57	100	0	64	100	0	100	0
Laghman PH	100	79	86	0	0	91	0	0	0	0
Logar PH	100	93	71	0	0	64	0	0	0	0
Midan Wardak PH	100	50	57	0	0	73	0	0	0	0
Neemroz PH	78	29	57	0	0	73	0	0	0	0
Ningarhar Regional Lab	89	86	86	0	60	82	100	27	100	78
Noristan CHC	89	14	43	0	0	64	0	0	100	11
Orozgan PH	67	7	57	0	0	73	0	0	0	0
Paktia	67	21	57	0	0	64	0	0	0	0
Paktika PH	100	57	57	0	0	73	0	0	0	0
Panjsheer DH	89	79	86	0	40	73	0	0	0	0
Parwan PH	100	100	57	0	0	73	0	0	0	0
Samangan PH	78	64	57	0	0	73	0	0	0	0
Sar-e-pul PH	67	36	57	0	0	55	0	0	100	0
Takhar PH	100	71	71	0	0	73	0	0	0	0
Zabul PH	67	0	57	0	0	73	0	0	0	0
Total functionality level of Laboratoreis at all levels in percentage										
Highest functionality	63%	49	23	20	3	11	17	0	46	6
Medium functionallity	31%	23	63	0	3	80	0	3	0	11
poor funtionality	6%	29	14	80	94	9	83	97	54	83

Functionality of public labs at the regional level: Besides separate analysis of provincial laboratories, four global fund supporting regional laboratories & central public health laboratories were assessed jointly. No reliable documents were found for regional laboratories to know the objective, priorities and requirements for these laboratories. The results of these labs are listed as following:

Microscopic tests: For the Microscopic tests, 80% of the regional labs have the highest level functionality, 20% of provinces had poor functionality and totally they are 78% responsive to patients' demand.

PCR machine & tests: Sixty percent of regional labs had PCR machine and other 40% of regional labs did not have the machine. Of these 60% regional labs with available machines, only 20% of required tests are performed at high functionality level, 20% of tests are performed at medium level and the remaining 60% of tests are performed with poor level functionality. In total, they are responsive to 40% patients' demand.

Rapid diagnostic tests: Forty percent of regional laboratories are able to perform the rapid diagnostic tests with high level functionality, 60% with medium level functionality and totally they are 76% responsive to patients' demand.

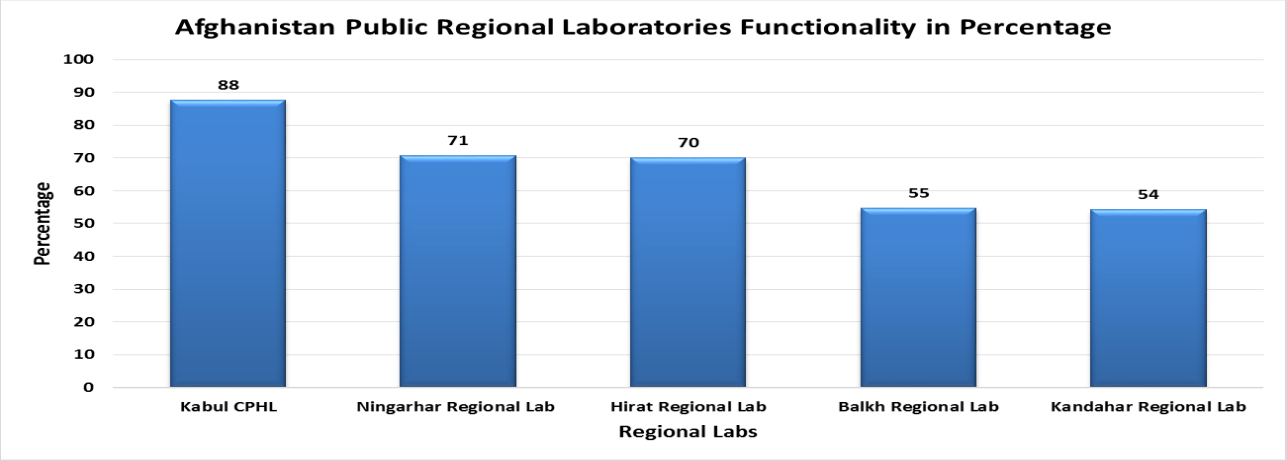
ELISA Machine & Tests: Eighty percent of regional labs have access to ELISA machine, while the other 20% of do not have access to ELISA machine. Of this 80% of regional labs, 20% of tests are performed at medium level and 80% of tests are either not performed or performed at poor level. Totally they are 22% responsive to the patients' demand.

Bacteriologic Culturing Machines & tests: All of the (100%) regional labs have bacteriologic culturing machine of which, 40% can culture with high level, 40% at medium level and the remaining 20% at poor level. Totally they are 22% responsive to patients' demand.

And finally according to this study, the public regional laboratories are responsive to only 67% of patients' demand around the country.

The public regional laboratories are responsive to only 67% of patients' demand around the country.

The PCR & ELISA tests are not performed in all regional labs, while it should be performed in all regional labs to be responsive to community demand.



Regional Labs	Hematology	Biochemistry Test	Microscopic test	PCR Functionality	PCR Tests	Rapid diagnositic tests	ELISA Functionality	ELISA Tests	Bacteriology Functionality	Culture (Bacteriology)
Kabul CPHL	100	100	100	100	40	73	100	64	100	100
Ningarhar Regional Lab	89	86	86	0	60	82	100	27	100	78
Hirat Regional Lab	100	93	71	100	0	91	100	0	100	44
Balkh Regional Lab	0	0	0	100	100	73	100	18	100	56
Kandahar Regional Lab	100	93	86	0	0	64	0	0	100	100
Total functionality level of Laboratoreis at regional level in percentage										
Highest functionality	80	80	60	60	20	40	80	0	100	40
Medium functionallity	0	0	20	0	20	60	0	20	0	40
poor funtionality	20	20	20	40	60	0	20	80	0	20

Discussion and Conclusion

This study is the first study on public laboratories capacity in Afghanistan, which will help all health related departments and donors to review and allocate their resources & strategies efficiently in this important section. According to the results, Central Public Health Laboratories as the national reference lab is the most active laboratory at the national level, after that Nangrahar regional lab, Hirat regional lab, Kundoz regional hospital, Bamyan provincial hospital, Ghazni provincial hospital, Balkh regional lab and Kandahar regional lab with medium level functionality are other active laboratories at the country. Other laboratories with poor level functionality are the weakest laboratories at the country. The strongest section in this report is the hematologic tests which are performed at most of laboratories while biochemistry tests are performed at poor level. The microscopic tests are performed at medium level functionality. PCR machines are not available at provincial level and at some regional hospitals. The PCR & ELISA tests are not performed in all regional labs, while it should be performed to be responsive to community's demand. Bacteriologic machines are available at medium level and they are culturing and testing at poor level.

The public laboratories are responsive to only 39% of patients' demand around the country and the public regional laboratories are responsive to only 67% of patients' demand around the country.

Main gaps for not testing were; updated tests like machines or reagents were not available, the available machines were not equipped properly, staff were not trained in the needed tests, shortage of enough space for lab machines and test and in some provinces due to no interest of high level management.

The main training requirements determined by the lab staff were bacteriologic, biochemistry, general lab reference, blood bank, serology, microbiology and hem analysis. This indicates that most of the lab technicians have problem with microbiologic or bacteriologic testing, while Afghanistan population suffer from burden of communicable and infectious disease. Also the shortage of the reagent was another reason for not performing the lab test.

Evidence from this study clearly indicates that the public laboratories are not responsive to the patients' needs, and public health programs. There is hug disparity among public health laboratory services at different level of the country. The rural and remote population have also difficulties with laboratories' services and they cannot meet the demand of the community.

The ministry of public health and its partners should revisit the public health labs and design effective and equitable public health labs strategies which are responsive to the public health programs.

The findings of this study can be used by surveillance directorate and other related departments of Ministry of Public Health to strengthen and improve the laboratory services & public health programs. The WHO can use the results for strengthening of IHR (International Health Regulations) activities in Afghanistan. As well, other departments within the government and private sector which are working in laboratories issue, donors and other potential organizations. Some limitations on data collection and other sections were observed during study. The data was collected based on report and not observed by professionals. Surveillance officers are in different level of education and some questions would be explained differently by them and some questions were not answered by lab authorities.

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Regional and provincial laboratories in charges Sayed Gawharshah Badakhshan province, Sadudin Badghis province, Abdulahmad Baghlan province, Sayed Tamim

Mirzada Balkh province, Fazel Rabi Balkh province, Shir Zaman Bamian province, Ali Reza Daikondy province, Zubair Ahmad Farah province, Besmillah Qanet Faryab province, Sayed Hosain Ahmadi Ghazni province, Abd Rahman Mohabbat Ghor province, Ezatullah Aman Hilmand province, Firoz Frotan Hirat province, Saadat Malok Jawzjan province, Faridullah Safi Kabul province, Sanaullah Kandahar province, Abd. Hadi Kapisa province, Jawad Khost province, Emran Kunar province, MohamadullH Sarwary Kundoz province, Karimullah Laghman province, Abd. Wahid Logar province, Awal Zaman Midan Wardak province, Amanullah Neemroz province, Dr. M. Asef Arab Ningarhar province, Abd. Basir Nooristan province, Zalmai Orozgan province, Wahidullah Paktia province, M.Naiem Paktika province, Shamsulhaq Panjsheer province, Abd. Mahmood Asadi Parwan province, Azad Khan Samangan province, Akbarzada Sar-e-pul province, Shahpoor Ahmad Fazly Takhar province, Amanullah Alokozai Zabul province.

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شیوع تومورهای خبیث کلیه در سه لابراتوار رفرنس پتالوژی شهر کابل

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چکیده
سرطان (کانسر) کلیه از جمله شایع ترین سرطانهای طرق بولی بوده که از نظر مطالعات هستولوژیک بیشترین واقعات آنرا Renal Cell Carcinoma (RCC) تشکیل میدهد و در درجۀ دوم Wilms Nephroblastoma قرار دارد. ازجملۀ RCC در حدود 65% آن Clear Cell Carcinoma است که در مردها نسبتاً معمول بوده که با بلندرفتن سن یعنی در دهۀ ششم و هفتم وقوعات آن بیشتر می گردد.

این تحقیق به روش Cross Sectional صورت گرفته، که طی آن تمام بیوپسی هاییکه در جریان سال های ۱۳۹۳ الی اخیر قوس ۱۳۹۶ به دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانه کیور و لابراتوار سیتی ارسال گردید، مورد مطالعه قرار گرفته است. پارچه های بیوپسی هم از نظر مورفولوژیک یا مکروسکوپیک و هم از نظر مایکروسکوپیک مطالعه گردیده، نتایج لابراتوارهای متذکره در جدول از قبل تهیه شده درج، و تجزیه و تحلیل آنها صورت گرفت.

نتیجه این تحقیق نشان میدهد، که فیصدی وقوعات Clear Cell Carcinoma (84.85%)، Papillary Renal Cell Carcinoma (6.06%) بوده که مطابق با لیتراتور است ولی فیصدی Papillary Renal Cell Carcinoma (6.06%) و Chromophobe Renal Cell Carcinoma (9.09%) گزارش داده شده که با لیتراتورها مشابه نمی باشند. گرچه فیصدی مجموعی آنها مطابق لیتراتور (15- 20%) است. از نظر جنسیت برخلاف لیتراتور، تعداد واقعات سرطان در خانم ها تقریباً دو برابر مردها دریافت گردیده است. اکثریت واقعات Renal Cell Carcinoma در دهۀ پنجم و ششم حیات دریافت گردیده است.

ABSTRACT
Renal cancer is the most common form of urinary tract cancer. Based on histological studies, Renal Cancer Carcinoma (RCC) with the highest prevalence rate is first common type of renal cancer and Wilms Nephroblastoma (WNC) is the second common one. About 65% of RCC is Clear Cell Carcinoma (CCC) which is more common in men than women and the incidence of the cancer increases by age i.e. 6^{th} and 7^{th} decades of age.

A cross sectional study was conducted from all the biopsies were send to Pathology Department of Kabul University of Medical Sciences, Pathology lab of Cure Hospital and City Lab in Kabul during the period from March 21, 2014 to December 20, 2017. Biopsies have been studied/ analysed from both from the macroscopic (morphologic) and microscopic points of view. the data were carefully recorded and analyzed scientifically.

Prevalence of Clear Cell Carcinoma (CCC) found in this study (84.85%) is similar to what is in the literature, but the prevalence of 2 other types of Renal Cancer Carcinoma (RCC)- Papillary Renal Cell Carcinoma (PRCC) (6.06%), and Chromophobe Renal Cell Carcinoma (CRCC) (9.09%) are opposite of what is in the literature, however the sum of their percentage is according to the literature. From gender point of view, contrary to literature, prevalence of this cancer in female is double of that in male.

مقــدمــه
سرطان (کانسر) کلیه از جمله شایع ترین سرطانهای طرق بولی بوده که از نظر مطالعات هستولوژیک بیشترین واقعات آنرا Renal Cell Carcinoma (RCC) تشکیل میدهد و در درجۀ دوم Wilms Nephroblastoma قرار دارد. از جملۀ RCC در حدود 65% آن Clear Cell Carcinoma است که در مردها نسبتاً معمول بوده و با بلندرفتن سن یعنی در دهۀ ششم و هفتم وقوعات آن بیشتر می گردد[۲،۱].

از نظر کلینیکی علایم آن آنقدر اختصاصی نبوده، مریض ها دارای تب و علایم Polycythemia است، از جمله علایم اختصاصی

آن میتوان از Hematuria، کتله بطنی قابل جس در ناحیه کلیوی و درد ناحیه کلیوی نام برد[۴،۵].

منطق انتخاب موضوع از اینکه در افغانستان کدام مطالعه همه جانبه و کار تحقیقی در باره سرطان های کلیه صورت نگرفته، بناءً این تحقیق معلومات در مورد میزان انواع هستولوژیک واقعات سرطانهای کلیه و میزان واقعات به اساس سن و جنس را مورد مطالعه قرار داده و با معلومات لیتراتور مقایسه گردیده است.

هدف عمده تحقیق: دریافت شیوع سرطان کلیه با در نظر داشت اشکال هستولوژیک آن و سن مریض در دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانه کیور و لابراتوار سیتی. سوالات تحقیق:

- شیوع سرطان کلیه در نزد مراجعین دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانۀ کیور و سیتی لابراتوار چند است؟
- کدام نوع سرطان کلیوی، در نزد مراجعین دیپارتمنت پتالوژی پوهنتون طبی کابل، لابراتوار پتالوژی شفاخانۀ کیور و سیتی لابراتوار بیشتر دیده می شود؟
- در کدام سن شیوع سرطان کلیه، در نزد مراجعین دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانۀ کیور و سیتی لابراتوار، بیشتر دیده می شود؟
- سرطان کلیه در نزد مراجعین دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانۀ کیور و سیتی لابراتوار در کدام جنس بیشتر دیده می شود؟

تومورهای مختلف سلیم و خبیث در طرق بولی موجود است. بصورت عموم تومور سلیم کلیه مانند ادینوم حلیموی قشری به جسامت 0.5cm در 40% بزرگسالان موجود است که از نظر کلینیکی دارای اهمیت جزیی میباشد. بیشترین تومورهای خبیث کلیوی عبارت از RCC بوده و به تعقیب آن از نظر کثرت وقوعات ویلمز نفروبلاستوما و تومورهای اولیه حویضه کالیس ها میباشد. اشکال دیگر سرطانهای کلیه به ندرت بمشاهده میرسد و به مطالعه آن ضرورت دیده نمیشود. بصورت خلاصه تومورهای کلیوی در ذیل توضیح میگردد[۱].

Oncocytoma یک تومور سلیم کلیوی است که از حجرات داخلی قنات جمع کننده منشا میگیرد. تقریب 10% تومورهای کلیوی را تشکیل می دهد. این تومور در نتیجه تغییرات جنتیک بوجود میآید. از نظر Microscopic دارای مایتوکاندریا بیشتر به رنگ قهوه یی یا خرمایی و سایتوپلازم دانه دار می باشد. خصوصیت دیگر آن ظاهر شدن نسج فبروزی (Scar) ستاره مانند در قسمت مرکزی بوده که برای تشخیص قطعی از نفریکتومی استفاده می شود[۵].

Renal Cell Carcinoma از حجرات فرش کننده توبول های کلیه منشه گرفته و بصورت عمده در ناحیه قشری قرار دارد. 80-85% تومورهای خبیث اولیه کلیه را می سازد و در حدود 2-3% سرطان های اشخاص کاهل را تشکیل میدهد. در ایالات متحده سالانه در حدود 58000 شخص مصاب شده که 40% آن فوت می نمایند. این تومور خبیث کلیه در دهه ششم و هفتم حیات شیوع بیشتر داشته و مردان دوچند نسبت به زنان مصاب میشوند. خطر ظهور این تومور در اشخاص معتاد به سگرت، فرط فشار خون، حالت چاقی و در اشخاص که از نظر وظیفوی در تماس بیشتر با Cadmium باشند، دیده می شود. به تعقیب هیمودیالز مزمن در مصابین Polycystic kidney، ظهور کارسینومای حجرات کلیوی 30 برابر افزایش میآبد. عوامل جنیتیکی نیز در ظهور RCC رول دارد[۴].

RCC از نظر Mic به سه شکل ذیل است: Clear cell carcinoma، Papillary Renal cell carcinoma، و Chromophobe Renal cell carcinoma

میتود

این تحقیق به روش Cross-Sectional یا مقطعی صورت گرفته، که طی آن تمام بیوپسی هاییکه از باعث آفت های کلیوی مشکوک به سرطان از شروع سال ۱۳۹۳ الی اخیر قوس ۱۳۹۶ به یکی از سه لابراتوار (دیپارتمنت پتالوژی پوهنتون علوم طبی کابل، لابراتوار پتالوژی شفاخانه کیور و سیتی لابراتوار) ارسال گردیده، مورد مطالعه قرار گرفته است. پارچه های بیوپسی از نظر مورفولوژیک یا مکروسکوپیک و همچنان سلایدها از پارچه ها به شکل ستندرد علمی تهیه گردیده و تشخیص میکروسکوپیک آنها صورت گرفته است. بعد از ریکاردهای لابراتوارهای متذکره ارقام و معلومات بصورت دقیق و همه جانبه یادداشت گردیده تجزیه و تحلیل ارقام صورت گرفته است.

گروپ مورد هدف: تمام مریضانی که نمونه پتالوژیک شان به یکی از سه لابراتوار متذکره مواصلت ورزیده است.

محل تحقیق: سه لابراتوار ریفرنس شهر کابل

مشخصات شمول یا Inclusion Criteria: تمام پارچه هایی که از باعث آفات کلیوی مشکوک به سرطان غرض تشخیص پتالوژیک به یکی از سه لابرتوار متذکره آورده شده بودند.

مشخصات عدم شمول یا Exclusion Criteria: پارچه هاییکه به منظور جلوگیری از تخریب انساج، به شکل درست محافظه و ارسال نگردیده باشند.

شیوه های جمع آوری ارقام: سلایدهای پتالوژیک کتله ها یا پارچه های بدست آمده از عملیات کلیوی که به دیپارتمنت پتالوژی آورده شده، مستقیماً مطالعه و تشخیص شده است و امار لابراتوار پتالوژی شفاخانه کیور و سیتی لابراتوار از راجستر لابراتوارهای متذکره بدست آمده است.

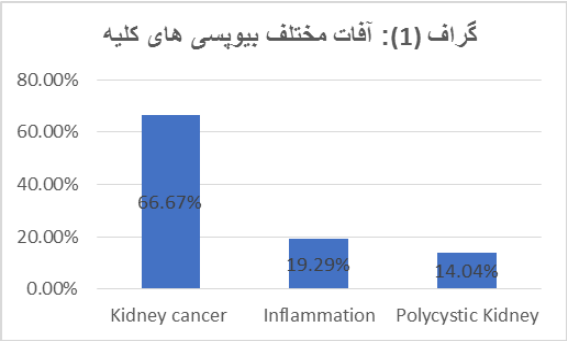
ممیزات اخلاقی یا Ethics: اجازه نامه بورد تحقیق پوهنتون علوم طبی کابل اخذ شده و تمام نورمهای اخلاقی و حفظ اسرار در رابطه به دریافت ها جداً مراعات گردیده است. باید یادآور گردید که تمام پارچه های ارسال شده طی مدت لازم تشخیص و راپور داده شده اند.

نتـایـج

تعداد مجموعی بیوپسی هایکه به نام تومورهای کلیه از شروع سال 1393 الی اخیر قوس 1396 از شفاخانه های مختلف شهر کابل به لابراتوار های مذکور ارسال گردیده بود در حدود 57 واقعه است. سلایدهای بیوپسی های ارسال شده در ماه جدی و دلو دوباره مرور گردید، و نتایج آن قرار ذیل میباشد.

از جمله 57 واقعه آن به تعداد 38 واقعه سرطان کلیه، 11 واقعه التهاب کلیه و 8 واقعه آن Polycystic Kidney تثبیت گردیده است.

در گراف ۱ مشخصات تعداد واقعات حالات مختلف مرض کلیه با فیصدی آن



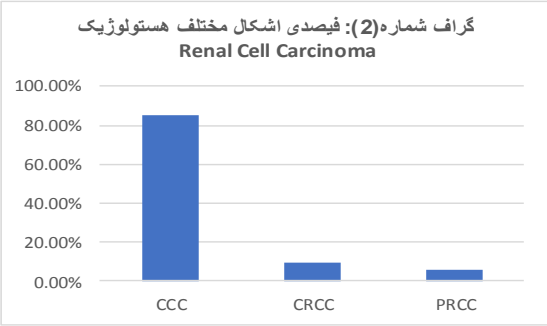
طوریکه در گراف فوق دیده میشود، تعداد و فیصدی واقعات سرطان کلیه در پارچه های ارسالی توسط شفاخانه های شهر طی مدت سه سال و ۹ ماه نسبت به سایر آفات کلیه بیشتر است.

جدول (2): فیصدی اشکال هستولوژیک سرطان کلیه

اشکال هستولوژیک	تعداد	فیصدی
Renal Cell Carcinoma	32	84.21%
Nephroblastoma (Wilms Tumor)	5	13.16%
Papillary Transitional Cell Carcinoma	1	2.63%
مجموعه	38	100%

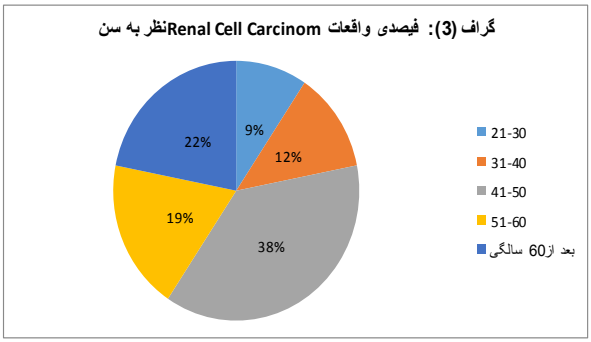
گراف فوق نشان میدهد که تعداد و فیصدی واقعات نوع Renal Cell Carcinoma در بین سرطان کلیه در پارچه های ارسالی توسط شفاخانه های شهر طی مدت سه سال و ۹ ماه نسبت به اشکال هستولوژیک دیگر به مراتب بیشتر است.

گراف شماره ۲: فیصدی اشکال مختلف هستولوژیک Renal Cell Carcinoma



گراف شماره ۲ نشان میدهد که تعداد و فیصدی شکل هستولوژیک Clear Cell Carcinoma در بین سرطان حجرات کلیوی در پارچه های ارسالی توسط شفاخانه های شهر طی مدت سه سال و ۹ ماه نسبت به دو شکل دیگر هستولوژیک آن به مراتب بیشتر است.

گراف شماره (۳): فیصدی واقعات Renal Cell Carcinom نظر به سن



گراف فوق نشان میدهد که واقعات Renal Cell Carcinoma در افراد با سن بیش از ۲۰ سال واقع گردیده به تدریج تا سن ۵۰ سالگی افزایش یافته و بعد از سن ۵۰ سالگی دوباره رو به کاهش میگذارد.

مناقشه

این تحقیق که طی مدت زمان معین (شروع سال ۱۳۹۳ الی قوس ۱۳۹۶) بالای بیوپسی های کتلات توموری کلیه که از شفاخانه های مختلف شهر کابل به لابراتوار پتالوژی پوهنتون علوم طبی کابل، لابراتوار شفاخانه کیور و سیتی لابراتوار ارسال گردیده بود صورت گرفته است، و نتایج ذیل از آن بدست آمده است:

در این تحقیق دریافت گردیده که از جمله 57 بیوپسی کلیه صرف 38 نمونهٔ آن (66.67%) سرطان کلیه تثبیت گردیده است که از این جمله 32 واقعه (84.21%) Renal Cell Carcinoma، 5 واقعه (13.16%) Nephoblastoma، ویک واقعه (2.63%) Papillary Transitional Cell Carcinoma تثبیت گردیده که با لیتراتور معتبر جهانی مطابقت دارد.

در مورد Renal Cell Carcinoma باید ذکر نمود که 28 واقعه Clear Cell Carcinoma (84.85%)، 3 واقعه Chromophob Renal Cell Carcinoma (9.09%)، و 2 واقعه Papillary renal Cell Carcinoma (6.06%)، تثبیت گردیده است که ازین جمله فیصدی نوع Clear Cell Carcinoma مطابق لیتراتور (80-85%) است. اما فیصدی واقعات دو شکل دیگر از لیتراتور ذکر شده جهانی کمی مغایرت دارد یعنی به درجه دوم Papillary Renal Cell Carcinoma و به درجه سوم Chromphob Renal Cell Carcinoma دریافت گردیده است.

در مورد شیوع آن نظر به سن باید واضح گردد که از جمله 32 واقعه Renal Cell Carcinoma صرف 3 واقعه (9.37%) در سن 21-30 سالگی، 4 واقعه (12.5%) در سن 31-40 سالگی، 12 واقعه آن (37.5%) در سن 41-50 سالگی، 6 واقعه (18.75%) در سن 51-60 سالگی و 7 واقعه (21.88%) بعد از سن 60 سالگی تثبیت کردیده است.

در مورد التهاب باید ذکر نمود بیوپسی کلیه های که بنام تومورهای کلیه ارسال گردیده بود.

از جمله 57 واقعه 11 واقعه آن التهاب تثبیت گردید که از آن جمله 6 واقعه التهاب مزمن 3 واقعه توبرکلوز و 2 واقعه التهاب حاد تثبیت گردیده است.

از جمله بیوپسی های کتله هاییکه بنام تومورهای کلیه ارسال گردیده است 8 واقعه آن Polycytic kidnay تثبیت شد.

نتیجه گیری

در نتیجه این تحقیق دریافت گردید که فیصدی وقوعات Clear Cell Carcinoma (84.85%) مطابق لیتراتور بوده ولی در مورد Papillary Renal Cell Carcinoma (6.06%) و Chromophob Renal Cell Carcinoma (9.09%) گرچه فیصدی مجموعی آن مطابق لیتراتور (15-20%) است، اما شیوع هر کدام آن معکوس دریافت های لیتراتور میباشد. چنین تفاوت جزیی در تشخیص و تحقیقات معمولاً واقع گردیده، و مسئله خیلی جدی تلقی نمیگردد. غرض جلوگیری از اشتباهات در تشخیص نهایی در پهلوی معاینات هستوپتالوژیک، معاینات دقیق تر و همه جانبه رادیولوژی و علایم عمده کلینیکی که عبارت از Hematurea، کتله ناحیه کلیوی و درد در ناحیه کلیوی بوده، ممد واقع شده میتواند. چون حوادث التهاب قابل تداوی بوده، در تشخیص دقیق آفات کلیوی و سایر امراض از دقت تام کار گرفته تا از کشیدن کلیه خوداری شود.

در قسمت Polycystic Kidney باید ذکر نمود که اکثراً بشکل تومورها ظاهر شده و با تومورها مغالطه شده میتوانند. از نظر جنسیت از جمله 32 واقعه Renal Cell Carcinoma به تعداد 12 واقعه در مردها و 20 واقعه در زنان تثبیت گردیده که خلاف لیتراتور بوده یعنی در لیتراتور ذکر گردیده که مردان شهرنشین دو مرتبه بیشتر نسبت به زنها به Renal Cell Carcinoma مصاب می شوند، در حالیکه در این تحقیق تعداد واقعات سرطان در خانم ها تقریباً دو برابر مردها تثبیت گردیده است.

از نظر سن تومور Nephroblastoma (wilms) که سه واقعه آن قبل از یک سالگی و یک واقعه آن در سن 4 سالکی و یک واقعهٔ آن در سن 5 سالگی دیده شده؛ با معلومات لیتراتور مطابقت دارد. اما اکثریت واقعات Renal Cell Carcinoma در دههٔ پنجم و ششم ظاهر شده که شاید فکتورهای محیطی و جنیتیکی سرطان کلیه در آن رول داشته بوده باشد، که از اینرو میتواند در جوامع مختلف متفاوت باشد.

محدودیت های مطالعه: این تحقیق در سه مرکز تشخیصیه راه اندازی گردیده و نماینده گی از تمام افغانستان نمیکند.

پیشنهادات

غرض جلوگیری از اشتباهات در تشخیص نهایی، در پهلوی معاینات هستوپتالوژیک، معاینات دقیق تر و همه جانبه رادیولوژیک و مدنظر داشتن علایم عمده کلینیکی اهمیت فوق العاده داشته که دوکتوران معالج و متخصص به آن توجه جدی باید مبذول داشته و چون حوادث التهاب قابل تداوی است، لذا در تشخیص دقیق آفات کلیوی و سایر امراض از دقت تام کار گرفته شود تا از کشیدن بدون موجب کلیه ها که از جملهٔ اعضای حیاتی بدن اند، جداً خوداری شود.

ایجاب مینماید تا غرض تشخیص دقیق و به موقع امراض نیوپلاستیک مراکز مجهز تشخیصیه با وسایل مدرن در سطح کشور ایجاد گردد، تا این نوع امراض (نیوپلاستیک) و سایر امراض در مراحل اولیهٔ و آغاز مرض بصورت دقیق تشخیص و تداوی مناسب گردند.

چون لابراتوار پتالوژی پوهنتون علوم طبی کابل تا اکنون و طی تمام سالهای گذشته یگانه لابراتوار پتالوژی دولتی است و باوجودیکه در چوکات وزارت محترم تحصیلات عالی است، در پهلوی تدریس و تربیهٔ محصلین طب و دوکتوران آیندهٔ کشور، مسئولیت تشخیص هستوپتالوژیک پارچه های پتالوژیک ارسالی شفاخانه های وزارت محترم صحت عامه را نیز به عهده دارد، ایجاب مینماید تا رهبری محترم پوهنتون علوم طبی و وزارت محترم تحصیلات عالی به تجهیز و مدرن سازی، بخصوص فراهم سازی ریجنتها و پرسونل ورزیده به آن مساعی لازم را بخرچ دهند. پیشنهاد میگردد تا وزارت محترم صحت عامه نیز برای تشخیص هستوپتالوژیک پارچه های مرضی شفاخانه های خود و به منظور جلوگیری از سرگردانی هموطنان عزیز در داخل و خارج از کشور، لابراتوار مجهز هستوپتالوژی را در جنب لابراتوارهای مرکزی ایجاد نماید.

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Pattern of In-hospital Surgical Complications in General Surgery Department of Isteqlal Hospital in 1394-95

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چکیده

مقدمه: اختلاطات جراحی یکی از شاخص های عرضه خدمات صحی بوده و با تحلیل آن کیفیت عرضه خدمات صحی در بخش های جراحی سنجش و برای بهبود تدابیر لازم اتخاذ میگردد. این تحقیق به منظور بررسی الگوی واقعات اختلاطات جراحی داخل شفاخانه در دیپارتمنت جراحی عمومی شفاخانه استقلال در سال های ۱۳۹۴-۱۳۹۵ اجرا شد.

میتود: این تحقیق غیر تجربوی میباشد که در مدت دو سال (۱۳۹۴ و ۱۳۹۵) در شفاخانه استقلال روی واقعات اختلاط جراحی صورت گرفت. این تحقیق روی همه واقعاتی انجام شد که طی این مدت در سرویس جراحی عمومی شفاخانه استقلال بستر و تحت عمل جراحی قرار گرفته و نزد شان در جریان مدت اقامت در شفاخانه بعد از اجرای عمل جراحی اختلاط جراحی واقع گردید. در مدت متذکره در مجموع ۷۳ واقعه اختلاطی ثبت گردید که همه شان شامل این کار تحقیقی ساخته شدند.

نتایج: در سال های ۱۳۹۴ و ۱۳۹۵ به صورت مجموعی به تعداد ۷۶۶۵ عملیات جراحی در سرویس جراحی عمومی شفاخانه استقلال اجرا گردیده که از جمله ۵۴۹۲ (۷۲٪) آن را واقعات عاجل و ۲۱۷۳ (۲۸٪) آن را واقعات انتخابی تشکیل میدهد. در مدت دو سال یاد شده، ۷۳ واقعه اختلاط جراحی داخل بستر ثبت گردید که ۱٪ مجموع واقعاتی را که بالای شان پروسیجر جراحی صورت گرفته است، تشکیل میدهد (۱.۶ واقعات انتخابی و ۰.۷٪ واقعات عاجل). طبق تصنیف کلوین-دیندو، اختلاطات جراحی درجه ۱ (۴۵٪)، درجه ۲ (۱۸٪)، درجه ۳ (۳۱.۵٪) و درجه ۴ (۵.۵٪) میباشند. اختلاطات درجه ۱ در هر دو نوع جراحی (عاجل و انتخابی) نسبت به درجات دیگر بیشتر است (بالترتیب ۴۶٪ و ۴۸٪). همچنان اختلاطات درجه ۳ در عملیات عاجل دو چند عملیات انتخابی بوده و اختلاط درجه ۴ صرف در واقعات جراحی عاجل دریافت گردید. میزان اختلاطات جراحی در ذکور نسبت به اناث بیشتر دریافت شد (۶۰٪ در برابر ۴۰٪)، اما تناسب درجه اختلاطات در ذکور و اناث تقریباً یکسان بود. اوسط سن تقریباً ۵۰ سال دریافت شد، بلندترین سن ۸۵ سال و پایینترین سن ۱۶ سال بود. اوسط مجموعی روز های اقامت مریضان مصاب اختلاطات جراحی طی مدت تحقیق ۱۵ روز (۲ تا ۵۳ روز) بود. بیشترین اختلاطات در عملیه لپراتومی (که به صورت عملیات عاجل جراحی انجام شده) واقع گردید (۳۴٪)، و به تعقیب آن عملیه پروستاتکتومی (عملیه انتخابی) قرار دارد (۱۸٪). بیشترین اختلاط جراحی را انتان جرحه تشکیل داده است (۳۸٪)، و به تعقیب آن فیستول (۱۸٪)، جدا شدن اناستموز (۷٪) و burst abdomen (۹.۵٪) قرار دارند.

نتیجه گیری: اختلاطات جراحی مصابیت و مدت اقامت مریضان جراحی را در شفاخانه افزایش میدهد. معمولترین اختلاط انتان ساحه جراحی دریافت گردید که نشان میدهد باید به تدابیر جلوگیری از انتان و همچنان اقدامات اسیپسی و انتی سپسی در شفاخانه بهبود بخشیده شود.

ABSTRACT

Background: Surgical complication is one of important indicators of medical service delivery and is used to assess the quality of service delivery in surgery departments.

Objective: To assess in-hospital surgical complication pattern in general surgery department of Isteqlal hospital in 1394-95.

Method and Materials: A descriptive study on surgical complication cases that had occurred after a surgical procedure in the hospital in a two-year period (1394 and 1395) in General Surgery Department of Isteqlal Hospital. There were 73 surgical complication cases during this period.

Findings: Totally 7,665 surgery cases were performed during 1394-95 period in the general surgery department {5492 (72%) emergency and 2173 (28%) elective}. 73 surgical complication cases were recorded in this period which makes up 1% of overall surgery cases (1.6% of elective and 0.7% of emergency cases). According to Clavien-Dindo classification, there were 45% Grade I, 18%Grade II, 31.5% Grade III and 5.5% Grade IV complications. Grade I complications were most common among both emergency and elective procedures (46% and 48% respectively). Also, Grade III complications in emergency cases were twice as much as those of elective cases and Grade IV complications were only found in emergency cases. Complication rate in males was higher than in females (1.5:1), but the ratio of complication grade in males and females was alomost the same. Average age was found 50 years (16-85). Average length of stay of the surgical complication cases was 15 days (2-53 days). Most complications occurred in laparotomy (emergency) (34%). Most common complication was surgical site infection (38%).

Conclusion: Surgical complications increases morbidity and hospital stay among surgery patients. The most common complication found was surgical site infection, which indicates that infection prevention as well as asepsis and anti-sepsis measures have to be improved.

مقدمه

جراحی یکی از بخش های مهم طبابت امروزی میباشد و روزانه به میلیون ها عمل جراحی در سراسر جهان برای نجات یا بهتر ساختن کیفیت زندگی انسان ها انجام میشود. با این حال عمل جراحی خالی از خطر نبوده و ممکن یکتعداد عملیه های جراحی با بعضی عواقب نامطلوب همراه باشند، هرچند جراحان بیشترین تلاش شان را به خرج میدهند تا از وقوع این حوادث نامطلوب جلوگیری نمایند و بین فواید و خطرات احتمالی یک عمل جراحی توازن برقرار نمایند. اختلاطات جراحی به مثابه یک بار اضافی روی سیستم صحی تلقی میشوند چون باعث مصابیت و وفیات مریضان، طولانی شدن اقامت مریضان در شفاخانه و مصرف منابع بیشتر سیستم صحی میگردند. اختلاط جراحی زمانی واقع میشود که مریض به طور مستقیم در نتیجه یک پیامد نامطلوب یک عمل جراحی متأثر شود. اختلاط میتواند حتی در زمانی واقع شود که جراح مراحل تخنیکی عملیه را به شکل دقیق و درست انجام داده و معیار های لازم را که برای مریض مذکور مناسب دانسته میشود، رعایت نموده باشد.[۱]

اختلاطات جراحی از جمله شاخص های مهم کیفیت عرضه خدمات صحی به شمار میروند. ارقام راجع به اختلاطات و پیامد های جراحی برای بهتر ساختن مؤثریت جراحی ضروری میباشند.[۲] دریافت میزان واقعی اختلاطات جراحی به علت نبود تعریف مورد توافق همگانی خیلی مشکل است و مقایسه بین شفاخانه ها و کشور های مختلف را دشوار ساخته است. ممکن میزان اختلاطات در لیتراتور به دلایل مختلف، از جمله شیوه های مختلفی که برای کشف اختلاطات به کار میروند، تفاوت داشته باشند.[۳]

در ژورنال جراحی اروپا اختلاطات جراحی این گونه تعریف شده: «هر گونه انکشافات غیرمطلوب در بیماری مریض یا در تداوی بیماری مریض که در کلینیک واقع میشود».[۴] در جای دیگری چنین تعریف شده است: «اختلاط جراحی پیامد مستقیم یک عملیه جراحی میباشد که ناخوشایند، نامطلوب، غیرعمدی و قابل اجتناب است».[۵] دانیل دیندو و پییر کلاوین که تصنیف جدید اختلاطات جراحی نیز ابتکار آنها میباشد اختلاط جراحی را «هر گونه انحراف از سیر مطلوب بعد از عملیات» تعریف نموده اند.[۶] وقوع اختلاطات جراحی به نوع جراحی، وضعیت مریض و تدابیر انجام شده برای مریض بستگی دارد. اختلاطات جراحی میتوانند عمومی یا مشخص به یک عملیه خاص باشند و میتوان آنها را نظر به زمان وقوع شان به اختلاطات فوری، مقدم یا مؤخر تصنیف نمود.

قبلاً اصطلاحاتی از قبیل اختلاطات خفیف، متوسط و شدید توسط مؤلفین و مراکز صحی مختلف به صورت نا همگون مورد استفاده قرار میگرفت. در سال ۱۹۹۲ میلادی گروهی از جراحان در مورد اختلاطات جراحی تصنیف را پیشنهاد نمودند که مورد توجه تعداد زیادی از جراحان قرار گرفت. این تصنیف در سال ۲۰۰۴ میلادی مورد تجدید نظر قرار گرفت.[۲] در تصنیف مذکور اختلاطات جراحی از نظر وخامت به پنج درجه تقسیم بندی شده اند. اختلاطات درجه ۱ شامل هر گونه انحراف از سیر عادی بعد از عملیات میباشند که به تداوی دوایی یا جراحی، اندوسکوپی و

رادیولوژی نیازی ندارند. رژیم های تداوی مجاز در این درجه عبارتند از: ادویه ضد استفراغ، ضد تب، انلجزیک ها، ادویه مدرر، الکترولایت ها و فزیوتراپی؛ در این درجه اختلاطات انتانات جرحوی که بالای بستر تخلیه میگردد شامل میباشد. اختلاطات درجه ۲ به تداوی با ادویه غیر از آنچه که برای اختلاطات درجه ۱ مجاز است، نیاز دارند. در این درجه نقل الدم و تغذی کامل وریدی شامل میباشد. اختلاطات درجه ۳ به مداخلات جراحی، اندوسکوپی یا رادیولوژی نیاز دارند. این درجه اختلاطات به دو بخش دیگر تقسیم شده است. درجه ۳الف که به مداخلاتی نیاز است که انستیزی عمومی ضرورت ندارد. درجه ۳ب که به مداخلاتی نیاز است که تحت انستیزی عمومی انجام میشود. اختلاطات درجه ۴ شامل اختلاطات تهدید کننده حیات (شامل اختلاطات سیستم عصبی مرکزی) که به اهتمامات مراقبت های جدی نیاز داشته باشد، میباشد. این درجه نیز به دو بخش تقسیم شده است. درجه ۴الف که شامل سوء وظیفه یک عضو (شامل دیالیز) میباشد. درجه ۴ب که شامل سوء وظیفه چندین عضو میباشد. اختلاط درجه ۵ وفات مریض است.[۷]

در حال حاضر در کشور ما افغانستان سیستم مشخص برای ارزیابی و بررسی اختلاطات جراحی در شفاخانه ها وجود ندارد و همچنان کدام میزان اختلاطات جراحی به سطح ملی مشخص نگردیده است تا کیفیت مراقبت های صحی در شفاخانه های کشور با آن مقایسه شده بتواند. در این تحقیق الگوی واقعات اختلاطات جراحی داخل شفاخانه در دیپارتمنت جراحی عمومی شفاخانه استقلال در سال ۱۳۹۴-۱۳۹۵ به بررسی گرفته شده است، چون شفاخانه استقلال یکی از شفاخانه های بزرگ و کامپلکس در شهر کابل به شمار رفته و نیز یکی از مراکز آموزش برای تربیه متخصصین است دانستن میزان اختلاطات جراحی در این شفاخانه خیلی ضروری و مهم میباشد. هدف از این تحقیق دریافت میزان اختلاطات جراحی نظر به تشخیص ابتدایی و نهایی، نوع عملیات (عاجل یا انتخابی)، نوع پروسیجر، نوع اختلاط، درجه اختلاط نظر به درجه بندی کلوین دیندو، روز های اقامت در شفاخانه بعد از عملیات و ایجاد یک دیتابیس برای درج واقعات اختلاطات جراحی در شفاخانه استقلال میباشد. سوال این تحقیق: میزان اختلاطات جراحی در دیپارتمنت جراحی عمومی شفاخانه استقلال طی سال ۱۳۹۴-۱۳۹۵ چگونه است؟

میتود

این تحقیق غیرتجربوی از نوع Descriptive است که در برگیرنده واقعات اختلاط جراحی در دیپارتمنت جراحی عمومی شفاخانه استقلال طی مدت دو سال از اول حمل ۱۳۹۴تا اخیر حوت سال ۱۳۹۵ هجری خورشیدی میباشد. نفوس تحت این مطالعه را همه واقعاتی تشکیل میدهد، که طی این مدت در سرویس جراحی عمومی شفاخانه استقلال بستر و تحت عمل جراحی قرار گرفته و نزد شان اختلاط جراحی واقع شده باشد. در مجموع ۷۳ واقعه اختلاط جراحی در جریان دو سال (۱۳۹۴ و ۱۳۹۵) در سرویس جراحی عمومی شفاخانه استقلال ثبت گردید، که روی همین واقعات تحقیق صورت گرفت. اختلاطاتی که عمل جراحی ابتدایی در سرویس جراحی عمومی شفاخانه استقلال انجام نشده و اختلاطاتی که به تعقیب عمل جراحی بالای این مریضان در سرویس جراحی عمومی شفاخانه استقلال رخ داده بودند، در این تحقیق شامل نگردید. ارقام با استفاده از یک پرسشنامه که به طور مشخص برای این تحقیق طراحی شد و در آن متحول های مربوط به مریض، متحول های مربوط به عملیات و متحول های مربوط به اختلاط شامل گردیده جمع آوری شد. ارقام حاصله در نرم افزار احصایوی SPSS-17 درج و به شکل تعداد، فیصدی، اوسط، حد اکثر، حد اقل و تناسب تحلیل گردید.

نتایج

در سال های ۱۳۹۴ و ۱۳۹۵ به صورت مجموعی به تعداد ۷۶۶۵ عملیات جراحی در سرویس جراحی عمومی شفاخانه استقلال اجرا گردیده که از جمله ۵۴۹۲ (۷۲٪) آن را واقعات عاجل و ۲۱۷۳ (۲۸٪) آن را واقعات انتخابی تشکیل میدهد. در مدت دو سال یاد شده، ۷۳ واقعه اختلاط جراحی داخل بستر در سرویس جراحی عمومی شفاخانه استقلال ثبت گردید که ۱٪ مجموع واقعات جراحی را تشکیل میدهد.

جدول ۱: مجموع واقعات عملیاتی و اختلاطات در دیپارتمنت جراحی شفاخانه استقلال طی سال های ۱۳۹۴ و ۱۳۹۵

Complication Rates			
	Number of Cases	Complications (number)	Percentage
Elective	2173	35	1.6
Emergency	5492	38	0.7
Overall	7665	73	1.0

میزان اختلاطات جراحی در واقعات عاجل (۵۲٪) نسبت به واقعات انتخابی (۴۸٪) اندکی بیشتر دریافت شد. البته واقعات عاجل ریسک بیشتری نظر به واقعات انتخابی دارند، چون در واقعات انتخابی مریض برای عملیات خوب آماده میگردد اما برای واقعات عاجل وقت کافی برای آماده ساختن مریض در دسترس

نیست و ممکن آفات مترافقه و وضعیت عمومی مریض نیز در بروز اختلاطات ذیدخل باشند.

اختلاطات جراحی در ذکور نسبت به اناث بیشتر بود (۱.۵:۱) ، اما از لحاظ درجه اختلاطات کدام تفاوت قابل ملاحظه به نظر نرسید، یعنی تناسب درجه اختلاطات در ذکور و اناث تقریباً یکسان دریافت گردید.

جدول ۲: اختلاطات جراحی دیپارتمنت جراحی شفاخانه استقلال به تفکیک درجه اختلاط (کلوین – دیندو)– سال ۱۳۹۴-۱۳۹۵

Surgical Complications – By Grade (Clavien-Dindo)		
Complication Grade	**Number**	**%**
Grade I	33	45.2
Grade II	13	17.8
Grade III	23	31.5
Grade IV	4	5.5

در تحقیق حاضر، بیشترین اختلاطات جراحی از درجه ۱ (طبق تصنیف کلوین-دیندو) و کمترین اختلاطات از درجه ۴ دریافت گردید.

جدول ۳: اختلاطات جراحی دیپارتمنت جراحی شفاخانه استقلال به تفکیک درجه اختلاط و نوع جراحی

Complication grade (Clavien-Dindo Classification)					
	Grade I	**Grade II**	**Grade III**	**Grade IV**	**Total**
Emergency	16	3	15	4	38
Elective	17	10	8	0	35
Total	33	13	23	4	73

طوریکه دیده شد اختلاطات درجه ۱ در هر دو نوع جراحی (عاجل و انتخابی) نسبت به درجات دیگر بیشتر است. همچنان اختلاطات درجه ۳ در عملیات عاجل دوچند عملیات انتخابی بوده و اختلاط درجه ۴ صرف در واقعات جراحی عاجل دریافت گردیده است. نظر به ارقام دریافت شده اختلاطات درجه ۱ و ۲ (اختلاطات خفیف) در عملیات انتخابی و اختلاطات درجه ۳ و ۴ (اختلاطات وخیم) در عملیات عاجل واقع شده است. در این جا نیز دیده میشود که عملیات عاجل جراحی نسبت به واقعات انتخابی پرمخاطره تر میباشند.

Surgical Complications – By Surgery Type		
	Number	**%**
Elective	35	48
Emergency	38	52

جدول ۴: اختلاطات جراحی دیپارتمنت جراحی عمومی شفاخانه استقلال نظر به جنس – سال ۱۳۹۴-۱۳۹۵

Surgical Complication grade – by Sex					
	Grade I	**Grade II**	**Grade III**	**Grade IV**	**Total**
Male	21	9	12	2	44
Female	12	4	11	2	29
Total	33	13	23	4	73

اوسط سن واقعات اختلاطات در سال ۱۳۹۴ و ۱۳۹۵ در سرویس جراحی عمومی شفاخانه استقلال تقریباً ۵۰ سال بوده، که بلندترین سن ۸۵ سال و پایینترین سن ۱۶ سال دریافت شد. اوسط روزهای اقامت مریضان مصاب اختلاطات جراحی در سرویس جراحی شفاخانه استقلال طی مدت تحقیق ۱۵ روز (انحراف معیاری ۱۰ روز)، حد اقل ۲ روز و حد اکثر ۵۳ روز بوده است. مدت اقامت در شفاخانه بعد از عملیه جراحی یکی از شاخص های عمده مدیریت شفاخانه میباشد. این میزان نزد مریضان مصاب اختلاط جراحی بلند رفته و در تحقیق ما نیز به طور قابل ملاحظه بلند میباشد.

جدول ۵: روز های اقامت بعد از عملیات در اختلاطات جراحی نظر به درجه اختلاطات

Stay after Operation (days) – by Surgical Complication grade				
	Grade I	**Grade II**	**Grade III**	**Grade IV**
Mean	10.55	15.77	21.23	15.75
Min	5	6	6	2
Max	21	28	53	48

بیشترین اختلاطات در عملیه لپراتومی (عملیه عاجل) (۳۴٪)، و به تعقیب آن عملیه پروستاتکتومی (۱۸٪) (عملیه انتخابی)، کولی سیستکتومی (انتخابی) (۱۲٪) و اپندکتومی (عاجل) (۱۱٪) واقع شده بود. چون اکثراً عملیه لپراتومی نزد مریضانی صورت میگیرد، که به صورت عاجل مراجعه نموده و وضعیت شان نیز خیلی خوب نیست و مقاومت بدن شان پایین میباشد، بیشتر در معرض خطر اختلاطات جراحی قرار دارند.

اکثر واقعات اختلاط جراحی را انتان جرحه تشکیل داده بود (۳۸٪)، و به تعقیب آن فیستول (۱۷.۸٪)، burst abdomen (۹.۵٪) و جدا شدن اناستموز (۶.۸٪) قرار داشتند، که ریسک فکتور مشترک در همه شان موجودیت انتان میباشد. میزان انتان جراحی در هر دو نوع عملیات جراحی (عاجل و انتخابی) تقریباً یکسان دریافت گردید، اما اختلاط burst abdomen و عدم کفایه کلیه ها تنها در واقعات عاجل دیده شد.

مناقشه

میزان مجموعی اختلاطات جراحی در سال های ۱۳۹۴-۱۳۹۵ دیپارتمنت جراحی عمومی شفاخانه استقلال ۱فیصد میباشد، که در مقایسه با ارقام اختلاطات جراحی نشر شده در لیتراتور طبی (۱۶.۴٪) خیلی پایین است. البته با در نظر داشت این که مدیریت سیستم ارقام و معلومات صحی در کشور ما به خوبی انکشاف نیافته و در آن اختلاطات شفاخانه ها ثبت نمی گردند، و هم این که یک میزان استندرد اختلاطات به سطح کشور وجود ندارد، و اکثراً اختلاطات جراحی در دوسیه ها ثبت نمیگردند، ممکن ارقامی که در این تحقیق جمع آوری گردیده نمایانگر تمام اختلاطات جراحی که در دیپارتمنت جراحی به وقوع پیوسته است، نباشد. باید متذکر شد که اختلاطات ثبت شده در این تحقیق محدود به اختلاطاتی میباشد که در جریان اقامت مریض در شفاخانه به وقوع پیوسته است و اختلاطاتی که ممکن بعد از مرخص شدن مریض رخ داده باشد به علت این که اکثراً مریضان دوباره به شفاخانه مراجعه نمی نمایند و یا اگر مراجعه نمایند به علت ناقص بودن سیستم مدیکل ریکارد در دوسیه شان درج نمیشود. علاوتاً، اختلاطات ثبت شده در این تحقیق محدود به پروسیجر های جراحی اند که در این شفاخانه قابل اجرا میباشد، که البته در مقایسه با کشور های پیشرفته (که ارقام شان در لیتراتور به نشر رسیده است) خیلی محدود تر بوده و اکثر واقعات پیچیده و پرخطر در این شفاخانه اجرا نمیشود. همچنان، یکتعداد اختلاطات نظر به دلایل مختلف در دوسیه درجه نشده باشند. با این حال، ارقام حاصله از این تحقیق را میتوان به حیث گام نخست در تعیین میزان اختلاطات شفاخانه استقلال قبول نمود، که میتواند به حیث الگو برای شفاخانه های ملی دیگر نیز به کار گرفته شود.

در این تحقیق به ملاحظه رسید که میزان اختلاطات جراحی در واقعات عاجل نسبت به واقعات انتخابی اندکی بیشتر است (۵۲٪ در واقعات عاجل و ۴۸ فیصد در واقعات انتخابی). البته واقعات عاجل ریسک بیشتری نظر به واقعات انتخابی دارند چون در واقعات انتخابی مریض برای عملیات خوب آماده میگردد اما برای واقعات عاجل وقت کافی برای آماده ساختن مریض در دسترس نیست و ممکن آفات مترافقه و وضعیت عمومی مریض نیز در بروز اختلاطات ذیدخل باشند. میزان اختلاطات جراحی در ذکور نسبت به اناث بیشتر دریافت شد، اما از لحاظ درجه اختلاطات کدام تفاوت قابل ملاحظه به نظر نرسید، یعنی تناسب درجه اختلاطات در ذکور و اناث تقریباً یکسان بود. اوسط سن واقعات اختلاطات جراحی در سال ۱۳۹۴ و ۱۳۹۵ در سرویس جراحی عمومی شفاخانه استقلال تقریباً ۵۰ سال دریافت شد، بلندترین سن ۸۵ سال و پایینترین سن ۱۶ سال بود. با بلند رفتن سن ریسک آفات مترافقه مانند فرط فشار خون، دیابت، پایین آمدن کلی مقاومت عضویت در برابر انتانات بیشتر گردیده و احتمال وقوع اختلاط جراحی را بیشتر میسازد.

اوسط مجموعی روز های اقامت مریضان مصاب اختلاطات جراحی در سرویس جراحی شفاخانه استقلال طی مدت تحقیق ۱۵ روز (۲ تا ۵۳ روز) بوده است؛ در لیتراتور این مدت ۱۴ روز (۱ تا ۴۴ روز) گفته شده است. در کار تحقیقی ما بلندترین اوسط روز های اقامت نظر به درجه اختلاط به اختلاطات درجه ۳ تعلق میگیرد (۲۱ روز – ۶ تا ۵۳ روز) که در لیتراتور نیز این مدت برای اختلاطات جراحی درجه سوم ۲۳ روز (۵ تا ۱۳۷ روز) گزارش شده است. در کار تحقیقی ما مدت اقامت بعد از عملیات نزد مریضان مصاب اختلاط جراحی درجه ۴ در حدود ۱۵ روز (۲ تا ۴۸ روز) دریافت گردید اما در لیتراتور این مدت ۵۳ روز (۲ تا ۱۵۷ روز) بیان شده است. با بروز اختلاط نزد مریض جراحی، بیمار به مراقبت داخل شفاخانه نیاز پیدا میکند و دوام آن نظر به نوع و درجه اختلاط فرق میکند. طوری که دیده میشود با بلند رفتن درجه اختلاط مدت اقامت مریض در شفاخانه بعد از عملیات نیز بلند میرود. مدت اقامت در شفاخانه بعد از عملیه جراحی یکی از شاخص های عمده مدیریت و کیفیت عرضه خدمات صحی در شفاخانه میباشد. این میزان نزد مریضان مصاب اختلاط جراحی بلند رفته و در نتیجه هزینه مالی و منابع بشری و سایر هزینه های شفاخانه را بلند میبرد و مؤثریت استفاده از منابع را پایین می آورد.

طبق تصنیف کلوین-دیندو، بیشترین اختلاطات جراحی در این تحقیق از درجه ۱ (۴۵٪) و کمترین اختلاطات از درجه ۴ (۵.۵٪) دریافت گردید. در لیتراتور نیز بیشترین (۶۴٪) اختلاطات از درجه ۱ و ۲؛ کمترین اختلاطات جراحی از درجه ۳ و ۴ گفته شده است. اختلاطات درجه ۱ در هر دو نوع جراحی (عاجل و انتخابی) نسبت به درجات دیگر بیشتر است. همچنان اختلاطات درجه ۳ در عملیات عاجل دوچند عملیات انتخابی بوده و اختلاط درجه ۴ صرف در واقعات جراحی عاجل دریافت گردیده است.

نظر به ارقام دریافت شده بیشترین (۷۷٪) اختلاطات عملیات انتخابی از درجه ۱ و ۲ (اختلاطات خفیف) و نیم اختلاطات عملیات عاجل از درجه ۳ و ۴ (اختلاطات وخیم) میباشد. در اینجا دیده میشود که عملیات عاجل جراحی نسبت به واقعات انتخابی پرمخاطره میباشند. بیشترین اختلاطات در عملیه لپراتومی (که به صورت عملیات عاجل جراحی انجام شده) و به تعقیب آن عملیه پروستاتکتومی (عملیه انتخابی) دریافت شد. چون اکثراً عملیه لپراتومی نزد مریضانی صورت میگیرد که به صورت عاجل مراجعه نموده و وضعیت شان نیز خیلی خوب نیست و مقاومت بدن شان پایین میباشد، بیشتر در معرض خطر اختلاطات جراحی قرار دارند و عملیه پروستاتکتومی نیز اکثراً نزد مردان کهنسال اجرا میشود که مقاومت نسبتاً پایین تر دارند و ضخامه پروستات خود باعث رکودت ادرار در مثانه شده و زمینه را برای رشد انتان و التهاب در مثانه و طرق بولی مساعد میسازد.

انتان جرحه بیشترین اختلاط جراحی را در این تحقیق تشکیل داده است، و به تعقیب آن فیستول، جدا شدن اناستموز و burst abdomen قرار دارند، که ریسک فکتور مشترک در همه شان موجودیت انتان میباشد. میزان انتان جراحی در هر دو نوع عملیات جراحی (عاجل و انتخابی) تقریباً یکسان بود، اما اختلاط burst abdomen و عدم کفایه کلیه ها تنها در واقعات عاجل دیده شد،که میتوان علاوه بر عوامل مربوط به مریض مسایل رعایت وقایه از انتان در شفاخانه، به ویژه در عملیاتخانه و تخنیک عملیاتی را که جراح به کار میبرد، نیز دخیل دانست.

نتیجه گیری

اختلاطات جراحی از جمله شاخص های عمده کیفیت عرضه خدمات صحی در بخش جراحی بوده و باعث افزایش میزان مصابیت و اقامت مریضان جراحی در شفاخانه میگردند. معمولترین اختلاطی که در این تحقیق دریافت گردید انتان جرحوی بوده و باید تدابیر و وقایه انتان و اهتمامات لازم اسپسی و انتی سپسی در بخش جراحی بهتر ساخته شوند.

محدودیت ها

ارقام راجع به اختلاطات جراحی شفاخانه ها به سطح ملی موجود نیست که ارقام حاصله از این تحقیق با آنها مقایسه میشد. همچنان، تحقیق حاضر به یک شفاخانه محدود میباشد، که صرف نمایانگر واقعات اختلاطات جراحی و محدود به پروسیجر های است که در دیپارتمنت جراحی عمومی شفاخانه استقلال قابل اجرا میباشد. در سیستم میدیکل ریکارد شفاخانه ها وضعیت مریضان در مراجعه مجدد به بخش سراپا در دوسیه های شان درج نمیگردد، و همچنان بعضی مریضان در صورت بروز اختلاط دوباره به شفاخانه مراجعه نمی نمایند که در صورت بروز اختلاط در دوسیه درج نمیگردند، که این امر ارقام را متأثر میسازد.

همچنان، واقعات اختلاطی شامل در این تحقیق محدود به واقعاتی میباشد که در روز های نخست بعد از عملیه جراحی و قبل از رخصت شدن مریض رخ داده است، یعنی صرف اختلاطات مقدم شامل این تحقیق میباشند.

پیشنهادات

- یک دیتابیس ملی اختلاطات جراحی شفاخانه ها به سطح وزارت صحت عامه ایجاد گردد تا ارقام اختلاطات همه شفاخانه های بستردار دولتی و خصوصی در آن درج شود؛ و سالانه میزان دقیق اختلاطات داخل شفاخانه ها به سطح کشور تحلیل و به نشر برسد.
- چون اکثر اختلاطات جراحی در تحقیق حاضر را انتان جرحه یا اختلاطاتی که در آن انتان ذیدخل است تشکیل میداد، در بخش وقایه انتان شفاخانه یک مطالعه مشخص و همه جانبه صورت گیرد و نوع انتانات ذیدخل در این واقعات مشخص گردد.
- چون تعداد قابل ملاحظه اختلاطات واقعات عاجل جراحی از نوع وخیم (درجه ۳ و ۴) بود، در قسمت آماده ساختن و مراقبت مریضانی که به صورت عاجل نزد شان عملیات جراحی صورت میگیرد توجه بیشتر مبذول و پروتوکول های مشخص برای شان ترتیب گردد.
- پیشنهاد میشود که در قسمت درج اختلاطات در دوسیه ها در زمان اقامت مریض در شفاخانه و هم در مراجعه بعدی به شفاخانه توجه جدی به عمل آید.
- یک تحقیق جامع به سطح ملی در باره اختلاطات جراحی به ویژه انتان جرحه، راه اندازی شود.

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Tobacco use among adult citizens in urban settings of Afghanistan: a cross sectional study of five main cities

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ABSTRACT

Background: Use of tobacco is a key preventable risk factor for morbidity at the global level. The aim of this study was to estimate the prevalence of tobacco use including smoking and mouth snuff use among adult urban citizens in Afghanistan.

Methods: A series of cross-sectional studies using WHO STEP wise approach were conducted in five provinces namely Kabul, Kandahar, Balkh, Hirat and Nangarhar earlier; we used the dataset of these studies, extracted the data and analyzed for estimation of tobacco use including using mouth snuff and smoking cigarettes. The main study involved multi-stage cluster sampling from 25–70 years' urban citizens. Data was managed and analyzed using *Epi info version* 7 and *SPSS* version 20.

Results: Altogether 2,712 males (46%) and 3,185 females (54%) included in the study. Eight percent were smoking cigarettes and 11.1% were using mouth snuff and 1.1% were user of both concurrently. The percentage of smoking and snuff using were very low in female (2.7% and 2.5%) versus males (14.1% and 21.1%). Cigarette smoking was more common in Mazar-e-Sharif as compare to other regional cities. Provincial data shows that 6.2% were smoking in Jalalabad, 5.6% in Hirat city, 8.1% in Kabul city, 9.7% in Kandahar city and 9.9% in Mazar-e-Sharif. The prevalence of mouth snuff among the subjects (adult citizens) was highest in Kandahar city (16.3%) and lowest in Mazar-e-Sharif (8.3).

Conclusion: Tobacco use is common among adult citizen's populations in the forms of cigarette smoking and use of mouth snuff in Afghanistan. A nationwide survey on using different products of tobacco is recommended. Designing and implementation of measures targeting adult citizens to reduce tobacco use is needed to be planned.

Keywords: Tobacco use, Cigarette Smoking, Mouth Snuff Using, Public Health, Afghanistan

چکیده

پس منظر: استفاده از تنباکو یک فکتور خطر قابل پیش گیری برای امراض در سطح جهانی میباشد. هدف از این مطالعه تخمین سطح شیوع استفاده از تنباکو منجمله دود کردن سگرت و استفاده از نصوار دهن در میان قشر کاهل در سطوح شهرهای بزرگ **افغانستان میباشد.**

روش مطالعه: یک سلسله از مطالعات مقطعی با استفاده از روش مرحله یی سازمان صحی جهان (WHOSTEP-Wise Approach) در پنج ولایت بزرگ کشور منجمله کابل، کندهار، بلخ، ننگرهار و هرات دایر گردیده بود. با این مطالعه ما ارقام موجود این مطالعات را تحلیل دوباره نموده و سطح شیوع استفاده از تنباکو را از طریق تخمین کسانیکه سگرت دود مینمایند و یا اینکه نصوار دهن استفاده میکنند، مشخص نمودیم. مطالعات اصلی نمونه برداری نوع خوشه یی را بکار برده و افراد شامل سنین ۲۵ الی ۷۰ سال شهر نشین را شامل مطالعه نموده است. تحلیل و مدیریت ارقام از طریق نرم افزار های (Epi info version 7) و (SPSS version 20) صورت گرفته است.

نتایج: در مجموع ۲۷۱۲ مرد (۴۶فیصد) و ۳۱۸۵ خانم ها (۵۴فیصد) در مطالعه شامل شدند. ۸فیصد افراد تحت مطالعه سگرت دود میکردند و ۱۱.۱فیصد آنها نصوار دهن استفاده مینمودند در حالیکه ۱.۱فیصد جمیعت تحت مطالعه از هر دو محصول در عین زمان استفاده میکردند. فیصدی استفاده کننده گان سگرت و نصوار در بین خانم ها (۲.۷فیصد و ۲.۵فیصد) خیلی کمتر در مقایسه با مردها (۱۴.۱ فیصد و ۲۱.۱ فیصد) گزارش شده است. استفاده از سگرت در شهر مزار شریف در مقایسه با سایر شهر های کلیدی زیادتر معمول بوده است. ارقام ولایتی نشان میدهد که در شهر جلال آباد ۶.۲ فیصد، در شهر هرات ۵.۶ فیصد، در شهر کابل ۸.۱ فیصد، در کندهار ۹.۷ فیصد و در شهر مزارشریف

۹.۹فیصد سگرت دود مینمودند. شیوع استفاده از نصوار دهن در بین افراد تحت مطالعه (کاهلین) بصورت نسبی بلندترین در شهر کندهار (۱۶.۱ فیصد) و کمترین در شهر مزارشریف (۸.۳ فیصد) تحلیل گردیده است.

نتیجه گیری: استفاده از تنباکو در بین کاهلین به اشکال دود نمودن سگرت و استفاده از نصوار دهن در افغانستان معمول میباشد. راه اندازی یک سروی ملی که استفاده انواع محصولات تنباکو را نشان بدهد، پیشنهاد میگردد. طرح و تطبیق اقدامات مهم متمرکز بر افراد کاهل به خاطر کاهش استفاده از تنباکو ضرور به نظر میرسد.

Introduction

Tobacco use is a major public health problem and the leading cause of mortality and morbidity worldwide. According to the World Health Organization (WHO), tobacco is the single most preventable cause of death in the world today (1). Diseases attributable to tobacco smoking, including second-hand smoke, caused 6.3 million deaths and account for 6.3% of global Disability Adjusted Life Years in 2010 (2) and projected figures show that by 2030, there will be more than 8 million deaths every year, of which 80% will take place in middle- and low-income developing countries (3). Tobacco smoking has been associated with multiple health problems and is considered to be a preventable risk factor for six of the eight leading causes of morbidity and mortality at the global level (4). Tobacco active and passive smoking will be leaded to lung cancer, chronic obstructive lung disease, atherosclerotic cardiovascular diseases, peptic ulcer disease, intrauterine growth retardation, spontaneous abortion, antepartum hemorrhage, female infertility, sexual dysfunction in men, and many other diseases (5-6).

WHO estimates that a reduction of smoking prevalence, with the overall global rate of current smoking among adults aged over 15 years declining from 23.5% in 2007 to 20.7% in 2015 – a reduction in smoking of 2.8% in 8 years. Overall, smoking prevalence in low-income countries has changed little on average from 15% in 2007 to 13.2% in 2015 (8). Furthermore, according to estimation almost one-third of the world's population aged 15 years above are smokers (8-9). Large numbers of young people are initiating smoking at earlier ages, which is a major public health concern (10). The Global Youth Tobacco Survey (GYTS) demonstrated that smoking starts as early as at 13–15 years of age. It reported that nearly 9% of students were current cigarette smokers, while 11% used tobacco products other than cigarettes (11).

Snuff or smokeless tobacco, particularly oral snuff called Naswar in local language, is a known risk factor causing oral cancer (12-13). Smokeless tobacco users in India and Pakistan together have been estimated to be 100 million (14). In Khyber Pakhtunkhwa (KPK), Pakistan, tobacco is used in various forms e.g. smoking tobacco in hookah, chilam as cigarettes or more commonly, in rural areas, in the form of naswar (15). People feel encouraged to buy it since it is cheap and easily available (16). A study from Karachi Pakistan shows that prevalence of naswar use was 14.6% and correlated with oral cancer (17). According to another study in Pakistan, 21.5% students had used tobacco in some form and naswar was the most commonly used form of smokeless tobacco (18). The exact compositions of smokeless tobaccos vary according to regional preferences. Most people place these in the mandibular or labial groove and suck on them slowly for 10–15 minutes or simply apply them to their teeth and gums (19).

In Afghanistan, data on tobacco use including smoking and smokeless ones and their effects on health are limited. According to a study the prevalence of smoking among men age of 15 years and older was 35.2%. Among non-smoking respondents, 78.3% reported that they were exposed to second-hand smoke (20). WHO Framework Convention on Tobacco Control (WHO FCTC) signed in 2004 and ratified in 2010 as a legal equivalent in Afghanistan. WHO estimated that current tobacco use among youth is 8.6% whereas the prevalence of cigarette smoking is 2.5% in the country (21). The Global Youth Tobacco Survey of 2010 indicates that more than 16% of youths have ever tried or experimented smoking, 90% of them tried a cigarette at the age of 13 years, 17% of children have been affected by passive smoking, 21% of students said that most of their closest friend's smoke cigarettes, 18% of students think that passive smoking is not harmful (22). Probably anecdotal reports indicate that numbers of tobacco smokers are increasing rapidly due to availability of cheap tobacco products, lack of strong tobacco control regulations and weak enforcement of existing

regulations. The aim of this study was to estimate the prevalence of tobacco use including smoking and snuff use among adult urban citizens in the country.

Method

Using WHO STEP-wise approach, five studies were conducted to identify the proportion and risk factor of non-communicable diseases in urban settings of Nangarhar (Jalalabad city -May to June, 2013), Balkh (Mazar-e-Sharif city -April to May, 2015), Herat (Herat city -May to June, 2015), Kandahar (Kandahar city -October to November, 2015) and Kabul (Kabul City-November 2015) provinces. This study reports the prevalence and risk factors for tobacco use (smoking and snuff used) in these provinces. All permanent residents and household members aged 25 to 70 years, including men and women were included in the study. Temporary inhabitants (resident < 6 months), occupants of institutionalized settings (schools, universities, prisons and so on) and insecure areas were excluded. WHO STEP wise (23) instrument was adapted and used to collect demographic, behavioural and anthropologic factors.

For each regional province the sample size was calculated and sampling strategy were identified and implemented. Assuming the highest prevalence (50%), 95% confidence interval (CI) and margin of error of 5%, a sample size of 385 subjects was calculated to include in the study.

However, considering the proportion of other risk factors and design effect (D_{eff} of 2) of cluster sampling the final sample size was increased to (2 × 600) = 1200 for the city. As a final stage 1200 subjects in Jalalabad, 1231 subjects in Mazar-e-Sharif, 1129 subjects in Hirat, 1165 subjects in Kandahar and 1172 subjects in Kabul were included in the last analysis. The 2015 Expanded Programme for Immunization (EPI) list of clusters were used as the sampling frame.

This frame is used for immunization by Ministry of Public Health in Afghanistan. Multistage cluster sampling was used in all studies. The socio-demographic such as age, sex, level of education, occupation, income and marital status, behavioral factors such as physical activity, consumption of fruits and vegetables, use of cooking oil, smoking and snuff use, physical measurements such as blood pressure, weight, height, waist circumference and body mass index, biological components such as blood sugar, triglycerides and cholesterol. The institutional review board (IRB) of the Ministry of Public Health reviewed and approved the protocol of the study.

Furthermore, informed consent was taken from each individual before the interview. Data were entered in *Epi-info*, version 7, and cleaned data was analysed using *SPSS*, version 20. Descriptive analysis was done in order to explain the proportion of tobacco use and its risk factors.

Results

Of all study respondents included in five studies, 2712 were male (46%) and 3185 females (54%). The mean age of subjects was 39.6 years ± 12.3 years. As a whole, 38% of participants were literate. In Kabul half of the participants (50%) were literate which is highest proportion and the lowest percentage of literacy (27%) were recorded in Kandahar city. A quarter of adult citizens were earning more than ten thousand Afghanis (1 Afghani=57 during survey) monthly. The majority (82.5%) were married. On average three (3.1) adults eligible for study were living in households from which one were interviewed. More than 40% were very young generations (25-34 years) while the old age groups of (55+) were 14%. Just 11% were government or nongovernment employees. The demographic and socioeconomic characteristics of study subjects are reflected in table 1.

Table 1: Frequency distribution of demographic and socioeconomic characteristics of the study participants												
Categories/Variables	**Jalalabad**		**Mazar**		**Hirat**		**Kandahar**		**Kabul**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Gender												
Female	731	60.9	664	53.9	594	52.6	597	51.2	599	51.1	3185	54
Male	469	39.1	567	46.1	535	47.7	568	48.8	573	48.9	2712	46
Age Groups												
25-34	455	41.3	560	45.5	399	35.3	520	44.6	592	50.5	2526	43.6
35-44	311	28	283	23	288	25.5	323	27.7	289	24.7	1494	25.8
45-54	209	19	188	15.3	220	19.5	188	16.1	165	14.1	970	16.7
55+	128	11.6	200	16.2	222	19.7	134	11.5	126	10.8	810	14
Level of Education												
Illiterate	855	71.9	730	59.3	607	54	840	73.2	575	49.6	3607	62.1
Primary and unofficial	142	11.9	270	21.9	380	33.8	164	14.3	202	17.4	1158	19.9
Secondary school	139	4.6	119	9.7	73	6.5	72	6.3	226	19.5	629	10.8
High school and over	53	5.5	111	9	64	5.7	72	6.3	118	10.2	418	7.2
Job Categories												
Official Employees	110	9.2	126	10.2	100	10.2	125	13.8	173	14.8	634	11.6
Students	79	6.6	36	2.9	89	9.1	110	12.1	17	1.5	331	6
Private Business	224	18.7	128	10.4	184	18.8	130	14.3	55	4.7	721	13.2
Worker/Farmer	646	54.1	190	15.4	51	5.2	92	10.2	77	6.6	1056	19.3
Jobless	81	6.8	69	5.6	461	47.1	414	45.7	61	5.2	1086	19.8
Housework	0	0.0	578	47	93	9.5	35	3.9	368	31.6	1074	19.6
Unable to work/DKN	55	4.6	104	8.4	0	0	0	0	415	35.6	574	10.5
Marital Status												
Single	91	7.6	121	9.8	53	4.8	120	10.7	136	12.4	521	9.1
Married	1054	88.5	1030	83.7	964	87.6	922	82.1	897	82.1	4867	84.8
Widow/Widower	46	3.9	79	6.4	83	7.5	75	6.7	54	4.9	337	5.9
Divorced	0	0.0	1	0.1	0	0.0	6	0.5	6	0.5	13	0.2
Monthly Income in AFN												
Less than 10000	708	89.3	886	78.3	454.0	82.7	40	42.1	16	7.6	2104	75.7
More than 10000	85	10.7	245	21.7	95.0	17.3	55	57.9	195	92.4	675	24.3

Smoking cigarettes and use of mouth snuff was the most common way of using tobacco in the country. Eight percent were smoking cigarettes and 11.1% were using mouth snuff while using mouth snuff and smoking cigarettes at the same time were reported by 1.1% of the participants. The percentages were very low in female (2.7% and 2.5%) versus males (14.1% and 21.1%); which was statistically significant (p value=<0.01). The highest level of snuff use was reported in older population while the younger generation were smoking cigarettes. Cigarette smoking was more common in Mazar-e-Sharif as compare to other regional cities. Provincial data shows that 6.2% were smoking in Jalalabad, 5.6% in Hirat city, 8.1% in Kabul city, 9.7% in Kandahar city and 9.9% in Mazar-e-Sharif. The prevalence of

mouth snuff among the subjects was highest in Kandahar city (16.3%) and lowest in Mazar-e-Sharif (8.3). As shown in table 2, the proportion of using mouth snuff in Jalalabad was 10.7%, in Hirat city 10.8% and in Kabul 9.8%.

Information regarding prevalence of smoking and snuff use with differentiation of sex and provinces are reflected in table 2.

Table 2: Prevalence of tobacco use (smoking and snuff use) among study participants by province

Variables	Categories		Jalalabad	Mazar-e-Sharif	Hirat	Kandahar	Kabul	Total
		Total	466	567	531	568	572	2704
		Smokers	70	84	35	100	92	381
	Male	%	15	14.8	6.6	17.6	16.1	14.1
		Total	677	702	615	610	601	3206
		Smokers	1	38	28	13	3	83
	Female	%	0.1	5.7	4.8	2.2	0.5	2.7
		Total	1143	1231	1118	1165	1170	5827
		Smokers	71	122	63	113	95	464
Cigarette Smoking	Total	%	6.2	9.9	5.6	9.7	8.1	8.0
		Total	469	567	532	566	569	2703
		Smokers	119	79	104	167	102	571
	Male	%	25.4	13.9	19.5	29.5	17.9	21.1
		Total	681	664	582	596	597	3120
		Smokers	4	23	16	22	12	77
	Female	%	0.6	3.5	2.7	3.7	2	2.5
		Total	1150	1231	1114	1162	1166	5823
		Smokers	123	102	120	189	114	648
Mouth Snuff Use	Total	%	10.7	8.3	10.8	16.3	9.8	11.1

The age at which respondents started smoking are shown in table 3. The number and percentages of male smokers are high as compare to females. The age groups started smoking have been classified into five categories. The highest age group in which smoking starts is in young age group of 15-20 years and the lowest age group. Starting to smoke at less than 10 years and more than 30 years although very low in number as well in percentage but very important to be focused on.

Table 3: Age groups at which the smokers start to smoking by sex

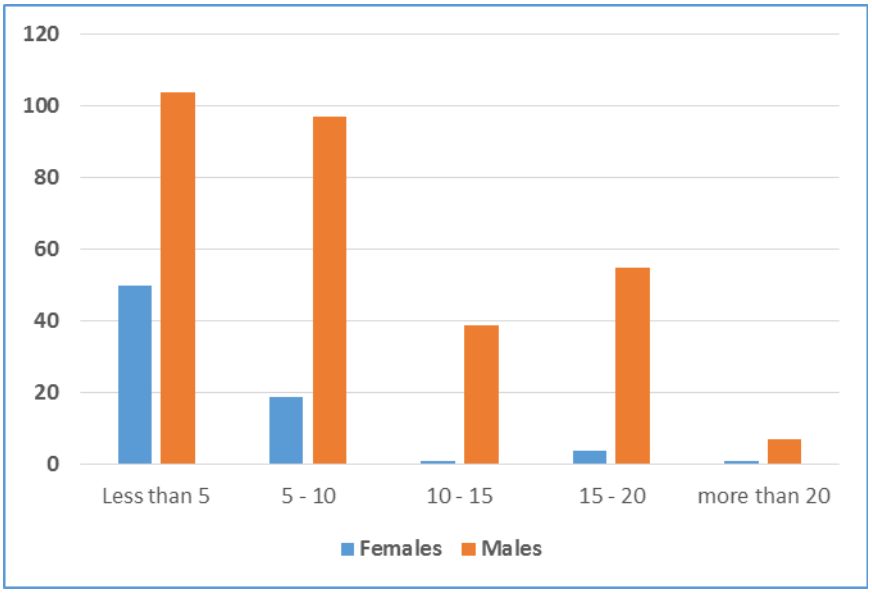
	Female	Male	Total
Age group at which start smoking			
less than 10	6	18	24
%	25%	75%	100%
10-15	11	58	69
%	16%	84%	100%
15-20	31	128	159
%	20%	80%	100%

20-25	12	71	83
%	15%	86%	100%
25-30	13	30	43
%	30%	70%	100%
more than 30	7	14	21
%	33%	67%	100%

Furthermore as shown in figure 1, majority of smokers are using less than five or 5 to 10 cigarettes per day which decreases by proportion when number are increases. Each cigarette box in Afghanistan mostly has 20 cigarettes; therefore, the groups who smokes 15 – 20 cigarettes is more as compare to more than 20 or less than 20 cigarettes.

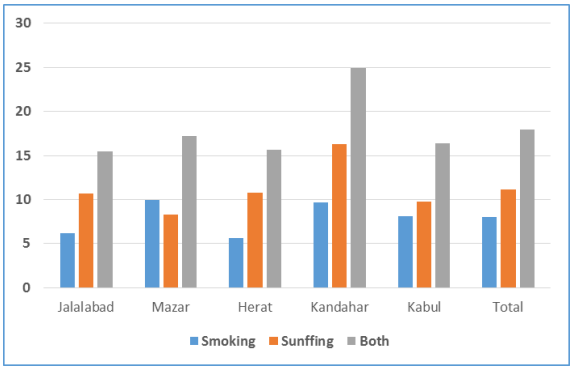
Proportion of smokers who use less than 5 cigarettes are 66.7% in males and 34.4% in females. As a whole 40.8% of smokers responded they are smoking less than five cigarettes per day. The proportion decreases while the number of cigarettes increased.

Figure 1: Distribution of smokers based on the number of cigarettes smoking per day by sex



In figure 2, the prevalence of smoking and snuff use is compared by bar charts. As you see there is same information over all provinces in which prevalence of mouth snuff use is more than smoking and it probably is due to low cost of snuff in the market.

Figure 2: Prevalence of smoking, snuffing or both of them (tobacco use) by provinces



The highest level of using tobacco (smoking and/or mouth snuff using) were reported in Kandahar in which 24.9% and the lowest level of tobacco use is report in Hirat in which 15.6% were either smoking and/or using mouth snuff. In Jalalabad 17.2%, in Mazar-e-Sharif 17.2% and in Kabul 16.4% were tobacco users. As a whole 17.9% of all study subjects in all provinces were tobacco users.

Table 4 reflects some main characteristics of study participants who are smoking. Prevalence of people who were ever smokers is 10.9%, however the highest level of ever smoking reported in Mazar-e-Sharif (12.3%) and lowest level in Jalalabad by 9.7%. The differences of being ever smoker among provinces are very low and that is not significant. Proportion of duration of smoking in years was highest in group of less than five years. It seems there are majority who just started smoking. This percentage is decreased while the number of years increased. Those who have smoked more than 20 years are at higher risk of diseases related to smoking. In this study, almost 18% were smoking for more than 20 years and the highest percentage were recorded in Kandahar city (20.3%). Being second-hand smoker (passive smoking) or non-smokers being exposed to smoke while others were smoking at home or at workplace was another risk factors which was recorded in this study.

Table 4: Frequency distribution of characteristics of smoking status of the study participants

Categories	Jalalabad		Mazar		Hirat		Kandahar		Kabul		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Ever Smoker												
No	1028	90.3	1079	87.7	997	89.6	1028	89.6	1038	88.9	4142	89.1
Yes	110	9.7	152	12.3	116	10.4	119	10.4	129	11.1	507	10.9
Number of years smoking												
less than 5	22	20.6	42	28.0	40	36.7	25	21.2	33	28.0	162	26.9
5 to 10	24	22.4	39	26.0	13	11.9	25	21.2	30	25.4	131	21.8
10 to 15	16	15.0	16	10.7	8	7.3	30	25.4	13	11.0	83	13.8
15 to 20	24	22.4	28	18.7	29	26.6	14	11.9	23	19.5	118	19.6
more than 20	21	19.6	25	16.7	19	17.4	24	20.3	19	16.1	108	17.9
Exposed to smoking at home (living place)												
No	1020	89.9	1074	87.2	965	89.4	914	79.3	998	85.5	4057	88.0
Yes	114	10.1	157	12.8	114	10.6	241	20.7	169	14.5	554	12.0
Exposed to smoking at work place												
No	992	87.3	1089	88.6	988	91.7	900	78.5	1042	89.4	4111	89.2
Yes	144	12.7	140	11.4	90	8.3	251	21.5	123	10.6	497	10.8
Number of days in a week exposed to smoking at home (living place)												
one day	23	31.1	10	6.8	7	7.2	6	2.7	5	3.2	51	7.3
two days	21	28.4	14	9.5	25	25.8	34	15.2	17	10.8	111	15.8
three days	8	10.8	5	3.4	15	15.5	21	9.4	33	20.9	82	11.7
four days	3	4.1	5	3.4	5	5.2	28	12.5	14	8.9	55	7.8
five days	2	2.7	2	1.4	3	3.1	21	9.4	11	7.0	39	5.6
six days	0	0.0	12	8.1	5	5.2	42	18.8	14	8.9	73	10.4

seven days	17	23.0	100	67.6	37	38.1	72	32.1	64	40.5	290	41.4
Number of days in a week exposed to smoking at work place												
one day	20	19.2	9	6.9	4	6.5	8	3.7	0	0.0	41	6.6
two days	18	17.3	26	20.0	16	25.8	7	3.3	10	8.9	77	12.4
three days	26	25.0	12	9.2	9	14.5	14	6.5	17	15.2	78	12.5
four days	7	6.7	9	6.9	7	11.3	47	22.0	12	10.7	82	13.2
five days	4	3.8	9	6.9	3	4.8	28	13.1	11	9.8	55	8.8
six days	1	1.0	33	25.4	2	3.2	39	18.2	23	20.5	98	15.8
seven days	28	26.9	32	24.6	21	33.9	71	33.2	39	34.8	191	30.7

As seen in table 5 almost 11% were exposed to smoking at workplace and 12% were exposed to smoking at living place. These variables were further explored by number of days they were exposed to smoking. Majority of non-smokers were exposed the whole week or every day as compare to those who were exposed less than seven days a week in both group of work place or living place.

Table 5: frequency distribution of study participants with respect mouth snuff use

Categories/Variables	Jalalabad		Mazar		Hirat		Kandahar		Kabul		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Current mount snuff user												
No	1027	89.3	1129	91.7	994	89.2	973	83.7	1052	90.2	5175	88.9
Yes	123	10.7	102	8.3	120	10.8	189	16.3	114	9.8	648	11.1
Frequency of using mouth snuff per day												
less than 5	32	26.2	37	36.3	61	54	25	13.6	47	43.5	202	32.1
5 to 10	59	48.4	38	37.3	38	33.6	96	52.2	41	38	272	43.2
10 to 15	24	19.7	14	13.7	5	4.4	48	26.1	7	6.5	98	15.6
15 to 20	6	4.9	10	9.8	5	4.4	13	7.1	9	8.3	43	6.8
more than 20	1	0.8	3	2.9	4	3.5	2	1.1	4	3.7	14	2.2
Frequency of using mouth snuff in years												
less than 5	37	29.6	23	21.9	12	11.1	26	18.3	21	23.9	119	21
5 to 10	20	16	9	8.6	16	14.8	32	22.5	23	26.1	100	17.6
10 to 15	15	12	11	10.5	5	4.6	26	18.3	11	12.5	68	12
15 to 20	22	17.6	20	19	24	22.2	25	17.6	10	11.4	101	17.8
more than 20	31	24.8	42	40	51	47.2	33	23.2	23	26.1	180	31.7

Table 5 is specified to reflect the important characteristics of mouth snuff users. Overall, 11.1% were current mouth snuff users. The prevalence of using mouth snuff was 10.7% in Jalalabad, 8.3% in Mazar-e-Sharif, 10.8% in Hirat, 16.3% in Kandahar, and 9.8% in Kabul. As mentioned earlier the highest prevalence is recorded in Kandahar city. The highest frequency of using mouth snuff per day was 5-10 times per day. There are very few percentage of mouth snuff users who used it more than 15 or 20 times per day. Probably those who are using with less frequency maybe smoking in interval of mouth snuff

using. Proportion of duration of using mouth snuff is highest among those who used mouth snuff for more than 20 years.

There were some variables of non-communicable diseases which is collected by main study and briefly reported here while the detail reports could be found in another papers. So, being tobacco users along with other risk factors for non-communicable diseases including high blood pressure, obesity, high blood sugar, low physical activity and unhealthy diet will expose adult population to high risk of diseases and needed to be more focused on.

Discussion

The series of studies using WHO-step wise approach was first of its kind to identify the risk factors for non-communicable diseases in key cities in Afghanistan. One of the main factor, out of them, is use of tobacco in the country which is reported in this paper. Data regarding using tobacco is less available in Afghanistan while as a factor its burden is collected by studies by different aims. We found a moderately higher prevalence of tobacco use among males in five key cities of Kabul, Jalalabad, Kandahar, Hirat and Mazar-e-Sharif, while the prevalence of tobacco use among females is much lower. According to this study, the prevalence of smoking as a whole was 8% while the prevalence of snuff use was 11.1% in adult populations. Double use of tobacco in smoking and snuffing in one individual reflects serious findings. According to table 2 in males the prevalence of smoking was 14.1% while in females it was 2.7%. Use of mouth snuff was 21.1% in males and 2.5% in females. The difference has been reported in other studies as well (24-26). This prevalence seems very low as compare to study which was conducted in Kabul regarding smoking in which men aged 15 years and older was included and the prevalence of smoking was estimated to be 35.2% (20). Other studies in Iran, Pakistan and India shows high prevalence of smoking among men as 36%, 23.4%, 28.5% respectively (27-29). This high prevalence could be due to inclusion lower age group and/or identification of prevalence of smoking among males. In this study, the prevalence of smoking was very low among females as compare to males. A national household survey of adults in Pakistan showed self-reported prevalence of cigarette smoking to be 15%; among females, it was negligible, whereas 31% of males smoked any form of tobacco (cigarette, bidi, or hookah) (30). The study also shows that three-fourth of study participants have income of less than ten thousand Afghanis (175$) per month which is very low, therefore using tobacco will put them in worse economic situation due to its cost. As the cost of snuff is very low as compare to cigarettes that could be the reason more people are using mouth snuff as compare to smoking in many provinces. Studies show that smoking adversely affected the economic productivity and income and health (31).

Initiation of smoking in our study was lower than 10 years with high proportion in this lower age group which is consistent with another study which was conducted in Kabul. The study conducted in Kabul showed that the initiation of smoking began at a very early age, where 15% of smokers started to smoke before the age of 15 years (20). In a study in Bangladesh, it was found that almost 60% of students were involved in tobacco smoking, with majority of smokers being males (28). According to the World Health Organization, most of the students start using tobacco early, often beginning in their high school years (32). It requires that establishment and enforcement of regulations to limit access of children and juveniles should be implemented. Furthermore, it could be due to sending children to purchase and bring cigarettes for parents which encourages their offspring to smoke and tastes which will cause them to continue while get older.

In Afghanistan, more than 18% of smokers have smoked and approximately one-third of snuff users have used the product for more than 20 years. It is a common sense that the more users are exposed to tobacco the more it affects the organism adversely. According to a study both the number of cigarettes smoked and duration of smoking are strongly associated with mortality risk and the number of life-years lost (33).

Being exposed to passive smoking in living and/or work place was another important risk factors which was reflected in our study. Regular exposure to passive smoking could affect the organism in various perspective. The main health problems are listed to be respiratory diseases such as asthma, emphysema, lung cancer and cardiovascular diseases (33). This study shows lower percentage of people were exposed to passive smoking at home (12%) and work place (11%) as compare to mentioned study in Kabul (20). This difference could be due to inclusion of multi response in previous study in which all environments such as public transportations, market place, home and offices are included. In Bangladesh, majority of the students initiated tobacco smoking

due to the influence of friends and by the imitation of family members (28). Therefore, being exposed to smoking at work place and/or living place will encourage them to start smoking or mouth snuff. The peer pressure may influence tobacco using while being exposed passively reported by other studies (35-36).

The main study from which this study is extracted have collected data on risk factors for non-communicable diseases not just tobacco use so there are some risk or protective factors for tobacco use which is not reflected here. The information we collected is self-reported, which is subject to recall bias. The results of our study may not be fully representative of other parts of the country being conducted in five urban settings. The comparison with previous data due to few availability of studies in country was not possible. The reasons to start smoking were not identified in our study. It could be recommended that rules and regulations should be established and enforced for tobacco use and age limitations for beginning smoking and snuff using. Community awareness measures, such as anti-smoking campaigns must be implemented by focusing in young generations. Public institutions, schools, universities, hospitals and health centers, market places, public transportations, parks should be declared free smoking area with some strict regulations to smoking and using other tobacco products. A nationwide survey on using different local and international products of tobacco could identify the burden and risk factors and will position the stakeholders in a better place to design and implement measures to reduce using tobacco and contribute in reduction of its health consequences.

Conclusion

Use of tobacco as a risk for many health related problems is common among adult citizen's populations in the forms of cigarette smoking and use of mouth snuff in Afghanistan. Designing and implementation of measures targeting adult citizens to reduce tobacco use is needed to be planned. Tax on tobacco is a measure which is common in other countries while it is lacking in Afghanistan. The findings disclose that tobacco using is initiated in early adolescent years and smoking was more prevalent among males. Furthermore, usually, tobacco use is combined with other risk factors which is important to be considered by policy makers.

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میزان تومورهای جلدی در دیپارتمنت پتالوژی پوهنتون علوم طبی کابل

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چکیده
تومورهای جلدی سلیم و خبیث از جمله شایع ترین تومورها در بسیاری از کشورهای جهان بوده که بیشتر افراد سنین بالاتر از ۴۰ سال را مصاب ساخته و فکتورهای مساعد کنندۀ آن عوامل جینتیکی و عدم و یا پایین بودن معافیت بدن است.

مطالعه ایکه انجام شده، یک مطالعه Cross Sectional توصیفی بوده و بالای تشخیص پتالوژیک پارچه های جلدی ۱۶۰ مریضی که بخاطر تشخیص نوعیت تومورهای جلدی به دیپارتمنت پتالوژی پوهنتون علوم طبی کابل طی سال های ۱۳۹۳-۱۳۹۵ آورده شده اند، متمرکز است.

سن اوسط مصابین ۵۰.۳ سال بوده، از نظر سن بیشترین واقعات- ۴۰.۹ فیصد در سن بیشتر از ۶۰ سال و از نظر جنسیت بیشترین واقعات در مرد ها بوده است. ۵۲.۸۷ فیصد واقعات را Neoplastic Malignant، ۲۳.۵۷ فیصد واقعات را Neoplastic Benign و ۳.۸۲ فیصد آنرا واقعات مشکوک تشکیل میدهند. ۷۱.۹۴ فیصد واقعات تومور ها در قسمت راس بوده اند. بر اساس تست Chi-Square ثابت میشود که ارتباط بین موقعیت و نوعیت تومور وجود دارد.

۴۰.۸ فیصد مریضان در سنین بیشتر از ۶۰ سال قرار داشتن این نشان دهنده آنست که بیشترین واقعات در این سنین وجود دارد و ارتباط بین نوعیت تومور و سن وجود دارد.

ABSTRACT
Skin tumors (benign and malignant) are the most common tumors in many countries of the world, affecting mainly after the age of 40 years; the genetic factors and weak immune system are the facilitating/influencing factors.

It is a cross-sectional study of 160 pathologic samples brought to the pathology department of Kabul Medical Sciences University during the period March 21, 2014 to December 20, 2016.

The mean age was 50.34 years and majority of the cases were reported among the patients aged over 60 years. Of the samples, 52.87% cases were neoplastic malignant, 23.57% neoplastic benign and 3.87 suspected cases. The findings show that cases were more common in men compared to women. The lesions found in 71.94% of cases in the head region. The Chi-square test shows relationship between tumor type and location and then the null hypothesis has been rejected.

معرفی
تومور های جلدی سلیم و خبیث از جمله شایع ترین تومورها در بسیاری از کشورهای جهان است (۱و۲). واقعات آن در یک دهه اخیر در تمام جهان افزایش یافته است. شعاع ماورای بنفش یکی از فکتورهای عمده خطر در تولید تومور های جلدی به شمار رفته، فکتور های دیگر محیطی که در افزایش وقوعات آنها نقش دارند، عبارت اند از طبقه اوزون، زنده گی در ارتفاعات بلند، و زنده گی در ارتفاعات پایین. فکتور های انفرادی سرطان های جلدی عبارتند از جلد تاریک، سن بالاتر از ۴۰ سال، فکتور های مساعد کنندۀ جنتیکی و عدم یا پایین بودن معافیت بدن. سرطانهای جلدی اغلباً به سرطان های جلدی میلانوما و غیرمیلانوما طبقه بندی میگردند (۲-۳). نظر به راپور های داده شده انستیتوت ملی سرطان برازیل، واقعات جدید سرطان های غیر میلانومای جلدی در مرد ها ۱۰۰.۷ فی یکصد هزار و ۸۰.۲ فی یکصد هزار در زنها گزارش شده است. در حالیکه واقعات جدید سرطان های میلانوما

در مرد ها ۳ فی یکصد هزار واقعه و در زن ها ۲۸.۵ فی یکصد هزار واقعه بوده (۲ و ۴).

در افغانستان، تا هنوز کدام کار تحقیقی کامل در مورد کثرت وقوعات تومورهای جلدی، خباثت و موقعیت آنها و ارتباط شان با شرایط محیطی صورت نگرفته است. در این تحقیق کوشش شده است تا تمام تومورهای جلدی که در جریان سه سال نمونه های پتالوژیک شان به دیپارتمنت پتالوژی پوهنتون علوم طبی ارسال گردیده، تشخیص تفریقی گردد و از نظر کثرت وقوعات، نوعیت، خباثت و ارتباط آنها با شرایط محیطی به هدف تشخیص و تداوی مقدم شان مورد ارزیابی همه جانبه قرار گیرند.

میتود

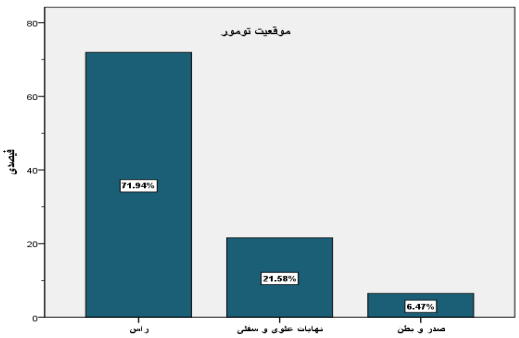
مطالعه Cross Sectional توصیفی بوده و ۱۶۰ مریضی که نمونه های پتالوژیک شان بخاطر تشخیص نوعیت تومور های جلدی به دیپارتمنت پتالوژی، پوهنتون علوم طبی کابل طی سال های ۱۳۹۳ - ۱۳۹۵ فرستاده شده، مورد مطالعه قرار گرفته اند. سلاید از نمونه های انساج و کتلات جلدی مریضان با ساختن بلاکهای پارافین تهیه گردیده و مورد آزمایش قرار گرفته اند. متغیرهای که مورد مطالعه قرار گرفته اند عبارتند از؛ سن، جنس، نوعیت تومور و موقعیت تومورها میباشند

از شاخص های مرکزی، اوسط (Mean) سن، و از شاخص های پراگنده انحراف معیاری یا Standard Deviation تعین گردیده، تست Chi-Square بخاطر دریافت ارتباط سن و موقعیت تومورها با نوعیت آنها اجرا گردیده است.

اخلاقیات: هویت مریضان محرم نگهداشته شده و اجازه آمر دیپارتمنت بخاطر استفاده از ارقام مذکور اخذ گردیده است.

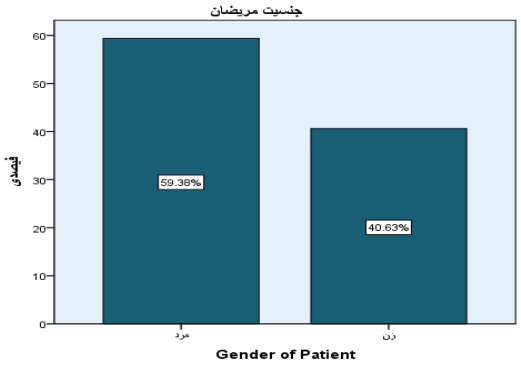
نتایج

در این تحقیق نمونهٔ پتالوژیک ۱۶۰ تن مورد مطالعه قرار گرفته



که اوسط سن شان ۵۰.۳ سال (CI95% 46.92-53.75) بوده است. خورد ترین شخص ۳ ساله و بزرگترین آنها ۸۵ ساله بوده است. به تعداد ۱۴ شخص بیشتر از ۷۰ سال عمرداشتنند، بیشترین واقعات (۴۰.۹) فیصد آنها در سنین بیشتر از ۶۰ سال، و کمترین تعداد واقعات (۱۱.۷) فیصد شان بین ۲۰ تا ۳۹ سال عمر داشتند. از نظر جنسیت، ۵۹.۴ فیصد اشخاص را مردها و ۴۰.۶ فیصد را زنها تشکیل میدهد.

۵۲.۸۷ فیصد واقعات Malignant Neoplastic، ۲۳.۵۷ فیصد واقعات Benign Neoplastic، ۱۹.۷۵ فیصد واقعات Non-Neoplastic و ۳.۸ فیصد واقعات مشکوک بودند. ۷۱.۹۴ فیصد



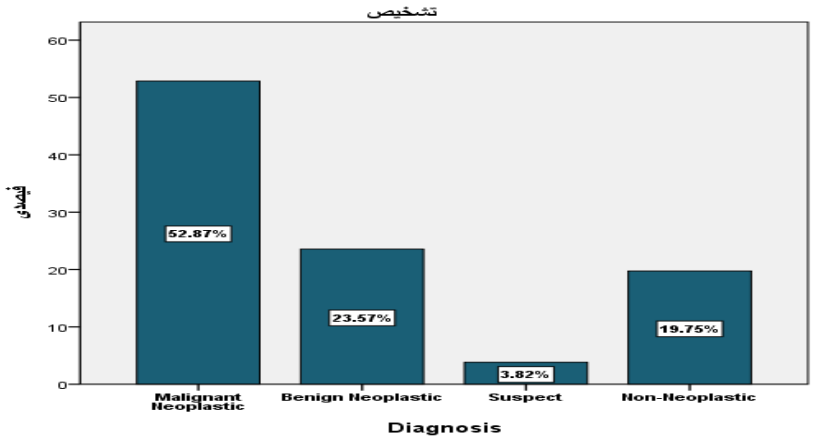
واقعات تومورها در راس، ۲۱.۸۷ فیصد واقعات در نهایات علوی و سفلی و ۶.۴۷ فیصد واقعات تومور ها در بطن و صدر قرار داشته اند.

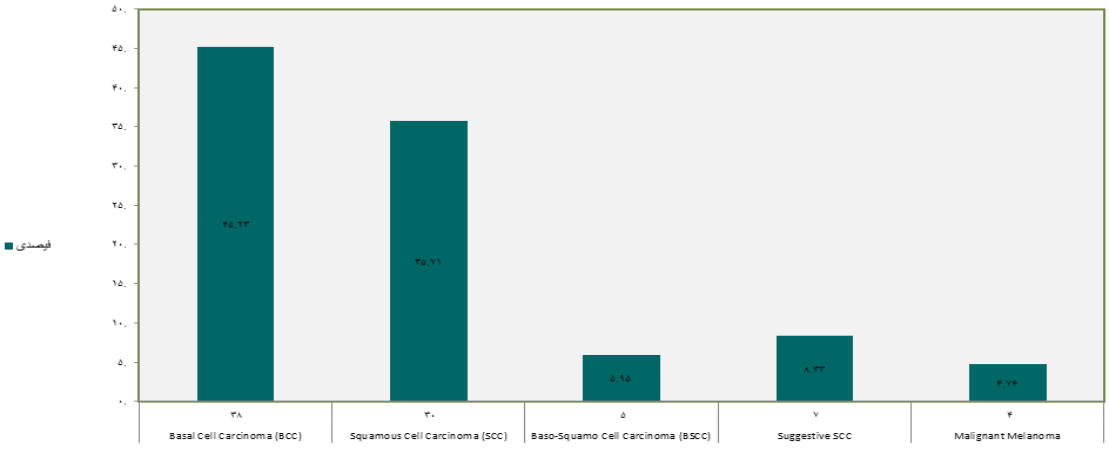
گراف ۱ هستوگرام کتگوری های سنی مریضان بوده، گراف ۲ تفکیک مریضان را از نظر جنس نشان می‌دهد، گراف سوم نوع تومور را نشان داده، گراف چهارم انواع تومورهای خبیث جلدی و گراف پنجم موقعیت تومور را در نواحی مختلف بدن نشان می‌دهد

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.037[a]	3	.565
Likelihood Ratio	2.041	3	.564
N of Valid Cases	157		

قرار جداول فوق (Chi-Square Tests)چون P-Value ۰.۵۶۵ و بزرگتر از ۰.۰۵ است، روی این ملحوظ فرضیه صفری مورد تائید قرار میگیرد و ثابت میشود که ارتباط بین جنسیت مریض و نوعیت تومور وجود ندارد.

قرار جداول فوق (Chi-Square Tests) چون P-Value صفر و کوچکتر از ۰.۰۵ است، روی این ملحوظ فرضیه صفری رد گردیده و ثابت میشود که ارتباط بین موقعیت و نوعیت تومور وجود دارد.





Location of the Tumor * Diagnosis Cross tabulation							
			Diagnosis				Total
			Malignant Neoplastic	Benign Neoplastic	Non-Neoplastic	Suspect	
Location of the Tumor	راس	Count	66	18	11	3	98
		Expected Count	54.8	22.3	18.7	2.2	98.0
		% within Location of the Tumor	67.3%	18.4%	11.2%	3.1%	100.0%
		% within Diagnosis	86.8%	58.1%	42.3%	100.0%	72.1%
		% of Total	48.5%	13.2%	8.1%	2.2%	72.1%
	نهايات علوی و سفلی	Count	9	9	11	0	29
		Expected Count	16.2	6.6	5.5	.6	29.0
		% within Location of the Tumor	31.0%	31.0%	37.9%	0.0%	100.0%
		% within Diagnosis	11.8%	29.0%	42.3%	0.0%	21.3%
		% of Total	6.6%	6.6%	8.1%	0.0%	21.3%
	صدر و بطن	Count	1	4	4	0	9
		Expected Count	5.0	2.1	1.7	.2	9.0
		% within Location of the Tumor	11.1%	44.4%	44.4%	0.0%	100.0%
		% within Diagnosis	1.3%	12.9%	15.4%	0.0%	6.6%
		% of Total	0.7%	2.9%	2.9%	0.0%	6.6%
Total		Count	76	31	26	3	136
		Expected Count	76.0	31.0	26.0	3.0	136.0
		% within Location of the Tumor	55.9%	22.8%	19.1%	2.2%	100.0%
		% within Diagnosis	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	55.9%	22.8%	19.1%	2.2%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.040[a]	6	.000
Likelihood Ratio	26.012	6	.000
N of Valid Cases	136		

مناقشه

سروی ایکه در بین سال های ۲۰۰۵ الی ۲۰۱۰ در زنجان ایران راه اندازی شده از میان ۵۳۴۱ شخص که آزمایش بیوپسی نزد شان اجرا شده، تعداد ۳۲۵ (۶ فیصد) آنها مصاب به تومور های خبیث جلدی بوده و در این مطالعه در میان ۱۶۰ واقعه در بین سال های ۱۳۹۳ الی ۱۳۹۵، ۵۲.۸۷ فیصد آن تومور خبیث جلدی تشخیص شده است؛ که این افزایش از باعث نادیده گرفتن امراض جلدی در مراحل مقدماتی بوده میتواند (۶).

از نظر موقعیت ۷۱.۹ فیصد واقعات در راس و گردن قرار دارد که این ارقام با مطالعاتی که در ایران ، استرالیا و اردن صورت گرفته و در آن مطالعات بیشتر از ۹۲فیصد واقعات در راس و گردن دریافت شده اند، مطابقت ندارد. از این که تعداد واقعاتی که در نهایات علوی و سفلی قرار دارند ۲۱.۵۸ فیصد و تعداد واقعاتی که در بطن و صدر قرار دارند ۶. ۴۷ فیصد دریافت شده اند و با ارقام کشور های ایران، استرالیا و اردن همخوانی ندارد، نیاز به مطالعات بعدی بخاطر دریافت علت آن دارد (۶، ۷ و۸).

محدودیت ها: از باعث کمبود وسایل و تجهیزات تشخیصیه ستندرد، تعدادی از واقعات تشخیص نگردیده است و این مورد باعث شده تا عدۀ از واقعات از تشخیص قطعی بازماند و تعداد واقعات Suggestive نیز در جمع دریافت ها وجود داشته باشد.

نتیجه گیری

۴۰.۸فیصد مریضان در سنین بیشتر از ۶۰ سال قرار داشتن، این نشان دهنده آنست که بیشترین واقعات در این سنین وجود دارد. به اساس تست های Chi-Square به اثبات میرسد که با وصفیکه تعداد بیشتر واقعات در سنین بزرگتر وجود دارد، ارتباط بین نوعیت تومور و سن وجود نداشته اما ارتباط بین نوعیت تومور و موقعیت تومور وجود دارد. از اینکه تعداد واقعات خبیث نظر به ارقام جهانی بالاتر دریافت شده است پیشنهاد میگردد تا امراض جلدی به موقع بخاطر معاینات بیوپسی به مراکز تشخیصیه فرستاده شوند.

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Use of Liquid Paraffin in Conservative Management of Gastro Intestinal Obstruction due to Ascariasis- Case Report

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ABSTRACT
Ascariasis is a condition that causes by Ascaris lumbricoides, which is a common parasitic infection worldwide, especially in developing countries that are located in the tropical and subtropical, with poor sanitation and hygiene. A. Lumbricoides is a well-known cause of serious complications in children. Here we report a case of ascariasis in a 3-year-old boy, presented to ER with abdominal pain, distension and vomiting. Patient admitted and the diagnosis of GI obstruction due Ascariasis made. Then conservative treatment with Liquid Paraffin started. The patient well tolerated the treatment and passed bunches of Ascaris worms, and intestinal obstruction resolved.

Keywords: Ascariasis, Intestinal Obstruction, Liquid Paraffin, Conservative treatment

چکیده
آسکاریازیس حالتیست که توسط کرم اسکاریس لمبریکویدیس به میان آمده و یک مشکل معمول پرازیتی در تمام جهان، خصوصاً در کشورهای رو به انکشاف منحصر در مناطق حاره و نیمه حاره که دارای وضعیت بد صحی و حفظ الصحه باشند، است. کرم آسکاریس یک علت شناخته شده اختلاطات جدی در نزد اطفال میباشد. در اینجا یک واقعه اسکاریازیس در نزد یک طفل ۳ ساله پسر، که از سبب درد و انتفاخ بطنی و استفراغات به سرویس عاجل مراجعه نموده بود، گزارش داده شده است. مریض مذکور با تشخیص انسداد معایی از سبب اسکاریازیس بستر گردیده و تداوی محافظوی با استفاده از مایع پارافین آغاز گردید. مریض تداوی را به خوبی تحمل، و دسته های کرم آسکاریس را دفع نموده که در نتیجه انسداد مریض رفع گردید.

کلمات کلیدی: آسکاریازیس، انسداد معایی، مایع پارافین، تداوی محافظوی

Introduction

Ascariasis is a condition that causes by Ascaris lumbricoides, which contaminates the host by route of feco-oral. It can be absorbed from colons and migrate to liver, trachea, lungs and comes back to intestine. There, larvae can grow and reach sexual maturity and moults again. Females are longer than males and they produces 200,000 egg daily[(1)]. Signs and symptoms depend on load of this parasite and ranges from abdominal discomfort to Loffler's syndrome, severe abdominal pain, vomiting and intestinal blockage. Many other abdominal symptoms include appendicitis, cholangitis, cholecystitis, biliary obstruction, liver abscess, and pancreatitis. Which need immediate diagnosis and treatment [(1, 2, 3)].

Conservative treatment is still a challenge for some intestinal obstruction due to heavy Ascaris; because of this, many methods have been tried, for those uncomplicated cases of intestinal obstruction due to ascariasis, in the countries that face this problem, and reported[(2,3,4)]. In this case, we will review conservative management of a 3 years old child with intestinal obstruction due to Ascariasis using Liquid Paraffin.

Case Report

A 3 years old boy referred from provincial hospital to our tertiary hospital emergency room (ER) for abdominal pain, distention and vomiting since 1 day. The child has been admitted in provincial hospital for gastroenteritis. The child started to vomit ascaris worms and doctors in the provincial hospital prescribed him Mebendazole 100mg BID. When the child did not pass stool for 24 hours and severe

abdominal distention appeared, they referred him to our tertiary hospital.

His abdominal pain appeared after admitting in provincial hospital. It was colicky, intermittent and located centrally around the umbilicus. He vomited several times and intermittently. The content were ascaris worms which were passing from his mouth and nose (No bilious was noted). Abdominal distention was present since ascaris vomiting started, and it became more distended since started time and the child did not pass any flatus, according to his mother.

On general physical examination, the child was pale and vital signs were normal. Abdomen was soft but distended, many large mobile masses were diffusely palpable. Rectal examination revealed tenderness and mass or fecal like matter. Rest of systemic examination was normal.

Abdominal X-ray in standing position revealed the typical pattern of gas-filled, dilated loops of small bowel with multiple gas-fluid levels, no pneumo peritoneum noted. Ultrasound examination of the abdomen showed dilated gas filled bowel loops and bunches of ascaris worms, which confirmed ascariasis. His urine analysis was normal. His blood exam revealed leukocytosis (13,300 cells/ mm3, 70% neutrophils).

The patient ordered NPO and NGT, intravenous fluids, liquid paraffin 45cc BID by NGT (30cc/year of age) and "Kleen"enema BID were given, post liquid paraffin administration, (after giving the liquid paraffin, the child encouraged to mobilize and walk for at least 30-40 minutes, then '' Kleen Enema" applied). In the next 16 hours the child passed a large bunch of entangled worms with reduction in distention, and stopped vomiting. The patient kept in this order for 2 days more and every time after applying "Kleen Enema" He was passing large bunch of ascaris worms. Patient was without distention, vomiting and abdominal pain after the 3rd day. The patient discharged, after 4 days admission, with syrup creamaffin and one week later, after his transit become normal, single dose 400mg albendazole administered. In 10 days later follow up, the patient had no complaint and had good appetite with-out any constipation or abdominal pain.

Discussion

In developing countries located in tropical and subtropical regions, Ascariasis, is one of the most intestinal parasitic infection. Although high success rate is reported with conservative management of intestinal obstruction due to ascaris worms such as making the patient NPO+NGT, IV fluids, antibiotics, antispasmodics and anthelmintic therapy (piperazine salt) followed by rectal enemas (glycerin plus liquid paraffin emulsion or hypertonic saline) among other measures, especially in patients who do not have peritonitis. But sometimes major and even fatal complications such as intestinal obstruction with variable effective conservative treatments have been reported. Gangopadhyay et al. described 19 of 22 children who had GI obstruction due to ascariasis being conservatively managed using oral piperazine and glycerin with liquid paraffin emulsion enemas[(2)]. Hamid et al. used gastrografin for conservative management of GI obstruction due to ascariasis in a prospective randomized trial to compare the result[(4)].

In this patient, we used liquid paraffin orally, which is a laxative and has lubricant effect. It is obtaining from petroleum and has colorless, transparent, odorless and oily liquid characteristic. Although it causes osmotic effect, but primarily it acts as stool lubricant, which made it tolerable and is not associated with abdominal cramps, electrolyte disturbances, flatulence, diarrhea or the emergence of tolerance with long term usage, but side effects commonly associated with osmotic or stimulant laxatives. In a number of studies, liquid paraffin formed the basis of treatment for constipation in children. It also showed a better lubricant result then other laxatives as maintenance[(2, 5, 6, 7)].

In our patient, we used liquid paraffin as oral laxative and simple "Kleen" enema to increase motility and passage of worms into colon, which proved to relieve sign and symptoms. If sign and symptoms of obstruction not relieved and or any complications occurred such as perforation, acute appendicitis, volvulus and biliary obstruction, then open surgery is indicated. Procedures like milking and disimpaction of worms from intestine to distal colon, resection & anastomosis and enterotomy which manually extracts the worms could be used[(8, 9, 10)].

In literature, Lipoid pneumonia from liquid paraffin ingestion is reported[(7,5)]. The mechanism for liquid paraffin aspiration is not clearly understood. Besides that, neurodevelopmental abnormality was a reason in most cases, which predisposed the patient to aspiration. Children who have problem in swallowing is advised not to take liquid paraffin[(5)].

Use of antihelminthic drugs is not recommended during GI obstruction which may cause very serious and complicated conditions [(2)]. But it is better to be used after the resolution of GI obstruction's signs and symptoms, and achievement of good gas/stool passage[(2)(4)(5)].

Conclusion

Liquid paraffin can be suggested as a conservative management in GI obstruction due to ascariasis without serious complication such as peritonitis. Still there is no enough data to confirm its benefits among hazards. It acts as lubricant and can help in passage of ascaris worms with intestinal peristalism. Uncomplicated cases of intestinal obstruction due to ascariasis can conservatively managed but surgery in indicated when complication occurred.

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