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Glaucoma Awareness: A Call to Action for Public Health

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Glaucoma is a leading cause of irreversible blindness worldwide, and Pakistan is no exception. The disease, often referred to as the "silent thief of sight," progresses without obvious symptoms, leaving many unaware until significant damage is done. Despite its prevalence, early detection and treatment can prevent blindness, making awareness campaigns and public health interventions crucial. This editorial reflects on a recent policy dialogue hosted by the Institute of Public Health (IPH) in Lahore, where experts from various fields gathered to discuss strategies for increasing glaucoma awareness and improving prevention and treatment measures in Pakistan.

On January 24th, 2025, the Institute of Public Health (IPH) organized a policy dialogue focused on tackling glaucoma awareness, prevention, and treatment. The event brought together eminent ophthalmologists and public health experts, including Dr. Zahid Kamal from King Edward Medical University and Dr. Zahid Latif from Azra Naheed Medical College, to address the growing concern of glaucoma-induced blindness in Pakistan. The dialogue explored the urgent need for early detection, affordable treatment options, and targeted public health education to mitigate the impact of glaucoma on the population.

Dr. Zahid Latif emphasized the two main strategies for combating glaucoma: primary prevention (health education) and secondary prevention (early diagnosis and treatment). He recommended several actions to prevent blindness caused by glaucoma, including conducting mass-level screening in schools and workplaces using accessible tools like the Snellen Chart and intraocular pressure (IOP) testing devices. He also highlighted the role of nutrition, pointing out the link between poor diets and vision health, and suggested that diets rich in essential nutrients could play a significant role in reducing the risk of glaucoma. Additionally, Dr. Latif emphasized the importance of genetic counseling, particularly for families with a history of consanguineous marriages, to help prevent congenital glaucoma. Furthermore, he shared a success story from the Alkhidmat Foundation, which provided 2,000 free glasses to children in need. This initiative highlighted the power of public-private partnerships in raising awareness and promoting early detection.

Dr. Zahid Kamal discussed the global and local burden of glaucoma. With 80 million people worldwide affected, glaucoma is a significant public health issue. Dr. Kamal stressed the importance of screening high-risk groups, including individuals with diabetes, hypertension, high myopia, a family history of glaucoma, and those aged 35 and above. He also reviewed various treatment options, including medications like acetazolamide, dorzolamide, and pilocarpine. While pilocarpine is effective and affordable, it is currently unavailable in Pakistan. Dr. Kamal also discussed beta-blockers, which are affordable but unsuitable for asthma patients, and prostaglandin analogues, which are preferred for their once-daily dosage, although they may cause side effects like trichomegaly. Furthermore, Dr. Kamal introduced the potential for Micro-Invasive Glaucoma Surgery (MIGS), recommending that such advanced surgeries be made more affordable and accessible to patients in Pakistan.

The dialogue culminated in several key recommendations to enhance glaucoma care in Pakistan. These include supporting the local production of affordable glaucoma medications like pilocarpine to ensure greater accessibility for

patients. Nationwide campaigns should be launched to educate the public about glaucoma, focusing on high-risk populations and emphasizing the importance of early detection and regular eye check-ups. Routine glaucoma screenings for individuals aged 35 and above should be implemented across the country, with particular focus on vulnerable groups in schools, workplaces, and community health clinics. Additionally, the government should subsidize the cost of glaucoma medications and advanced surgical procedures for low-income patients, ensuring that financial barriers do not prevent access to treatment. Eye health education should also be incorporated into school and university curricula to encourage early preventive measures among young people. The development of affordable, user-friendly screening devices should be prioritized, along with short educational videos to raise awareness about glaucoma prevention. Public health campaigns should advocate for diets rich in Vitamin A and other nutrients essential for eye health to prevent vision-related issues.

The policy dialogue on glaucoma awareness underscored the urgent need for a multi-faceted approach to address the rising threat of glaucoma in Pakistan. Early detection, public education, equitable access to healthcare, and strategic collaborations are vital to combating this preventable cause of blindness. The event not only highlighted the critical role of healthcare professionals and experts but also demonstrated the importance of integrating public health interventions with targeted awareness campaigns. By acting on these recommendations, Pakistan can significantly reduce the burden of glaucoma and prevent avoidable blindness for millions of people.

The challenge now lies in translating these insights into actionable policies that ensure all citizens, particularly those in underserved areas, have access to timely diagnosis, affordable treatments, and education on glaucoma prevention.

URBAN PLANNING AS PREVENTIVE MEDICINE: DESIGNING CITIES TO REDUCE DENGUE TRANSMISSION

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As cities expand and temperatures rise, incorporating green spaces has never been more urgent, that can mitigate urban heat, improve air quality, and enhance mental health. However, this ecological approach introduces a paradox i.e., green spaces, if improperly designed, can become breeding grounds for disease vectors, particularly *Aedes* mosquitoes that transmit dengue fever, chikungunya etc[1].

World Health Organization reports a ten-fold increase in global dengue cases over the past five decades[2]. This trend correlates with rapid urbanization and climate change, creating more hospitable environments for mosquito proliferation[3]. Urban planners and public health authorities must collaborate to build cities that are both environmentally sustainable and protective against vector-borne diseases.

Firstly, water management should be prioritized: rain gardens, bioswales, and retention ponds should incorporate circulation systems that prevent water stagnation beyond 72 hours[4]. Proper drainage slopes and regular maintenance prevent the accumulation of standing water where mosquitoes breed. Plant selection also plays a crucial role, as native species are more adapted to local rainfall patterns that reduces artificial irrigation needs, minimizing standing water. Additionally, certain plant species naturally repel mosquitoes or attract their predators creating balanced ecosystems that self-regulate vector populations.

Community education remains essential. Residents must understand how everyday actions from emptying flowerpots and saucers to clearing roof gutters contribute to mosquito control. Technology offers additional solutions, smart irrigation systems can prevent overwatering, while sensors can alert maintenance staff to standing water issues before they become problematic. Most importantly, interdisciplinary collaboration between urban planners, landscape architects, entomologists, and

public health officials must become standard practice. Singapore exemplifies this approach, incorporating vector control considerations into all urban development plans.

As we design cities for coming generations, we must recognize that urban planning is preventive medicine. Green cities and vector control are not competing interests, but complementary goals requiring integrated strategies. By embedding vector management into urban design principles, making create cities that are not only green and beautiful, but also protect public health. This holistic approach to urban planning represents our best strategy against emerging infectious disease threats in an increasingly urbanized world.

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Nursing Bottle Syndrome (NBS) and Its Implications for Pediatric Oral Health

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Nursing Bottle Syndrome (NBS), also known as Early Childhood Caries (ECC), is a severe form of dental decay that affects infants and young children. It is primarily caused by prolonged exposure of the teeth to sugary liquids such as milk, formula, and juice, particularly during bottle-feeding or breastfeeding. This condition is most prevalent when the child falls asleep with the bottle, which allows for continuous sugar exposure. The maxillary anterior teeth are most vulnerable due to reduced salivary protection, making them especially prone to decay. [1]

Risk Factors

Several factors contribute to the development of NBS. Prolonged bottle-feeding with sugary liquids is a significant risk, particularly when combined with nighttime feeding without adequate oral hygiene. Poor oral hygiene practices and a high intake of sucrose further exacerbate the risk of NBS. Additionally, a lack of fluoride exposure, socio-economic disparities, and low parental education play a crucial role in the development of early childhood caries[2]. The use of pacifiers dipped in honey or sugar, delayed weaning beyond 12–14 months, and limited access to dental care are also contributing factors. [3]

Clinical Presentation

The clinical signs of NBS begin with white demineralization spots on the maxillary incisors, which serve as an early indicator of the condition. As the decay progresses, these spots develop into rapidly progressing brown or black cavities. In severe cases, pulp exposure, pain, and abscess formation may occur. Notably, the mandibular incisors are often spared due to the protective role of the tongue. Other signs include halitosis and feeding discomfort. [4]

Impact on Oral and General Health

NBS can have significant consequences on both oral and general health. The premature loss of primary teeth can lead to malocclusion, affecting the alignment of the permanent teeth. Furthermore, children with NBS may experience speech and nutritional deficits as a result of pain or difficulty chewing. The presence of early childhood caries increases the risk of caries in permanent dentition, contributing to long-term oral health challenges. Psychologically, children with NBS may develop low self-esteem due to visible decay and associated stigma. Additionally, untreated dental abscesses can lead to systemic infections, further complicating the health of affected children. [1, 5]

Prevention Strategies

Preventing NBS begins with altering feeding habits. Bedtime bottle-feeding with sugary liquids should be avoided, and children should be transitioned to cups by 12–14 months to reduce the risk of prolonged sugar exposure. Cleaning the gums and teeth after feeding is crucial, even before the eruption of the first tooth. The use of fluoridated toothpaste is essential, with a smear for children under three years of age and a pea-sized amount for children aged three to six years[6]. The first dental visit should occur by age one to establish a preventive care routine. Parental education on diet and hygiene is paramount in reducing the incidence of NBS, alongside the use of fluoridated water or supplements if necessary[7]. Additionally, avoiding the sharing of utensils can help reduce bacterial transmission. [8]

Management

Management of NBS varies based on the severity of the condition. Early lesions can be addressed with fluoride varnish, dietary counseling, and

improvements in oral hygiene[6]. Moderate decay may require restorative interventions such as glass ionomer or composite restorations[3]. For advanced cases, stainless steel crowns, pulp therapy, or extractions may be necessary to preserve the integrity of the child's dental health. In severe cases, treatment under general anesthesia may be required to ensure that the child receives the necessary care in a controlled environment. [5]

Conclusion

NBS continues to represent a significant public health challenge. Prevention is most effective when caregivers are educated about the risks of prolonged bottle-feeding with sugary liquids and when early dental visits are prioritized. Additionally, ensuring access to fluoride and addressing socioeconomic barriers will help reduce the prevalence of this condition[2],[7]. By promoting these cost-effective strategies and early interventions, the burden of NBS can be mitigated, leading to better oral health outcomes for young children. [8]

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Serological Prevalence of Hepatitis B Virus (HBV) in Lahore District, Punjab Pakistan

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Abstract

Objective: To assess the serological prevalence of Hepatitis B Virus (HBV) infection and its association with age and gender among suspected individuals in Lahore, Punjab, Pakistan.

Method: Blood samples were collected from patients attending the Lahore Lab and Mansoorah Lab during July 2023 to November 2023 in Lahore. Data on the study participants, including age and gender was collected are subjected to ELISA testing for the investigation of immunoassays for the qualitative determination of HBsAg.

Results: Hepatitis B virus infection was screened in 348 patients, of whom 61 (17.5%) were found to be positive. Among them, 52.58% were male and 47.41% female. Female patients were found to be more commonly infected than their male counterparts. The highest rate of infection was found in children aged 10 to 30 (i.e., 45.9), followed by 15.38% in those aged 31 to 50. As age increases, the infection rate drops, with the 51–70 age group showing a 16.92% infection rate.

Conclusion: A total of 17.5% of participants in this study were infected with HBV, including both genders. The results indicated that HBV prevalence was higher in females and in the 21-30 age range, while older age groups experienced a lower infection rate. This suggests that there are gender and age differences in the exposure and transmission of HBV in Lahore, Punjab, Pakistan. objective write fromin one line.

Introduction

Hepatitis B Virus (HBV) is a major global health concern, infecting 257 million people and causing 887,000 deaths each year. It is most widespread in the Western Pacific (6.2%) and regions of Africa (6.1%). HBV, one of the five major hepatitis viruses (Hep-A, B, C, D, and E), which majorly affects liver causing severe liver diseases such fibrosis, hepatocellular carcinoma (HCC), and cirrhosis. In Pakistan, nearly 20 million people have Hepatitis B and C, with 150,000 new cases reported per year 1 The most common chronic viral infection in the world is caused HBV, impacting 2 billion people and accounting for approximately 350 million chronic carriers. The 2010 Global Burden of Disease survey ranked HBV as the tenth largest cause of death worldwide. Despite the existence of excellent vaccinations and treatments, significant efforts are needed2 The HBV genome, within the Dane particle, consists of circular, partially double-stranded DNA about 3200 bp long. It includes 4 open reading frames that encode viral proteins essential for replication and immune evasion. 3 HBsAg forms icosahedral capsids, crucial for viral replication4. HBV genotypes and serological subtypes impact disease progression and treatment response. Transmission occurs through bodily fluids, with perinatal transmission being most common in high-prevalence areas. Vaccination and prophylactic measures are key to preventing HBV 5. The host immune response to HBV, particularly CD8+ and CD4+ T cells, is critical in controlling infection and mediating liver injury. Adequate immune responses can clear the virus, while inadequate responses lead to chronic infection 6. Acute hepatitis B (AHB) can range from asymptomatic to severe, with most symptoms resolving within months. Chronic hepatitis B (CHB) poses long-term risks, with disease progression influenced by viral replication and immune response phases 5. HBV prevalence varies globally, with high rates in Southeast Asia, China, and Africa. Universal neonatal vaccination and immunoprophylaxis are crucial in reducing HBV spread, particularly in endemic regions. In developed areas, infections often result from high-risk behaviours 7. Preventing HBV involves both passive and active immunization, with neonatal vaccination being crucial in high-prevalence areas. Effective antivirals, such as tenofovir and entecavir, are used to manage chronic HBV, with treatment guided by viral load, ALT levels, and liver damage signs 8. Understanding HBV's relationship with age and gender, especially in regions like Lahore, Pakistan, is essential for targeted public health efforts and research. The study aims to determine the seroprevalence of HBV in Lahore, Punjab, Pakistan, providing updated information on the prevalence of hepatitis B in the region. Additionally, the study seeks to identify the associated risk factors linked to exposure and transmission of HBV

Method

his cross-sectional study aimed to assess the seroprevalence of Hepatitis B Virus (HBV) and identify associated risk factors in Lahore, Punjab, Pakistan. Conducted over four months using non-probability convenient sampling, data were collected from 348 participants aged 10–70 years at Lahore Lab and Mansoorah Lab, excluding individuals with serious illnesses or unwillingness to participate. Blood samples were collected from residents across ten towns in Lahore, and tested for hepatitis B surface antigen (HBsAg) using ELISA (Elecsys HBsAg II). Data were recorded in Microsoft Excel and analyzed using SPSS version 21.0.

Result

A total of 348 samples were collected in the current study, including 183 males and 165 females. The samples, ranging from individuals aged 10 to 70 years, were divided into three age categories for analysis. Out of total 348 individuals, 61 were positive for hepatitis B virus. Total prevalence calculated was 17.52 %. Gender-wise Prevalence: A total of 183 suspected individuals were males and 165 were females. Out of which 29 were males (15.84%) and 32 females (19.39%) were detected positive for HBV. Figure 2 shows the prevalence of males and females for HBV.

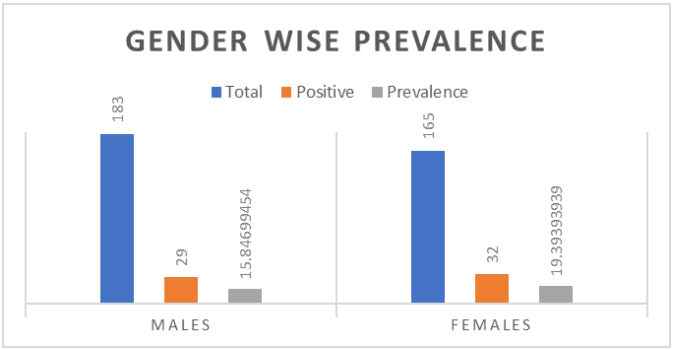

Figure 1: Gender-wise Prevalence %

Out of 348 samples tested for HBV, 56 were received in the month of July from which 7 (12.5%) were positive. In August, 49 samples were collected and 9 (18.36%) were positive. September came up with 87 samples out of which 15 (17.24%) were positive. 90 samples were received in October and 19 (21.11%) out of them were positive. Finally, in the month of November, 66 samples were collected and 11 (16.66%) were positive. Figure 2 show Month Wise prevalence

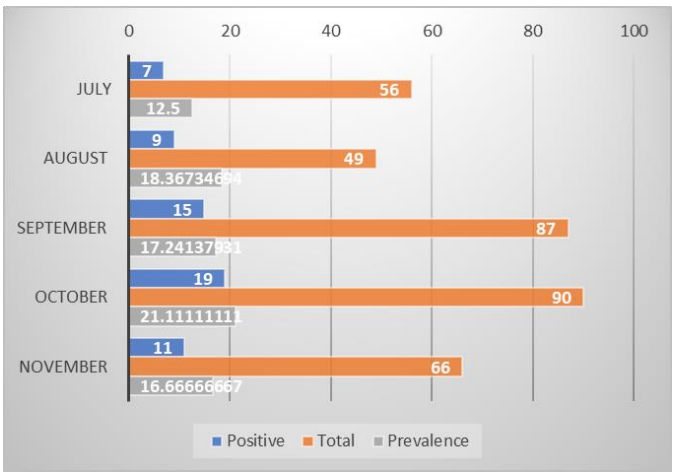

Figure 2: Month-wise Prevalence %

Out of 348 samples tested for HBV, In Gulberg Town, 40 samples were taken, with 12 (30%) testing positive. Wahga Town had 30 samples with 3 (10%) positives. Samnabad Town had 43 samples, 5 (11.62%) positives. Ravi Town received 46 samples with 9 (19.56%) positives. Nishtar Town had 40 samples with 6 (15%) positives. Iqbal Town's 42 samples received with 4 (9.52%) positives. Cantonement received 38 samples with 8 (21.05%) positives. Shalamar Town's 32 samples resulted with 4 (12.5%) positives. Aziz Bhatti Town had 31 samples received with 7 (22.58%) positives. 6 samples with 3 positives from Data Gunj Baksh Town. Figure 3 depicts town-wise prevalence

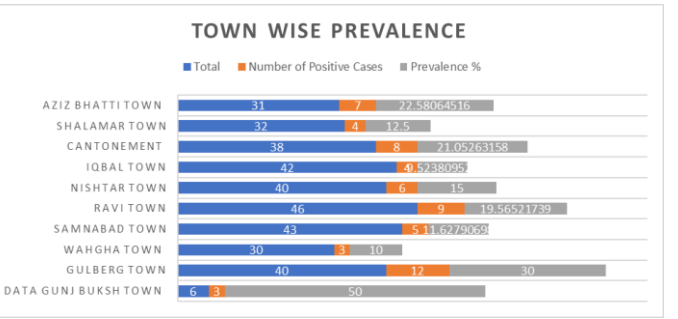

Figure 3: Town-wise Prevalence %

People included in this study from general population by random selection belonged to different age groups ranging from 10 as lowest and 70 as highest of them. Three age groups were established to categorize them. 64 male and 76 female samples were received belonged to 10 – 30 age group and 10 (15.62%) male and 18 (23.68%) female which were positive. In 31 – 50 age group, 82 male and 62 female sample received, 13 (15.85%) male and 9 (14.75%) female were positive. In 51 – 70 age group, 37 male and 28 female samples received, 6 (16.21%) male and 5 (17.85%) female were positive.

Geographical Illustration of Prevalence

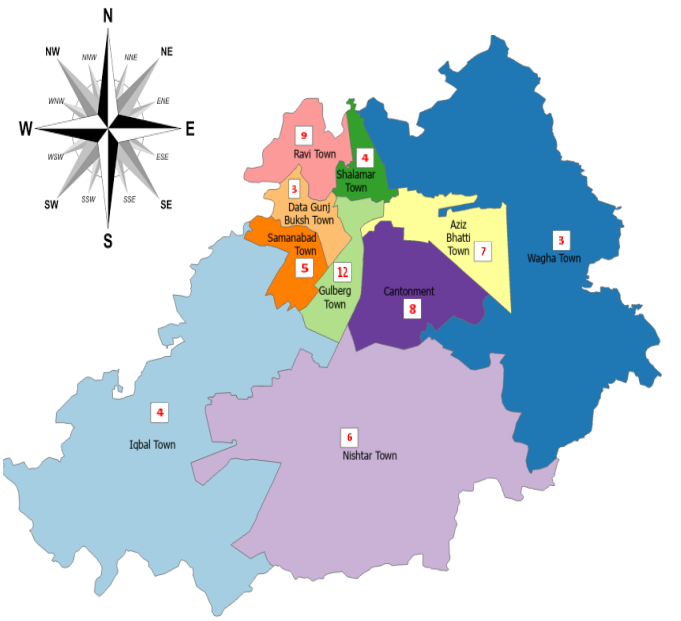

Table 4 shows total prevalence % in male and female in different age group

Variable	Total Suspected Individuals	Total Positive	Prevalence (%)
Age Groups			
(10 - 30)	140	28	45.9016393
(30 - 50)	143	22	36.0655738
(50 – 70)	65	11	18.0327869
Month Wise			
July	56	7	11.4754098
August	49	9	14.7540984
September	87	15	24.5901639
October	90	19	31.147541
November	66	11	18.0327869
Town Wise			
Aziz Bhatti Town	31	7	11.4754098
Shalamar Town	32	4	6.55737705
Cantonment	38	8	13.1147541
Iqbal Town	42	4	6.55737705
Nishter Town	40	6	9.83606557
Ravi Town	46	9	14.7540984
Samnabad Town	43	5	8.19672131
Wagha Town	30	3	4.91803279
Gulberg Town	40	12	19.6721311
Data Gunj Baksh Town	6	3	4.91803279

Discussion

Emerging infectious diseases represent a serious threat to global public health, with underdeveloped nations being particularly vulnerable due to limited resources. These pathogens are typically distinguished by novel ways of causing illness and, in some instances, have a broad host range 9. Hepatitis B infection is an alarming public health concern worldwide, with prevalence rates ranging from 2% to 8% in different populations across Pakistan. This situation is not different from that in the rest of the world 10. In particular, those with acute hepatitis who harbor HBsAg in their serum are likely to be carriers or face a higher risk of chronic liver disease, a significant concern in developing nations like India, Bangladesh, and Pakistan 11. Lahore is in the north-eastern region of province Punjab, Pakistan. According to a survey by the Pakistani government, the frequency of hepatitis is higher in rural areas than in metropolitan ones. Outbreaks of diseases are complicated and frequently poorly understood. The current study's experimental approach attempts to find out how common HBV is in Lahore, Punjab, Pakistan. The city of Lahore was chosen because of the relatively larger mixed population in all of its districts. These districts are facing basic health prerequisites problems. Previous findings were more concerned about antibodies-based tests and non-PCR methods including ELISA. According to our recent results, ELISA was used to determine the exact prevalence of active HBV across different age groups, including both males and females. The data align with the hypothesis that HBV infection is uniformly distributed between genders, influenced by various outdoor factors. Individuals who had received treatment for hepatitis B and C. in the past 2 years through Prime Minister Program for the Prevention and Control of Hepatitis Viral Infection were screened from 12 different regions. A success rate of 67% was stated for PCR reports of 1686 patients, which were available and about 33% were non-responders. Approximately 3440 (45.4%) out of 7572 patients completed six months of interferon therapy 12. To minimize the risks associated with HBV, there is an urgent need to comprehend the pathogen-host interactions, track molecular evolution, and carry out genomic surveillance. The current study reveals a 17.52% HBV prevalence across Lahore, Pakistan (Table 04). The prevalence was greater among females (19.39%) (Table 03) than males (15.84%) (Table 02). The results indicate that the female population is more likely to acquire HBV infection quickly due to increased exposure to the outside environment Age-wise, the highest prevalence (20%) of HBV was recorded in the 10-30 years group, while the lowest was in the 31-50 years group (15.38%) and the 51-70 years group had a prevalence of 16.92%, these findings differ from those previously reported, where the highest prevalence (86%) was noted in the 20-40 years age group, followed by 71.5% in the 40-60 years group, and the lowest prevalence of 64.66% in the 10-20 years age group.13. In terms of monthly prevalence, October had the highest percentage at 21.11%, while September (17.24%), August (18.36%), and November (16.66%)

followed. The lowest prevalence was observed in July at 12.5%. These results are consistent with earlier reports, which showed the lowest percentage in July at 56.77% compared to the other months 13.

Conclusion

In this study, the magnitude of HBV seroprevalence was evaluated in Lahore's population. The results show that females are at a greater risk of HBV infection compared to males. Younger age groups, regardless of gender, showed a higher rate of infection. Furthermore, it is crucial for the Punjab government, local authorities, and NGOs to promote preventive measures and curb the spread of this infectious disease.

Recommendations

To further enhance the study on HBV prevalence in Lahore, it is highly suggested to increase the sample size and use a variety of sampling strategies, such as stratified or random sampling, to produce a more representative population sample. Extending the study's duration may assist capture seasonal fluctuations and provide a more complete picture of HBV epidemiology. Furthermore, combining characteristics such as socioeconomic status, immunization history, and occupational exposure may reveal substantial risk factors.

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Risk Assessment of Cannabis Use by Cannabis Abuse Screening Test among Medical Students

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Abstract

Objective: To assess the risk of cannabis use among medical students of MBBS; identify the frequency regarding cannabis use among medical students and categorize those students according to Cannabis Abuse Screening Test (CAST).

Method: This cross-sectional study was conducted at Shalamar Medical and Dental College over a period of one month. A total of 207 MBBS students were selected through simple random sampling after obtaining informed consent. Data was collected using a structured questionnaire and the Cannabis Abuse Screening Test. Statistical analysis was performed using SPSS version 25.0. Chi-square test was applied to assess associations between study variables.

Results: The study results reveal that 51.7% (107) participants were female and 48.3% (100). 24.6% (51) participants belong to extended family type while 75.4% (156) were from nuclear family. Additionally, 57% (118) were day scholars while 43% (89) were residing in hostel. 9.7% were married and 90.3% were single.

Conclusion: Frequency of smoking cannabis is significantly high in age slab 21-24 years especially males who were single and whose parents have monthly income between PKR 10000 to 50000, with pocket money less than 20,000 per month.

Introduction

World Health Organization claims that around 2.5% of population of world consume cannabis. Substance abuse is a global problem with its significant risks for medical students. Medical students are at risk due to easy access to drug, work pressure, sleepless nights and relative isolation from friends and family. Researches shows that estimated prevalence rate of substance abuse among students is around 20 to 40% worldwide. Nepal shows dreadful conditions.[1]

Iran has conducted many studies on college students in order to find out the association of aggression and addiction as they are of the view that less attention has been paid to effect of anger and incidence of drug addiction in medical students. Long term damage in the form of addiction in medical students can endanger the health of general population.[2] Use of addictive materials like Alcohol, Tobacco, and Cannabis are major health issues for young generation now a day[3] with major health issues like cardiovascular disease, respiratory disorders, emphysema and cancer.[4] Sexual relationships are also a major contributing factor for drug abuse.

Cannabis is next to alcohol and tobacco in consumption throughout the world. Cannabis is a generic term used to present different psychoactive preparations of the plant *Cannabis sativa*. More than half of the drug seizures throughout the world are cannabis seizures. Marijuana is extracted from plant *Cannabis sativa* with active compound. Cannabinoids. Cannabinoids act through 2 different receptors present on brain, lungs, immune system and kidneys. Internationally Marijuana is the most commonly used substance of abuse throughout the world. [5]

It is reported that around 200million people have used cannabis one in 2019. In some cases, use of cannabis can evolve into loss of control through the development of Cannabis Use Disorder (CUD), a condition that is associated with progressive social and psychological outcomes. While global cannabis use has increase by 60% in past few years.[6] Majority of the researches concerning abusive cannabis use has been limited to adult samples with major concern for prevalence of CUD diagnosis as defined by International Classification of Disease or Diagnostic and Statistical Manual of Mental Health.[7] This methodological approach has been useful for identification of cannabis users, but the validity of DSM in detecting less severe cannabis related effects has been criticized in the context of youth and young adults. CAST is accurate tool to differentiate between user with low, moderate and high risk of being affected by cannabis related problems. Cannabis are prescribed by general practitioners in health sector. For cannabis units as the Standard Joint Unit (SJU) helps in homogenous registration of cannabis use, including quantities consumed.

Different conclusions may be drawn from different populations, most importantly convenient sampling of volunteers. CAST contain continues variables, where as they are based on 5point scale. Robust estimators are currently implemented in structural equation model software to find out the categorical nature of items.[8]

Material & Method

This cross-sectional study was conducted at Shalamar Medical and Dental College, Lahore, over one month. A total of 207 MBBS students participated, selected through simple random sampling after providing informed consent. Data was collected using the Cannabis Abuse Screening Test (CAST) and a structured questionnaire, filled manually by the researcher. The importance and public health impact of the study were explained to all participants. Data was entered and analyzed using SPSS version 25.0. Chi-square test was applied to assess associations between variables. Categorical data was presented using bar and pie charts, while continuous data was illustrated with line graphs, histograms, scatterplots, and boxplots.

Result

Study results revealed that 51.7% (107) participants were females while 48.3% (100) were males. 24.6% (51) participants belong to extended family structure while 754% (156) were from nuclear family. 57% (118) were day scholars while 43% (89) were living in hostel. 9.7% were married and 90.3% were single (table 1&2).

5.3% students out of 207 had smoked cannabis in last 12 months (table 3). Stratification of CAST scoring is given in table 3 and 4. Related to risk scoring, 93.7% students were at low risk i.e. 0 score. 1% students were

at moderate risk with 5 score. Rest of the students were at high risk with scores 7 and above.

The mean age of the study sample was 22.07±1.853 and mean score for risk was 0.5459±2.349.

Table 1: Descriptive statistics of age, family income and pocket money

CHARACTERISTICS	PARTICIPANTS (n=207)
Age (years)	22.07±1.853
17-20 years	47 (22.7%)
21-24 years	151 (73.0%)
25 years or above	9 (4.3%)
Family income (PKR)	430753.01±65589.81
Pocket money	24107.97±40528.52

Table 2: Frequency distribution of CAST questions

		Frequency	Percent
Have u smoked cannabis in last 12 months?	no	196	94.7
	yes	11	5.3
Have u smoked cannabis before mid-day?	0	197	95.2
	1	3	1.4
	2	5	2.4
	3	1	0.5
	4	1	0.5
Have u smoked cannabis when u where alone?	0	196	94.7
	1	2	1.0
	2	4	1.9
	3	2	1.0
	4	3	1.4
Have u had memory problems when u smoked cannabis?	0	199	96.1
	1	4	1.9
	2	2	1.0
	3	1	0.5
	4	1	0.5
Have friends or members of your family told you that you ought to reduce your cannabis use?	0	200	96.6
	1	2	1.6
	2	3	1.4
	3	2	1.0
Have you tried to reduce or stop your cannabis use without succeeding?	0	200	96.6
	1	3	1.4
	2	1	0.5
	3	1	0.5
	4	2	1.0
Have you had problems because of your use of cannabis?	0	198	95.7
	1	4	1.9
	2	1	0.5
	3	2	1.0
	4	2	1.0

Discussion

According to WHO, Marijuana usage affects around 147 million people per year. About 22.2 million Americans aged 12 or older admitted to using cannabis regularly in 2014, with 8.4% of them saying that they had done so in the preceding month.[9] Medical students are at risk of cannabis addiction due to easy access, sleepless nights and isolation from social life.

According to the office of Alcohol and drug education, one can divide addiction into two categories; one is physical abuse and second is psychological abuse. In physical abuse, one's body needs the drug and in second type the user deliberately desires the drugs affects.[10,11] Cannabis consumption as per age groups was reported by 3.7% in people with age below 20 years and 6.4% with age above twenty years.[11]

Following variables were studied in this study: age group, family income, residence, pocket money, gender and frequency of cannabis use. In this study mean age of participants was 22.07±1.853 years. Frequency of cannabis smoking in study population was found to be 4.8%. Mean family income was high and median was 300000 with IQR of 350000. Previously in a study, cannabis abuse was reported to be11.1% and were highest in France (15.2) and were lowest in Kosovo (2.5).[12] In this study, Q1 95.2% students never smoked cannabis before mid-day, 1.4% students rarely smoked cannabis before mid-day, 2.4% students smoked cannabis from time to time before mid-day, 0.5% students fairly often smoked cannabis before mid-day while 0.5% smoked cannabis very often. Q2, 94.7% students never smoked cannabis when they are alone, 1% students rarely smoked cannabis when they are alone, 1.9% students smoked cannabis from time to time when they were alone, 1% students fairly often smoked cannabis when they were alone while 1.4% smoked cannabis very often when they were alone. Q3, 96.1% students never had memory problems when they smoked cannabis, 1.9% students rarely had memory problems when they smoked cannabis, 1% students had memory problems from time to time when they smoked cannabis, 0.5% students fairly often had memory problems when they smoked cannabis while 0.5% had memory problems very often when they smoked cannabis. Q4, friends and members of 96.6% student's family never told them that they ought to reduce their cannabis use, friends or members of 1% student's family rarely told them that they ought to reduce their cannabis use, friends and members of 1.4% of student's family told them time to time that they ought to reduce their cannabis use, friends and members of 1% student's family fairly told them that they ought to reduce their cannabis use. Q5, 96.6% students never tried to reduce or stop their cannabis use without succeeding, 1.4% students rarely tried to reduce or stop their cannabis use without succeeding, 0.5% students tried time to time to reduce or stop their cannabis use without succeeding, 0.5% students fairly often tried to reduce or stop their cannabis use without succeeding, 1% students tried very often to reduce or stop their cannabis use without succeeding. Q6, 95% students never had problems because of their use of cannabis, 1.9% students rarely had problems because of their use of cannabis, 0.5% students had problems from time to time because of their use of cannabis, 1% students had problems fairly because of their use of cannabis, 1% students had problems very often because of their use of cannabis.

In a population based study, cannabis use was reported as 21.5 in overall out of which 13.9% were students. 12.5% of adults who reported using cannabis in the preceding year also reported using it regularly, according to a condition probability. There was a substantial age dependent dose response gradient, with older pupils using cannabis more frequently than younger ones. In multivariable analysis, grades 10 through 12 (OR arranged from 3.71 to 3.85), race (ORs 2.67), cigarette use (OR 10.10) and alcohol use (OR 5.35) or regular use (14.6) were all link to higher odds of cannabis use. Cannabis consumption was related with a reduced likelihood of immigration (OR 0.55). When data was stratified marital status versus low or moderate/high risk, majority of the participants were in low risk category and the result was significant (p-value=0.004).

Conclusion

From findings of the study, it is conducted that among students of MBBS, frequency of cannabis consumption is high in age of 21-24 years especially in males who are single and have parents with monthly income 10000 to 50000, with pocket money less than 20,000 per month. Students of nuclear family structure are more prone to cannabis addiction. Most students were at low risk of cannabis addiction.

There is need of special awareness program launch with special focus on students belonging to above discussed variables. In future there is also need to dig out causes which trigger consumption of cannabis in student's community.

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Comparative study of Miswak and Toothbrush user's oral hygiene status using Simplified Oral Hygiene Index (OHI-S) as clinical measuring tool

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Abstract

Objective: To evaluate and compare status of Oral Hygiene maintenance of toothbrush and miswak users among teenage male madrassa students based on clinical indexes and questionnaires.

Method: There were 281 madrassa enrolled students examined and interviewed in accordance with inclusion and exclusion criterion already mentioned. Informed consent was taken. After having explained the questionnaire and clinical procedures, first a questionnaire (attached in annexure) was filled by the dentist based on answers provided by students. A trained dental hygienist performed clinical examination using mouth mirror, probe and WHO perio probe. Plaque and calculus score were recorded according to respective indexes.

Results: When miswak was used as cleaning tool, 41 (39.4%) fell in fair category of OHI –S, 35 (33.7%) fell in good category and 28 (26.9%) fell in excellent category of OHI –S with a significant (p-value<0.05). When tooth brush is used as cleaning tool, 23 (23.7%) were in fair category, 46 (47.4%) were in good and 28 (28.9%) were in excellent category of OHI –S. THE P value was again significant. When both miswak and brush are used, 8 (10%) were in fair, 32 (40%) were in good and 40 (50%) were in excellent category with p value being significant.

Conclusion: The obtained data clearly reflects the effectiveness of miswak at par with toothbrush even when it was used without a dentifrice. This efficacy of miswak should be highlighted as an alternate of tooth paste and brush in LMICs like Pakistan. The results also show a better OHI–S when miswak and tooth brush were used in conjunction.

Introduction

Oral health maintenance contributes imperatively in highlighting an individual's general attitude towards health maintenance. Attention given to good oral hygiene maintenance is crucial as it helps keep the mouth and teeth clean while preventing various health issues. Keeping in mind the World Health Organizations (WHO) recent broadening of health definition with inclusion of social well-being, oral health dimension has now taken a key role. Furthermore, while evaluating social integration determinants, communication and creativity, eating, talking, smiling, oral health takes a pivotal role. Consequently, the general consensus is recognition of oral hygiene maintenance as a significant part of overall perception of a healthy mind and body.[1]

Maintaining a healthy mouth not only enables a person to look and feel better; it is also crucial for proper oral functions. The effects of poor oral health on the overall health and social life are well documented. Numerous long term and general systemic ailments have been documented to be related to poor maintenance of oral hygiene. A vast number of diseases affecting diverse body systems like cardiovascular, digestive and mental health and endocrine have recently been associated with the maintenance of poor oral hygiene and health. Poor oral hygiene leads to persistent infections and inflammations in mouth, caries in hard tissues and periodontal diseases in soft tissues of mouth. This clearly establishes that periodic and regular debridement of teeth for plaque and food debris removal is a vital link in maintaining a healthy mouth and prevention of infections.[2]

An individual's oral cavity represents his attitude towards overall wellbeing. Maintaining adequate Oral Hygiene (OH) is considered a vital aspect of a person's overall health. Good OH improves the overall Quality of Life (QOL). Different cultures and regions have invented and reinforced different means for this purpose. Whatever the means employed the end expected result is a clean and healthy oral environment. This prevents unpleasant mouth odor, tooth decay, and deposit built up on teeth. As oral diseases continue to rise, the growing global demand of effective and economical preventive and treatment products has intensified. This situation underscores the importance of understanding traditional practices and beliefs related to oral health.[3] Aeeza S, malik and colleagues in 2017 concluded that miswak offered comparable if not superior results when both miswak and brush were applied for teeth and soft tissue cleaning. It also demonstrated anti plaque effectiveness. This suggests that miswak may serve as a viable substitute for toothbrushes.[3]

Miswak, taken from the branches of different plants, is in use since ages in regions of Arabia, Babylon, ancient Greece, and Rome for cleaning teeth. Later on, its efficacy has been further proven by chemical analysis, which has shown that miswak contains ingredients found in nature which have a positive role in oral hygiene maintenance. A new era of preventive dental health delivery can be envisaged by re inducting miswak in daily cleaning habits and shedding light on the various benefits of its natural ingredients.[3] A chewing stick is cost effective and accessible in both urban and rural areas of developing countries. In Pakistan, the main factor attributed to the selection of chewing sticks against toothbrush is its affordability to more than half of its population living in rural areas. [4] In developing countries where dental services and cleaning tools are relatively inaccessible and or too expensive for a vast number of populations, miswak remains a crucial tool for oral hygiene. The affordability and availability of miswak in both rural and urban areas projects it as a practical choice. Cost effectiveness, traditions and particularly religious beliefs highlights its potential for enhancing hygiene habits, an endeavor that requires authentic and regional data. Since miswak is a significant part of hygiene routine of a vast population, its significance can be harnessed for dental health education. [5]

Available literature also supports the role of miswak in reducing plaque. Decreased gingival bleeding has been shown when soft tissues of oral cavity were probed on those individuals who were using regular miswak compared with those who were not. Ethiopian schoolchildren were the subjects of a study relating miswak and tooth cleaning brush. It was deduced that comparable teeth and gum cleaning was achieved by both when miswak was utilized in an effective manner.[6]

Primarily, mechanical cleaning action of miswak is regarded as a key attribute to its importance. This

mechanical action reduces the chances of food accumulation which can lead to plaque buildup and consequently soft tissue inflammation. Moreover, the long duration of keeping miswak in the mouth compared to a brush, typically increases its efficacy by both mechanical and chemical action.[7]

In order for miswak to clean teeth properly, its movement should start from near the gums and directed towards the occlusal and incisal edges this direction should be followed on buccal and lingual surfaces. An anterior to posterior motion is best suited to clean occlusal surfaces. Care should be taken when performing cleaning so as not to damage the gingiva. Adequate tooth cleaning is achieved by setting a routine of at least three to five minutes. Additionally, tongue cleaning should be added to this routine as bad breath is usually a result of deposition of food particles onto its surface. When used in this way, miswak serves a dual purpose of tongue cleaner in addition to a tooth cleaning brush. It is of utmost importance to properly use miswak to enhance its cleaning and healing properties.[8]

A study by Ismail A. Darout reaffirmed and highlighted the fact that dental healthcare access is limited for residents of low and middle income countries. World Health Organization supports the exploration of inexpensive and readily available traditional preventive tools. The statement issued after consensus in this regard states “chewing sticks may contribute to promote oral hygiene” and that “evaluation of their effectiveness warrants further research”.[6] This study also found that periodontal health status of miswak users was comparable to toothbrush users, indicating similar effectiveness in maintaining a clean oral cavity.[9]

Additionally, study by Abdul rehmaan Ramadan in 2020 examined 3 groups, those using toothbrushes, miswak or both. It concluded that miswak users had lower plaque levels compared to the other OHMs. This result could be owed to the fact that the miswak has chemical plaque control properties in addition to its mechanical cleansing properties.[10]

A scientific study By Nazwa Munia, Gulnara Rzayeva &Gulnoza Dustmurodova stated that paste incorporating miswak extracts resulted in more efficient removal of plaque deposits. In addition to the antimicrobial properties, the miswak extract paste also retarded further accumulation of plaque. Thus miswak or its extract may replace brush without any negative consequences. Furthermore, both miswak and brush can be incorporated in cleaning routine to achieve the desired end result of clean teeth and gums. In order for miswak to be an efficient cleaning tool, consistent routine and prescribed technique is advocated.[11]

A randomized control trial by Baeshen in 2017 stated that when measuring the amount of plaque reduction, both miswak and brush produced near identical scores. In addition, this study also concluded that miswak with fluoride released fluoride in a more effective manner than a paste containing fluoride. A double blind randomized control trial published by Malik et al in 2014 concluded more thorough plaque removal by miswak when compared to a brush in students of dental sciences.[12]

However, this study takes a dual approach by implementing both questionnaires and clinical evaluation methods to assess oral hygiene (OH) and miswak utilization. Based on previous studies, it is expected that both groups will have comparable data. First, a questionnaire will collect information on oral health habits, types and frequency of aids used, and demographic data. Next, clinical assessment tools will measure hygiene standards. Simplified Oral Hygiene Index (OHI-S), Calculus Index (CI), and Plaque Index (PI). The OHI-S is a widely recognized scoring system that evaluates OH status quantitatively, thus providing a more sensitive measure. It calculates the OHI using two clinically observed values from CI and PI.

This research stands out because it combines subjective and objective assessments for the same patients being examined, resulting in more reliable findings that may further broaden the field for data collection and research initiative studies for local community.

Material & Method

This cross-sectional study was conducted over three months in two male madrassas in Lahore. The study population included children aged 12 to 16 years. A simple random sampling technique was used. A total of 281 students were enrolled based on inclusion criteria:

those using only miswak (group 1), both miswak and toothbrush (group 2), or only toothbrush for oral hygiene. Exclusion criteria included children undergoing orthodontic treatment, having oral disease, physical disability, recent tooth cleaning (within 3 months), or unwillingness to disclose hygiene habits. Data collection was done after ethical approval, with informed consent taken from participants. A questionnaire was filled by the dentist, followed by clinical oral examination by a trained dental hygienist. Plaque and calculus scores were recorded. Data was analyzed using SPSS 20.0, with frequencies, means, chi-square test, and t-test applied for statistical analysis.

Result

The primary objective of this study was to assess the dependence and relation between choice of cleaning tool and level of oral hygiene among young local population. Results obtained from this study indicate that both tooth brush and miswak are equally effective in maintaining oral hygiene. Furthermore this study indicates that when both tooth brush and miswak are used simultaneously by a person, oral hygiene status is improved considerably.

This study was conducted in two male madrassas of Lahore. A total of 281 madrassa students were examined for the study. The mean calculated age of the whole group was 18.01 ∓ 2.939. Out of 281, 110 were ≤ 17 (39.9%) and 169 were≥ 17 (60.1%). 104 (37 %) students were miswak users, 97 (34.5 %) were tooth brush users and 80 (28.5)% students used both miswak and tooth brush. The OHI-S index was calculated after measuring values of plaque index (PI) and calculus index (CI). The value obtained by plaque and calculus index were added and oral hygiene index score was obtained. Based on the obtained scores, excellent, good , fair and poor rating was given to scores. For score of oral hygiene index of (0), rating was given as excellent. For a score between (0.1) - (1.2), rating was good. For score between (1.3) – (3.0), rating was fair and score greater than (3) was rated as poor.

The mean PI – S score was 0.518932±0.5605351. Mean CI –S score was 0.21732 ∓ 0 .36918. Mean OHI – S was 0 .738754 ± 0.8048. The overall rating score of the group was excellent in 96 (34.2 %) of students, good in 113 (40.2%) of students, fair in 72 (25.6%) of students.

Out of 281, 80 used both miswak and toothbrush as cleaning tool. The frequency of using both in age group ≤ 17 was 29 (36.3%) and in age group ≥17, it was 51 (63.8%). Out of these 80, 22 (27.5%) cleaned once a day and 40 (50%) cleaned twice a day and 18 (22.5%) were infrequent in cleaning. Horizontal technique was used by 23 (28.8%), vertical was used by 57 (71.3%). All used five finger grasp and more than one day was brush used .The OHI –S rating was excellent in 40 (50 %), good in 32 (40%) and fair in 8 (10%).

Out of 281, 97 were tooth brush users. The frequency of using tooth brush in age group ≤17 was 54 (55.7%) and in age group ≥17, it was 43 (44.3%), 25 (25.8%) used brush once a day, 54 (55.7%) used it twice a day and 18 (18.6%) were infrequent in brushing. 45 (46.4%) used a horizontal brushing technique and 52 (53.6%) used a vertical brushing technique. The brush grasping technique was five fingers grasp in all. The OHI –S rating was excellent in 28 (28.9 %), good in 46 (47.4%) and fair in 23 (23.7%).

Out of 281, 104 were miswak users. The frequency of using miswak as cleaning tool in age group ≤17 was 29 (27.9%). While in age group ≥ 17, it was 75 (72.1%). 12 (11.5%) students used it once in day, 33 (31.7%) used it twice daily and 59 (56.7%) used it infrequently. The direction of miswak use was horizontal in 37 (35.6%) and vertical in 67 (64.4%). The grasping technique was five finger grasp in 85 (81.7%) and two finger grasp in 19 (18.3%). All students used miswak for more than one day. The OHI–S rating was excellent in 28 (26.9%), good in 35 (33.7%) and fair in 41 (39.4%).

When miswak was employed as cleaning tool, the mean calculated age was 19 ± 2 years .The mean score for (PI –S) was 0.75 ± 0.66, mean score for (CI –S) was 0.3 ± 0.43 and mean score for (OH – I) was 1.05 ± 0.91.

With tooth brush employed as cleaning tool, the mean calculated age was 17 ± 3 years. The mean (PI –S) score was 0.5 ± 0.46, mean (CI – S) score was 0.236 ± 0.345 and mean calculated (OHI – S) score was 0.72 ±0.714.

Whit both miswak and tooth brush used as cleaning tools, the mean calculated age was 18.5 ± 3 years. The mean (PI–S) score was 0.3 ± 0.4, mean (CI – S) score was 0.09 ± 0.26 and mean calculated (OHI –S) score was 0.4 ± 0.6.

Table 1: **Choice of cleaning tool (Method of cleaning)**

Method of cleaning	Rating			Total	p- value
	Fair	Good	Excellent		
Miswak	41 39.4 %	35 33.7%	28 26.9%	104 100%	<0.0001
Tooth brush	23 23.7%	46 47.4%	28 28.9%	97 100%	
Both	8 10%	32 40%	40 50%	80 100%	
Total	72 25.6%	113 40.2%	96 34.2%	281 100%	

When miswak is used as cleaning tool, 41 (39.4%) fell in fair category of OHI –S, 35 (33.7%) fell in good category and 28 (26.9%) fell in excellent category of OHI –S with a significant P value. When tooth brush is used as cleaning tool, 23 (23.7%) were in fair category, 46 (47.4%) were in good and 28 (28.9%) were in excellent category of OHI –S. The p-value was again significant. When both miswak and brush are used, 8 (10%) were in fair, 32 (40%) were in good and 40 (50%) were in excellent category. p value is significant.

Table 2: Age wise rating of Oral Health Status

Age	Rating			Total	p- value
	Fair	Good	Excellent		
< 17	24 21.4 %	57 50.9%	31 27.7%	112 100%	0.012
> 17	48 28.4%	56 33.1%	65 38.5%	169 100%	
Total	72 25.6%	113 40.2%	96 34.2%	281 100%	

In age category of younger than 17, 24 (21.4%) were in in fair category, 57 (50.9%) were in good and 31 (27.7%) were in excellent category. In older than 17, 48 (28.4%) were in fair category, 56 (33.1%) and 65 (38.5%) were in good and excellent category. The P value is significant.

Discussion

This research sheds light on future prospects of incorporating miswak recommendations in dental public health education programs. The findings clearly reflect the effectiveness of miswak at par with toothbrush even when it is used without a dentifrice. This efficacy of miswak should be highlighted as an alternate of tooth paste and brush in LMICs like Pakistan. The results also show a better OHI–S when miswak and tooth brush are used in conjunction. For those communities where oral hygiene is neglected because of lack of resources, miswak use should be encouraged.

A double blind randomized control trial published by Malik et al in 2014 concluded more thorough plaque removal by miswak when compared to a brush in students of dental sciences.[12]

A study by Khalid Almas conducted in Pakistan stated that 53.1% of male students used miswak more than three times a day in an intermediate school, and by 55.8% in secondary school levels. Once daily use of miswak was common among female students ranging from 49.5% to 55.2%. [13]

Research indicates that the effective use of miswak helps decrease dental biofilm on teeth, which is a key contributor to plaque and calculus buildup. [14] In a 2016 case study by Ismail, a patient who only used miswak—without any toothpaste, mouthwash, or flossing—was assessed before starting orthodontic treatment. The patient's initial plaque score was 1.0, indicating a low level of dental biofilm, as determined by the Silness-Loe Plaque Index method, which involved addition of individual score for each tooth and afterwards division of the total score by the total teeth number that were examined. In this way total biofilm index was calculated. The study found that the biofilm levels on teeth did not change over six months of miswak use. [14]

Similarly, Darout and colleagues utilized the Community Periodontal Index (CPI) for comparison of health of the periodontal tissues of brush and miswak users. CPI suggests to evaluate calculus present supra-gingival and depth of probing for each tooth. The results obtained showed that when used with effective technique, miswak produced better results of plaque

reduction and gingival inflammation compared to brush. The use of meticulously taught technique for miswak cleaning was pivotal in achieving these results. [14]

Most studies referenced in this research relied solely on questionnaires to assess miswak's effectiveness. [15,16,17] In addition further refined and elaborate studies are needed for collection of community data for policy recommendations.

Conclusion

The obtained data clearly reflects the effectiveness of miswak at par with toothbrush even when it was used without a dentifrice. This efficacy of miswak should be highlighted as an alternate of tooth paste and brush in LMICs like Pakistan. The results also show a better OHI–S when miswak and tooth brush were used in conjunction.

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Frequency of Electrocution among employees of LESCO Lahore working at different fields of electricity

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Abstract

Objective: To determine frequency of electrocution related injuries among LESCO Employees.

Method: Total 278 linemen fulfilled the criteria for selection. All 278 linemen who were interviewed, opted all SOPs and were wearing PPEs before starting field work including work at distribution poles, and transmission lines. They also told about earthing the wires before working at any area as well as take proper consent from higher authorities before doing work at any electrical pole. They were asked about development of electrocution injuries, the immediate effects and the serious effects of electrocution. Gathered data was entered and analysed by the SPSS(version20.0). Frequency tables were generated for all possible variables. Chi Square was applied to find association between different variables.

Results: Total participants were 278. The mean age of the linemen was 41.57 ± 9.673 years.(23 - 59).The mean job duration of the interviewed linemen was 18.6891 ± 10.39828 years. 160 (57.6%) of the linemen interviewed said that they developed electrocution injuries while working. 79 (28.4%) linemen claimed that the electrocution injuries were serious. 12 % (4.3%) linemen developed disability due to electrocution injuries.

Conclusion: All 278 linemen who were interviewed told about opting all SOPs and wearing PPEs before starting field work including work at distribution poles, and transmission lines and no fatal injury happened to them. However, despite opting all SOPs , electrocution events occurred which proved that there were certain loopholes that need to be addressed properly.

Introduction

Electricity is part and parcel of daily routine tasks. Pakistan is one of those countries which have problems of outages due to more consumption, less production of electricity along with dilapidated transmission system and line losses. Despite all these predicaments, Government of Pakistan is doing utmost struggle to combat electricity crisis. Special efforts are being put by the well reputed institutions like, National Electric Power Regulatory Authority (NEPRA), National Transmission & Despatch Company Limited (NTDC), Water & Power Development Authority (WAPDA), and regional distribution companies like, LESCO, GEPCO, K-Electric. All those regional distribution companies are working under the auspices of Federal Government and they are responsible for smooth and uninterrupted power supply to both commercial feeders as well as domestic consumption holders. In addition, WAPDA provides man power and technical assistance to these regional distribution companies for ensuring smooth provision of electricity.

LESCO is responsible for provision and supply of electricity in Lahore division and it is working efficiently for regional distribution with the help of hundreds of employees. The purpose of this study is to focus on electrocution injuries faced by the employees of LESCO during field operations. As Lahore is mainly provided by on ground electricity system, there are more chances of injuries among employees while doing maintenance work.

Electrocution injuries are common across the globe. According to data from the Census of Fatal Occupational Injuries (CFOI) , sponsored by the U.S. Bureau of Labor Statistics, show that in 2020, 126 workers died due to exposure to electricity. Almost three in five injuries (56%) were caused by direct exposure to electricity. This is defined as injuries caused by direct contact with the power source , such as direct contact with a live electrical wire or when the victim is struck by an electrical arc. The major cause of death among patients receiving electrocution injuries is cardiac arrhythmias like ventricular fibrillation, respiratory muscle paralysis and rarely brain injury due to permanent damage to neurons as well as electrolyte disturbances.

Information about how electrical injuries occur and other injury circumstances can help guide prevention efforts and identify risk factors that are responsible for electrocution injuries. As LESCO employees are particularly vulnerable to hazardous exposures, this study provides an overview of fatal electrical injuries ,major risk factors, neglected factors, outcomes of these injuries, prevention strategies and consequent conclusion.

Method:

The study was conducted in **Lahore City** and employed a **retrospective cohort design** to analyze relevant data. The duration of the study spanned **three months**, during which participants were selected using a **non-probability consecutive sampling technique**. The **sample size** was determined using a cross-sectional study formula, resulting in a total of **278 linemen from LESCO**, calculated with a **95% confidence interval** to ensure statistical reliability and representativeness of the findings.

Result:

A total of 278 linemen were interviewed. The mean age of the linemen was 41.57 ± 9.673 years.(23 - 59). The mean job duration of the interviewed linemen was 18.6891 ± 10.39828 years. (0.58 – 41). All 278 were following SOPs and wore PPEs while working.160 (57.6%) of the linemen interviewed said that they developed electrocution injuries while working. 79 (28.4%) linemen claimed that the electrocution injuries were serious. 12 % (4.3%) linemen claimed to develope disability due to electrocution injuries.

The mean age of those who developed electrocution injury while working was 43.60 ± 9.562 years, while the mean age of those who did not develop any electrocution injury was 38.82 ± 9.167 years.This difference was statistically significant (p = < 0.001).

The mean duration of job of those who developed electrocution injury was 20.4911 ± 10.442 years , while the mean duration of job of those who did not develop any electrocution injury was 16.2458 ± 9.86571 years.This difference was also stastically significant (p= 0.001).

Table 1. Age & Job Duration of those with union

Variable	Electrocution injuries positive mean ± SD	Electrocution injuries negative mean ± SD	t-test value	P value	Remarks
Age (years)	43.60± 9.562	38.82± 9.167	4.190	<0.001	Significant
Job duration (years)	20.4911± 10.44258	16.2458± 9.86571	3.429	0.001	Significant

Table 2. Age & Job Duration of those with serious electrocution injuries (n =160)

Variable	Serious Electrocution injuries positive (mean ± SD)	Serious Electrocution injuries negative (mean ± SD)	t-test value	P value	Remarks
Age (years)	41.77± 9.678	45.38± 9.159	-2.42	0.016	Significant
Job duration (years)	18.8101 ± 10.42196	22.1306 ± 10.26245	-2.031	0.044	Significant

Table 3. Age & Job Duration of those with serious electrocution injuries (n =160)

Variable	Disability development positive mean ± SD	Disability development negative mean ± SD	t-test value	P value	Remarks
Age (years)	39.33 ± 8.359	43.95 ± 9.595	-1.615	0.108	Not Significant
Job duration (years)	15.9167 ± 8.005	20.8260 ± 10.550	-1.585	0.115	Not Significant

Fig. 2. Electrocution related injuries among study population

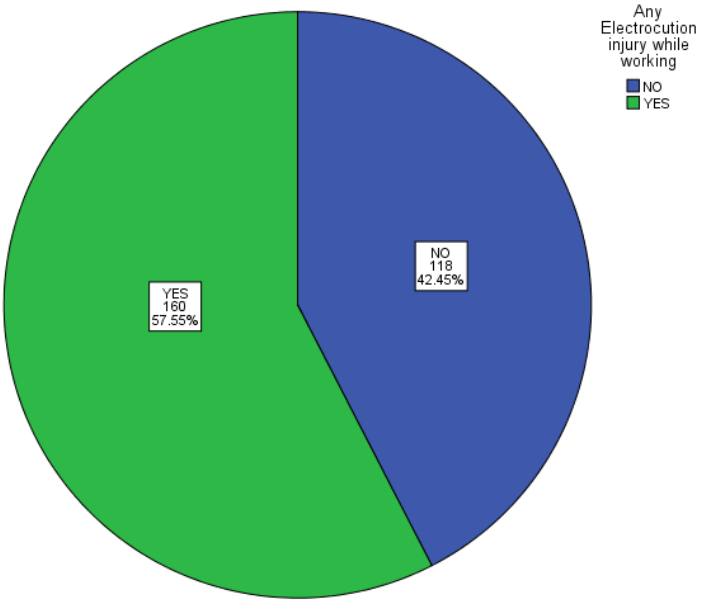


Fig. 3. History of serious electrocution among linemen who developed electroction injuries

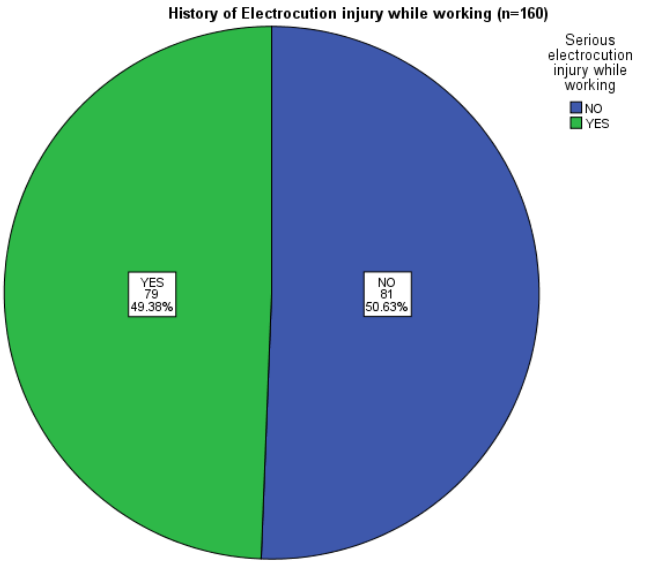
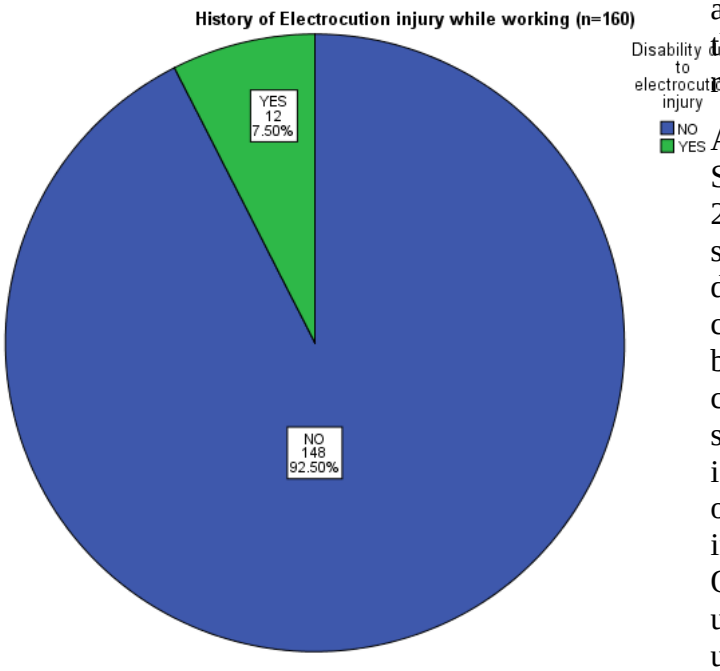


Fig. 4. History of disability development among linemen with electrocution injuries



Discussion

The study shows that out of total 278 employees of LESCO (linemen) who are interviewed , the number of linemen who claimed to have any electrocution injury is 160 (57.6%). Out of these 160 employees , 79 (28.4%) claimed that they faced serious electrocution injury. The serious electrocution injuries are those injuries in which more than 10 milliamperes electric current passed through the body. Similarly , out of 160 , only 12 (4.3%) linemen claimed to develop disability owing to electrocution injury while rest of the 148 linemen recovered completely with no post electrocution sequelae.Interestingly enough , all 278 linemen who were interviewed told about opting all SOPs and wearing PPEs before starting field work including work at distribution poles, and transmission lines. They also told about earthing the wires before working at any area as well as take proper consent from higher authorities before doing work at any electrical pole.Such consent taking ways enable linemen to have least chances of facing any electrocution injury as all preemptive measures are taken.Furthermore , linemen while doing field work follow all rules and regulations pertaining to field work and even higher authorities of LESCO put penalities on those linemen who do not show compliance to these rules.

Anyhow, when the study was compared with Mashreky SR ET AL which was conducted in Bangladesh in 2010, it came to knowledge that both studies have similar findings. Additionally , during childhood , domestic source of electricity is the most common cause of electrocution and such cases are common in both countries.Rural children are at higher risk as compare to urban. (1) However , when the findings of study is compared with Nizhu and Hasan MJ ET AL , it is clearly proven that in USA , few electrocution events occurred. It may be due to better electricity infrastructure and transmission line system with less no. Of electrical poles and more transmission through underground electricity system. Moreover , they are using good qualities of PPEs and ensuring SOPs strictly.

Conclusion:

The conclusion of this study shows that out of total 278 employees of LESCO (linemen) who are interviewed , the number of linemen who claimed to have any electrocution injury is 160 (57.6%). Out of these 160 , 79 (28.4%) claimed that they faced serious electrocution injury. Similarly , out of 160 , only 12 (4.3%) linemen claimed to develop disability owing to electrocution injury while rest of the 148 linemen recovered completely with no post electrocution sequelae.Interestingly enough , all 278 linemen who were interviewed told about opting all SOPs and wearing PPEs before starting field work including work at distribution poles, and transmission lines. They also told about earthing the wires before working at any area as well as taking proper consent from higher authorities before doing work at any electrical pole.Such consent taking ways enable linemen to have least chances of facing any electrocution injury as all preemptive measures are taken.Furthermore , linemen while doing field work follow all rules and regulations pertaining to field work and even higher authorities of LESCO put

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Frequency of spinal headache among women undergoing caesarean section in Lady Aitchison Hospital, Lahore

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Abstract

Objective: : To determine the frequency of spinal headache in obstetrical patients of different age group in general population

Method: A sample size of 251 pregnant women was calculated and total 255 women fulfilling the selection criteria were enrolled. All the patients underwent c-section. Anesthesia was given to all patients at sitting position. The patients received spinal anesthesia at the L2-3 or L3-4 interspaces using a midline technique. The patients received injections of 2.5–3.0 ml of 0.5% isobaric bupivacaine. For three days in a row, the patients were monitored and asked if they had any headaches. Gathered data was entered and analyzed by the SPSS (version 22). Comparison of different factors with spinal headache was done by applying Chi-square test. p-value <0.05 was taken as statistically significant.

Results: Among all the participants, the mean age of the subjects was 32.18±5.5 years. The mean gestational age of the subjects was 37.23±1.04 weeks. The mean gravida was 3.34±1.39. The mean para was 2.01±1.02. The mean abortion was 0.37±0.66. The mean number of attempts was 1.97±0.632. According to spinal needle used distribution, 85(33.3%) were used 27G and 170(66.7%) were used 25G. Among all the participants, 126(49.4%) patients had spinal headache.

Conclusion: We advise against using the 25-gauge Quincke needle in the obstetric population due to the high frequency of headaches and the related treatment requirements. We also know that using small caliber pencil-point needles could further lower the incidence of post-dural puncture headaches, but they are currently very expensive, and many obstetric units in developing nations may not be able to purchase them.

Introduction

The method used to anaesthetize the obstetrical patient undergo the caesarean section either Compared to regional anesthesia (neuraxial block), which is a commonly used procedure during caesarean sections; general anesthesia is linked to a higher maternal risk.

It is simple to insert 25G or 27G non-cutting (a-traumatic) needle is subarachnoid space by piercing the dural and arachnoid layer of meninges containing CSF at the level of L3-L4, L4-L5 intervertebral space.[1]

By this technique we can achieve rapid onset in its effect, and provide excellent operating condition. It also avoids fetal and maternal risk of general anesthesia, minimize the postoperative care. Beside all other complication of spinal anesthesia such as hypotension (vasodilation) Tachycardia, (Sympathetic activation) nausea, tinnitus, photophobia, spinal (PDPH) is major and serious complication in obstetrical patient related with different age group.[1]

A serious side effect of neuraxial anesthesia, spinal headaches can occur in people of all ages, although they are particularly common in women after spinal anesthesia. Obstetric patients are at high risk for spinal headache because of their sex. Other factors that promote spinal headache are the young age, pregnancy, vaginal delivery, low BMI and use of neuraxial blocks either with 25G or 27G spinal needles.[1-2]

Although PDPH usually goes away on its own, it can nevertheless have a serious negative impact on obstetric patients. Additionally, it may prolong the hospital stay and disrupt the mother's regular life if she neglects to care for herself and the newborn. The symptoms of PDPH include reflex cerebral vasodilation, traction on the contents of the cranial nerves, and loss of cerebrospinal fluid. The patient's age and the extent of the dural puncture are the two most significant factors affecting the frequency and severity of PDPH.[2-4]

In the recent era different approaches are used to spinal anesthesia to the positioning of patients to avoid spinal headaches. PDPH shows as a dull hurting pain distributed in a frontal-occipital. Typically, this type of headache got serious by sitting or standing, and when a person lay down the pain reduced. The PDPH is defined by the International Classification of Headache Disorders as a headache that appears five days after a dural puncture and goes away on its own within a week, or up to 48 hours following an epidural blood patch.[5-7]

This type of headache is accompanied by tinnitus, hypoacusis, neck stiffness photophobia, and nausea. In some studies it is mentioned that PDPH take place within 3 days after dural puncture. Inhibiting spinal headache should be the most important goal of clinical practitioner dealing with this population. According to our knowledge there is epidemiological data available in Pakistani population. The main aim of this study is to determine the frequency of spinal headache in pregnant women that will help the clinical practitioner to develop or select best treatment procedure to avoid the headache in pregnant patients after giving birth.[6,8]

Method

This cross-sectional study was conducted at the Department of Obstetrics & Gynecology, Lahore, over a period of three months following the approval of the synopsis. Using a non-probability consecutive sampling technique, a total of 251 pregnant women were selected based on inclusion criteria: women aged 15 to 45 years who underwent spinal anesthesia using 25G or 27G spinal needles and delivered via caesarean section. Women with impaired cognitive ability were excluded. The sample size was calculated using the WHO sample size calculator with a 95% confidence level, an anticipated population proportion of post-dural puncture headache (PDPH) at 42.6%, and a 5% margin of error.

Results

The mean age of the participants was 29.16±6.24 years (18-41). The mean Gravida of the participants was 2.81±1.46 (1-8). The mean para of the participants was 1.55±1.16 (0-5). Out of 255 participants, 03 (1.2%) had spinal deformity while 252 (98.8%) had no spinal deformity. Out of 255 participants 255 (100%) were not had head trauma. Among all participants 85 (33.3%) were those had used 27 G needle while 170 (66.7%) were those had used 25G spinal needle. Out of 255 participants 126 (49.4%) were with single attempt, 106 (41.5%) were with double attempt while 23 (9.0%)

were with triple attempt. Out of 255 participants 127 (49.8%) were had spinal headache associated nausea, 127 (49.8%) were having spinal headache associate neck stiffness, 123 (48.2%) were having tinnitus, 107 (42.0%) had photophobia and 56 (22.0%) had hypo-acusia.

It was found that those people who have history of diabetes 84.4% developed spinal headache as compare to 41.9% of those who were without diabetes (p<0.001). It was found that those people who have H/O hypertension 71.4% developed spinal headache as compare to 45.1% of those who were without hypertension (p=0.002). It was found that those people who have H/O IHD (ischemic heart disease) 100% developed spinal headache as compare to 49% of those who were without IHD (p=0.243). It was found that those people who have H/O preeclampsia 68.4% developed spinal headache as compare to 46.1% of those who were without preeclampsia (p=0.011). It was found that those people who have H/O eclampsia 85.7% developed spinal headache as compare to 48.4% of those who were without eclampsia (p=0.064) It was found that those people who have H/O migraine 56.1% developed spinal headache as compare to 47.5% of those without migraine (p=0.249). It was found that those people who have H/O spinal deformity 66.7% developed spinal headache as compare to 49.2% of those who were without spinal deformity (p=0.619). It was found that those people who developed spinal headache within 3 days were 99.2% as compare to 1.5% of those who were not developed within 3 days (p<0.001). It was found that those people developed spinal headache more than 3 days were 96.8% as compare to 42.9% who were not developed spinal headache more than 3 days (p<0.001). Table 1

It was found that those people with neck stiffness developed spinal headache were 99.2% as compare to nil of those who were without neck stiffness (p<0.001). It was found that those people with tinnitus developed spinal headache were 99.2% as compare to 3.0% of those who were without tinnitus (p<0.001). It was found that those people with photophobia developed spinal headache were 99.1% as compare to 13.5% of those who were without photophobia (p<0.001). It was found that those people with hypoacusis developed spinal headache were 98.2% as compare to 35.7% of those who were without hypoacusis (p<0.001). Table 2

The mean age of those who developed spinal headache was 32.18±5.56 years as compare to 26.21±5.702 years of those who did not developed spinal headache (p<0.001). The mean gravida of those who developed spinal headache was 3.34±1.392 as compare to 2.29±1.343 of those who did not developed spinal headache (p<0.001). The mean para of those who developed spinal headache was 2.01±1.02 as compare to 1.09±1.11 of those who did not developed spinal headache (p<0.001). The mean abortion of those who developed spinal headache was 0.37±0.67 as compare to 0.23±0.57 of those who did not developed spinal headache (p=0.088). The mean gestational age of those who developed spinal headache was 37.33±1.04 as compare to 36.99±1.19 of those who did not developed spinal headache (p=0.017). The mean no. of attempts of those who developed spinal headache was 1.97±0.63 was compare to 1.23±0.42 of those who did not developed spinal headache (p<0.001). Table 3

Table 1: Association of Spinal Headache (PDPH) VS Disease

Variable		Spinal Headache Positive		Spinal Headache Negative		p value	Remarks
		n	%	n	%		
Diabetes	Yes	38	84.4	7	15.6	<0.001	Significant
	No	88	41.9	122	58.1		
Hypertension	Yes	30	71.4	12	28.6	0.002	Significant
	No	96	45.1	117	54.9		
Ischemic heart disease	Yes	2	100.0	0	0.0	0.243	Not significant
	No	124	49.0	129	51.0		
Pre-eclampsia	Yes	26	68.4	12	31.6	0.011	Significant
	No	100	46.1	117	53.9		
Eclampsia	Yes	6	85.7	1	14.3	0.064	Not significant
	No	120	48.4	128	51.6		
Migraine	Yes	32	56.1	25	43.9	0.249	Not significant
	No	94	47.5	104	52.5		
Spinal Deformity	Yes	2	66.7	1	33.3	0.619	Not significant
	No	124	49.2	128	50.8		
Headache Within 3 days	Yes	124	99.2	1	0.8	<0.001	Significant
	No	2	1.5	128	98.5		
Headache More than 3 days	Yes	30	96.8	1	3.2	<0.001	Significant
	No	96	42.9	128	57.1		

Table 2: Association of Spinal Headache (PDPH) VS Related Symptoms

Variable		Spinal Headache Positive		Spinal Headache Negative		p value	Remarks
		n	%	n	%		
Neck Stiffness	Yes	126	99.2	1	0.8	<0.001	Significant
	No	0	0.0	128	100.0		
Tinnitus	Yes	122	99.2	1	0.8	<0.001	Significant
	No	4	3.0	128	97.0		
Photo Phobia	Yes	106	99.1	1	0.9	<0.001	Significant
	No	20	13.5	128	86.5		
Hypoacusis	Yes	55	98.2	1	1.8	<0.001	Significant
	No	71	35.7	128	64.3		

Table 3: Mean Comparison of spinal headache VS Different variables

Variable	Spinal Headache Positive	Spinal Headache Negative	t Test value	p value	Remarks
	Mean± SD	Mean ± SD			
Age (years)	32.18 ± 5.56	26.21 ± 5.70	8.469	<0.001	Significant
Gravida	3.34 ± 1.39	2.29 ± 1.34	6.111	<0.001	Significant
Para	2.01 ± 1.02	1.09 ± 1.11	6.848	<0.001	Significant
Abortion	0.37 ± 0.67	0.23 ± 0.57	1.712	0.008	Significant
Gestational Age	37.33 ± 1.04	36.99 ± 1.19	2.402	0.017	Significant
No. Needle Attempts	1.97 ± 0.63	1.23 ± 0.42	10.894	<0.001	Significant

Discussion

A common invasive procedure for a number of indications, including diagnostic lumbar puncture, spinal anesthesia, myelography, and intrathecal chemotherapy, is the dural puncture. Unintentional dural puncture can happen during epidural anesthesia or analgesia for a variety of causes, such as postoperative and labor pain management, in addition to intentional dural puncture, which happens during spinal anesthesia.

Post-dural puncture headache (PDPH), according to Carrie and Collins, is a headache that develops after a dural puncture and significantly affects the patient's post-operative health. It is characterized by a headache that is not only postural but also lasts longer than 24 hours at any intensity or so intense at any point that the patient is unable to remain upright. [9]

The largest risk category for PDPH is parturition, which is caused by several reasons. Although some studies show a range of 0% to 30%, the generally acknowledged incidence in these patients has been recorded as high as 38%. The risk of PDPH in this patient population may rise as a result of postpartum drops in intra-abdominal and peridural pressure as well as an increase in CSF pressure from bearing down during vaginal birth. [10]

But according to Ravindran et al., bearing down during delivery is not associated with a high incidence. Current practice does not support the idea that pregnancy is a risk factor for PDPH. The frequency of postpartum PDPH in parturients following spinal anesthesia is comparable to that observed in young males and non-pregnant women. [11-12]

The most frequent side effect of treatments that involve puncturing the dura, including diagnostic lumbar punctures, SAB, myelograms, and accidental dural punctures during epidural injections is post-dural puncture hemorrhage (PDPH). The stated frequency varies greatly, ranging from less than 1% to 70%.[13-14]

By using non-cutting (atraumatic) needles with a narrower gauge (24–30G), the risk was significantly decreased to 2% or less. The loss of CSF from a dura defect, which causes intracranial hypotension, is thought to be the main cause of the headache that follows a dural puncture. [15] A large defect makes it possible for more CSF to be lost, which may raise the risk of PDPH and intracranial hypotension. Gravity and a lack of buoyancy from the lower CSF pressure lead the patient's pain-sensitive intracranial veins, meninges, and cranial nerves to be pulled downward as they stand up. This study indicated a 49.8% incidence of PDPH, which is higher than what has been documented in other investigations. Numerous risk variables, including as the needle design, the anesthetists experience, and the research patient age and sex, could be to blame for this. [16-18]

Among 125 patients who had spinal anesthesia, Ahsan et al. discovered a 0% incidence of PDPH. Nafiu and his associates discovered that 8.3% of 96 parturients with SAB had PDPH. Even if Quincke needles were used on all of their patients, this result is still less than that of our investigation. This could be explained by the fact that, in their trial, a consultant anesthetist conducted all of the spinal blocks, whereas in this study, consultants did only 4.1% of the blocks .[16-17] A two-year prospective research by Lubusky et al. found

an incidence of 46.3% in 2003, which is somewhat comparable to our data. However, only 3% of cases were documented in 2004. When Quincke needles were used for 85.2% of the blocks, the former high incidence was achieved.[18] However, the later occurrence was discovered when atraumatic needles were used for 77.8% of the blocks. This has further supported findings from earlier research regarding the decreased rates of PDPH associated with atraumatic needles. [18-20]

The increased incidence seen in this study may have been caused by demographic characteristics that are known to be linked to PDPH risk. Age is a known risk factor, with the biggest risk occurring between the ages of 31 and 45. The age range of our patients falls into this area quite nicely. The female sex, regardless of age, is superimposed on the age factor. Women are about twice as likely as males to develop PDPH. [21-22] According to studies, lateral needle bevel orientation may lower the prevalence of PDPH. More than half of the blocks were completed by junior cadre physicians, with the majority being completed by trainee physicians. There's a chance that the high incidence was caused by the nurses and trainees not observing this procedure.[23]

Conclusion

We advise against using the 25-gauge Quincke needle in the obstetric population due to the high frequency of headaches and the related treatment requirements. We also know that the use of small calibre pencil-point needles (27G) and a minimum number of attempts could further reduce the incidence of post-dural puncture headaches. However, 27G needles are currently very expensive, and many obstetric units in developing countries may not be able to afford them.

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Rare Case of Abdominal Tuberculosis Presenting With Abdominal Cocoon in a Pediatric Patient

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Abstract

Objective: To highlight an uncommon presentation of abdominal tuberculosis (TB) in children, with the aim of improving early detection and diagnosis, particularly in high TB burden countries like Pakistan.

Method: A clinical case of a young malnourished girl from Pakistan presenting with nonspecific abdominal symptoms was examined. Due to diagnostic challenges in pediatric TB and limitations of microbiological confirmation, imaging techniques were utilized. A Computerised Tomography (CT) scan was performed to assess the abdominal condition.

Results: The CT scan revealed an abdominal cocoon (AC), a rare form of encapsulating peritoneal sclerosis, which is an extremely uncommon presentation of abdominal TB. Unlike most cases of AC that are diagnosed intraoperatively, this case was identified radiologically, enabling earlier medical intervention.

Conclusion: This case underscores the diagnostic difficulties of pediatric TB, especially its extrapulmonary forms like abdominal TB. The identification of an abdominal cocoon through radiological imaging emphasizes the importance of considering rare manifestations in children with nonspecific abdominal complaints. Early imaging can aid in timely diagnosis and treatment, which is crucial in TB-endemic regions such as Pakistan.

Introduction

Globally, approximately 650 children die due to tuberculosis every day. WHO reported in 2017 that one million children, aged less than 15, were diagnosed with TB annually and 239,000 died from this infection[1]. It was estimated that 55% of children with TB go unreported to national programs and 96% of deaths in these cases occur due to inaccessibility to treatment[3]. In Pakistan, 8% to 20% of all child mortalities are TB-related.[4] In addition to this, diagnosing the abdominal variant of TB in adolescents is quite difficult due to its nonspecific presenting complaints and other challenges let alone diagnosing an abdominal cocoon. The Abdominal Cocoon is also known as Sclerosing Encapsulating Peritonitis (SEP). A distinctive hallmark of this condition is the presence of a dense fibrotic membrane enveloping variable segments of both the small and large intestines within a protective cocoon-like structure. It could be primary (idiopathic) or secondary (to TB) in nature. It can manifest at age but its prevalence is notably higher among adolescent females.[5] The abdominal cocoon represents an uncommon underlying factor contributing to intestinal obstruction. No definite diagnostic test is available to rule out/in Abdominal Cocoon secondary to TB. Commonly, these patients present in surgical emergencies and are diagnosed on laparotomy. Usual treatment includes surgical resection of the affected bowel and Anti-tuberculous drugs. Abdominal tuberculosis has a propensity to affect nearly every organ in the abdominopelvic region, however, the distal region of the ileum is the most common site of involvement among various gastrointestinal tuberculosis.[1,6,7]

This case report aims to bring attention to rare features of abdominal Tb leading to intestinal obstruction in children, that is abdominal cocoon, so that timely diagnosis and treatment could be given to curb child morbidity and mortality.

Case report:

We present a unique case of an 11-year-old girl from Faisalabad referred from the surgery department to the radiology department. She had no history of TB contact, weight loss, night sweats or chronic cough. Her presenting complaints were recurrent abdominal pain for 3.5 months, which was sometimes associated with vomiting and constipation. Her laboratory and clinical examination findings were insignificant. Her history depicted three ultrasounds done from other facilities. The first scan showed hepatomegaly. Moderate free fluid in the abdomen, and an adnexal hemorrhagic cyst. The second scan illustrated no free fluid and the resolution of the adnexal cyst. The third scan exhibited dilated fluid-filled small bowel loops and no adnexal cysts. The patient was then admitted to our facility. Her x-ray abdomen was done in erect and supine positions. The patient did not settle so Computerized tomography (CT) abdomen with IV contrast was advised. The differential diagnosis made included: encapsulating peritoneal sclerosis secondary to abdominal tuberculosis, congenital peritoneal encapsulation, internal hernia, peritoneal carcinomatosis, and mesothelioma. Her surgery was planned and preoperative findings showed reactionary fluid, 1x1 cm perforation in the ileum proximal to the ileocecal junction, and caseating tubercle over gut loops.

Excision of the fibrous sac was sent for histopathology. Adhenolysis and ileostomy were done. Whereas, no adnexal cysts were spotted during surgery. Histopathology showed epithelioid granulomas with caseous necrosis, which are used by clinicians as a strong argument to establish the diagnosis of TB. M.TB culture was not performed.

Post-operatively the patient was kept in pediatric intensive care unit (PICU) for the period of 5–7 days with intensive monitoring. I.V. fluids, blood and plasma were given as per requirements. She tolerated oral feed on 5th post-operative day, sutures were removed on 8th post-operative day and she were discharged. Oral ATT was started in consultation with the pediatric medical team. No post-operative complications were reported and the patient had a smooth recovery. Periodic follow up was satisfactory. Patient gained weight and no recurrence of TB was seen.

Fig 1: CT images of the patient

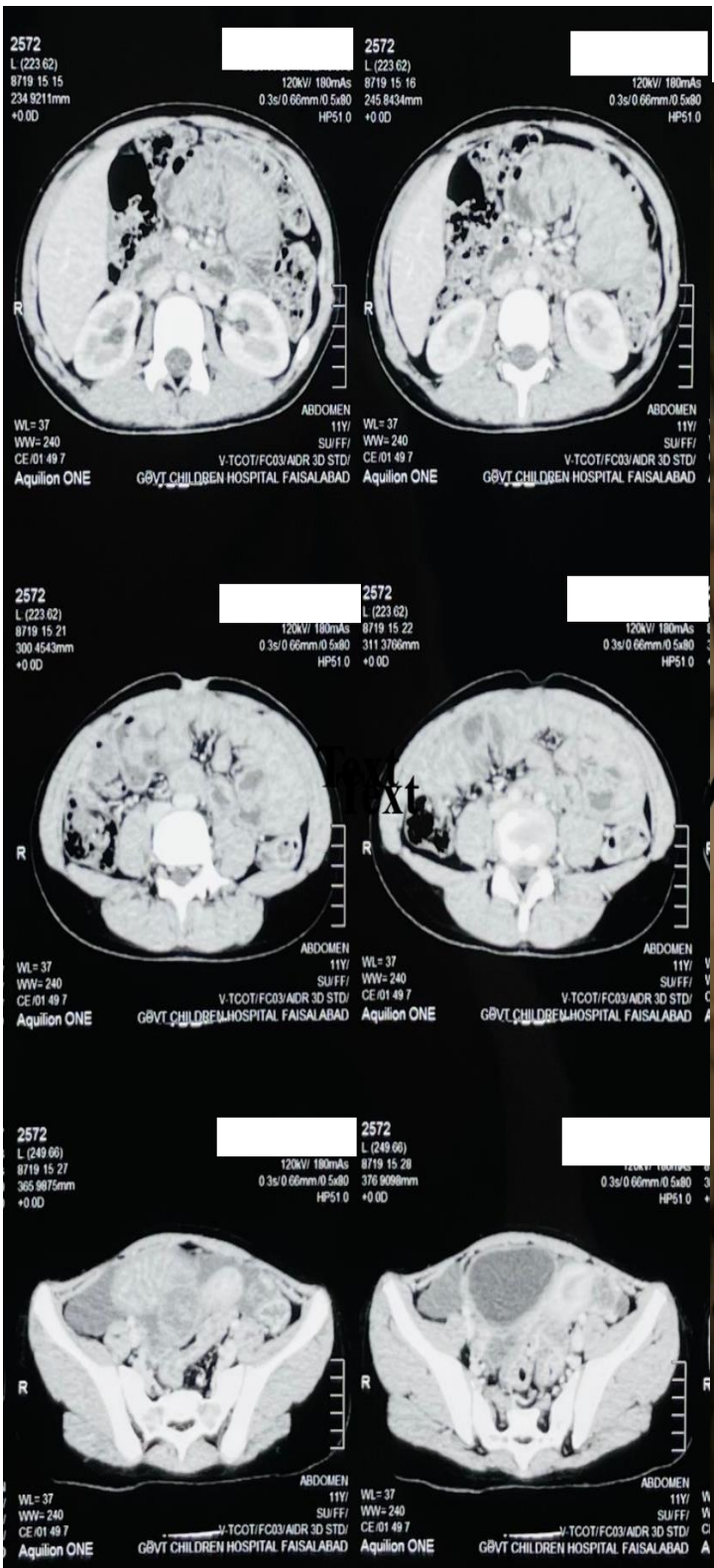
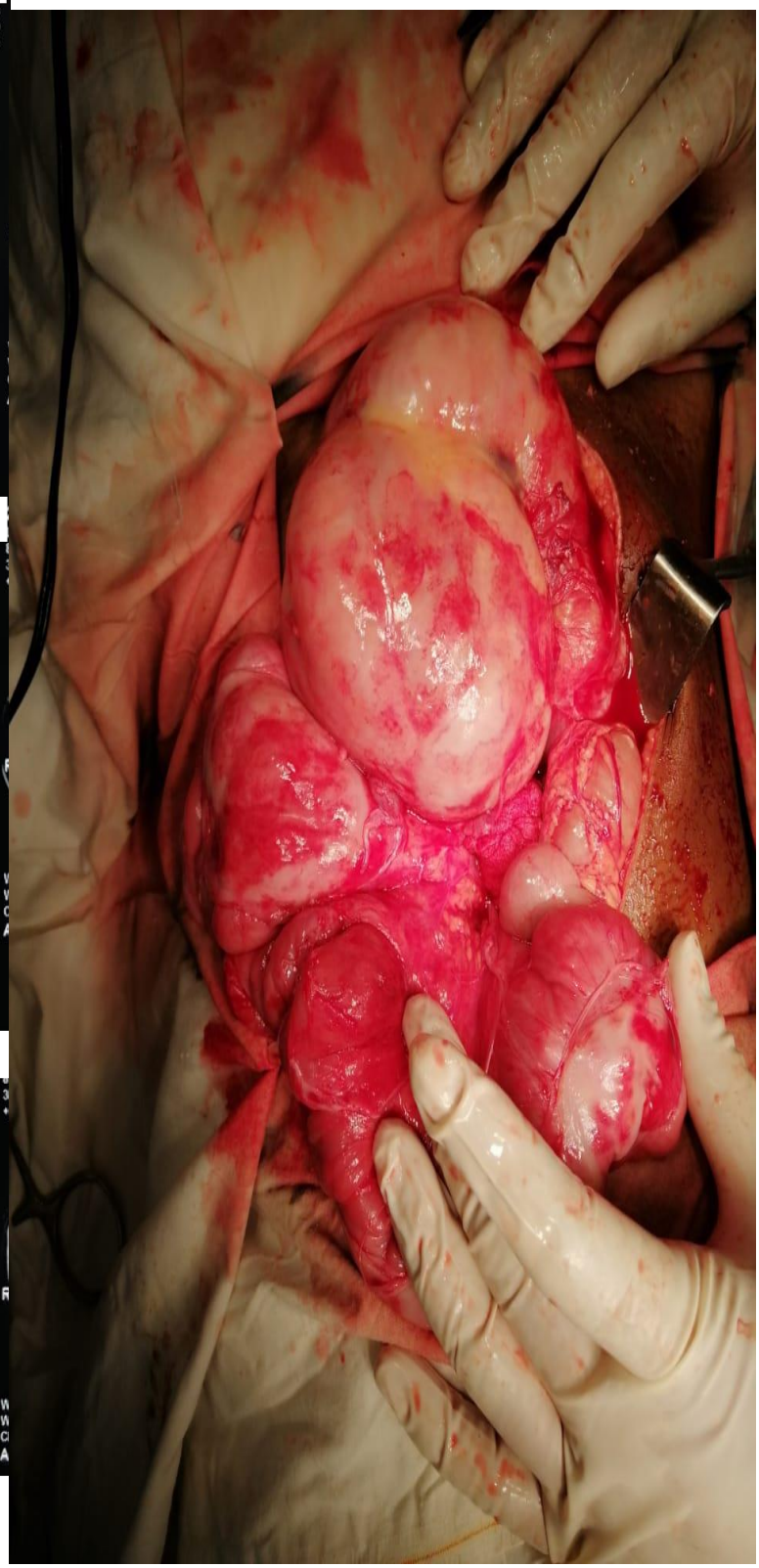


Fig 2: Intra-operative view of the abdominal cocoon



Discussion

The abdominal cocoon is quite an uncommon reason for intestinal obstruction. Xia J et al. 2018 stated that the Abdominal cocoon (AC) has an erratic spread. It can occur at any age and is not specific to a particular gender. Its diagnosis is also quite difficult to make due to the non-specificity of signs and symptoms. While several hypotheses have been suggested, the exact cause and development of (AC) remain elusive. Some theories connect AC to young girls in tropical regions, suggesting factors like retrograde menstruation, viral infections, peritonitis via fallopian tubes, and immune-mediated tissue damage. Population, location, and gender could play a role in AC's aetiology. However, recent cases challenge these theories, as AC affects adults (male and female), premenopausal women, children, and those in temperate regions. Generally, it is diagnosed on exploratory laparotomy, whereas, technological advancement has enabled the preoperative AC diagnosis, for instance, CT scans and contrast studies. The histologic findings of excised membranes typically reveal dense fibrous tissue composed of collagen and infiltration of some inflammatory cells. The Chinese literature reviewed depicted 81 cases, among whom the average age was 35.5 years with the range of 6 years to 78 years. All cases were found to have greyish-white fibrous membranes in the shape of a cocoon.[8] AC can be classified into three categories based on the degree of encapsulation by the surrounding membrane, the encapsulation can vary from partial encapsulation of the intestine to encapsulation of entire intestine along with intraperitoneal organs. [9]

Finding abdominal cocoon-related bowel obstruction in children due to abdominal tuberculosis is rare. Singal R. et al. 2017 reported that 17 patients were admitted to the emergency ward, displaying symptoms indicative of acute intestinal obstruction from a rural area of India. The cohort exhibited an average age of 15.3 years, with an age range spanning from 9 to 16 years. Common clinical presentation consisted of abdominal pain, bilious vomiting, constipation, and abdominal distention. Out of these 17 patients under investigation, four individuals had previously initiated treatment for pulmonary tuberculosis, with treatment durations spanning from 3 weeks to 4 months, albeit with irregular adherence. Furthermore, a history of contact with tuberculosis was ascertained in 3 out of the 17 patients, accounting for 17.6% of the total cohort.

Because of these unusual and rare symptoms/examination findings/imaging, it becomes very difficult to diagnose this medical issue in children and treat it. Isolating bacilli by culture is even more problematic due to malnutrition and poor hygiene. The absence of a single definitive diagnostic test for tuberculous abdominal cocoon underscores the high significance of employing imaging modalities in the diagnostic process.[5]

Rastogi R reported a case of thirty years old male with issues of vomiting, abdominal pain for a few days, and a family history of pulmonary tuberculosis. His clinical exam depicted mild abdominal distension. On abdominal radiography, the small bowel was mildly dilated in the mid-abdominal area and ultrasound revealed small intestine clustering in the same region along with some enlarging of mesenteric lymph nodes. On the chest X-ray, the upper right lobe of the lung exhibited fibro-calcifications. Furthermore, CT abdomen depicted clusters of intestinal loops with thick membranous sac encapsulating them, stomach and duodenal dilation, and lymphadenopathy. The diagnosis of abdominal cocoon secondary to TB was confirmed on exploratory laparotomy. CT proved to be quite a useful tool in making the definitive diagnosis and wanting prompt intervention.[10]

These case scenarios differed from our case as they depicted that abdominal cocoon can occur in any age group and in any gender. Besides advancements in technology, its diagnosis is still a herculean task for physicians. Therefore, it needs extensive research to establish a proper understanding of the cryptic nature of this disease and to clarify the exact aetiology.

Conclusion

This case report sheds light on the exceptional presentation of abdominal cocoon secondary to tuberculosis leading to intestinal obstruction. Abdominal cocoon, though less common, remains a significant health concern, as it can pose diagnostic challenges due to its non-specific symptoms and clinical findings. This case emphasizes the importance of considering tuberculous AC as a differential

diagnosis in cases of unexplained abdominal pain. It underscores the critical and invaluable role of imaging in the diagnostic process when faced with atypical presentations of tuberculosis and secondary AC. In resource-limited settings, increasing awareness among healthcare providers about the various manifestations of tuberculosis and AC is crucial for timely diagnosis and prompt initiation of appropriate intervention to prevent complications and reduce morbidity and mortality in children.

Ethical Consideration

Data was anonymized to protect patient privacy. Patient and parents' consent was acquired before publication.

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Review Article

EFFECT OF OBESITY ON THYROID FUNCTION & ITS TREATMENT-A REVIEW

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Abstract

Objective: To examine the link between hypothyroidism and obesity, and the role of nutrition and micronutrients in thyroid function.

Method: A comprehensive review of existing literature and studies was conducted to examine the prevalence of hypothyroidism in obese individuals and the possible reversibility of thyroid changes with weight reduction. The role of micronutrients, particularly iodine and goitrogenic foods, was also evaluated in relation to thyroid function and structure. Special attention was given to populations in iodine-deficient and environmentally susceptible areas.

Results: Findings indicate a high prevalence of hypothyroidism and secondary endocrine changes among individuals with obesity. However, it remains unclear whether thyroid dysfunction leads to increased adiposity or is a consequence of it. Nutritional deficiencies, especially iodine, play a significant role in thyroid hormone production, with T3 and T4 levels being particularly affected. Other dietary factors, such as cruciferous vegetables, pearl millet, and soy products, may contribute to thyroid issues if consumed excessively. Environmental exposure to goitrogens through contaminated water also emerged as a contributing factor in some regions. Evidence suggests that many thyroid-related changes are reversible after weight loss.

Conclusion: There is a complex and bidirectional relationship between hypothyroidism and obesity. Nutritional deficiencies and environmental factors further compound thyroid dysfunction. It is crucial to establish dietary guidelines that minimize goitrogen intake and ensure adequate iodine consumption, especially in endemic regions. Future research should focus on understanding hormonal fluctuations in early stages of obesity and developing targeted micronutrient-based interventions for thyroid health.

Introduction

The thyroid is part of an endocrine gland that secretes several hormones. The thyroid is located below the laryngeal prominence in the neck portion under your skin (1) The basic motive of the thyroid gland is to speed up or slow down metabolism in short words it can maintain the metabolic rate of our body (2) Recent studies revealed the prevalence of thyroidism that in between year of 2021-2022 265, 605 more OST at-risk people under 18 years of ego. Prevalence of Thyroidism also shows that over 99% of affected patients suffer from Thyroidism. Pregnancy is a stressful condition for the thyroid gland almost 50% of women get suffered every year one out of every 4,000-5,000 new born had a disorder of Thyroidism (3) Hypothyroidism and Hyperthyroidism are two types caused by Thyroid gland inability. Hypothyroidism happens when the thyroid gland doesn't release sufficient hormones while the word hyper is responsible for the excess of hormonal levels through the thyroid gland (4) Hormones T4 thyroxin & T3 triodo-thyronine in the thyroid involves to playing a critical role in growth and development, and in adults it circulates the metabolic processes affecting almost every organ system (5)Several diseases can cause by Thyroid gland fluctuation in the form of hyperthyroidism and hypothyroidism. The excess amount of thyroid Hashimoto's, graves disease, Thyroiditis due to viral infection or most commonly after pregnancy, growth of noncancerous throat in the foam of goiter, obesity, and many other unconscious disturbance can be caused (6) Hypothyroidism has achieved through the Activity of hormonal growth through the thyroid gland. Autoimmune disorder.The body immunes system attack the body own cell and organ confront in the case of hypothyroidism (7) Obesity is seen as a wider challenge to under-constructive countries worldwide. Thyroid dysfunction can show obesity and obesity-related diseases such as metabolic syndrome, hypertension, hyperglycaemia, and dyslipidemia. Modest changes in thyroid hormone levels are widely extracted among obese people (8) The thyroid Body shape was different type of fat together. The weight is deposit all over the person body it's not fat but more of waste like substance that accumulates between cells. This condition is known as myxoedema or it can be linked to sponge that holds liquid and will not release it (5, 8)Iodine is a major micronutrient that involves in thyroid hormone therapy it can make to treat or converse thyroid dysfunction. Commonly, there is reasonable corroboration that sufficient but not excessive iodine intake is beneficial for thyroid health same as intake of selenium supplementation is also helpful (6, 9)

In regions of the world where iodine is abundant, autoimmune (Hashimoto's), thyroiditis is the main cause of hypo-thyroidism in the majority of peoples especially women. Iodine deficiency has historically been the primary cause of hypothyroidism worldwide(7) Additional reasons include congenital thyroid absence or inbred faults in thyroid hormone production (dyshormonogenesis), radio-iodine therapy for hyperthyroidism, thyroid surgery, numerous medications that impair thyroid function or result in thyroid inflammation, and a number of other uncommon causes(1) Although most auto-immune thyroiditis causes hypothyroidism, in individuals with moderate TSH increases, this condition is frequently temporary rather than permanent. A relatively uncommon cause of hypothyroidism, accounting for less than 1% of cases, is central or secondary hypothyroidism brought on by hypothalamic or pituitary illness (10)

Hyperthyroidism

The bio-chemicals which depict the degree of the disease rather than active thyroid functions can be used to distinguish between overt and subclinical hyperthyroidism. Thyrotropin (TSH) levels that are considerably below normal and triiodothyronine (T3) and thyroxine (T4) levels that are increased in blood are common indicators of overt hyperthyroidism.(1) Low or undiscovered TSH levels are typically associated with subclinical hyperthyroidism, as are normal blood T3 and T4 levels. Yet, despite subclinical hyperthyroidism often being milder, both overt and subclinical hyperthyroidism exhibit the classic signs and symptoms of hyperthyroidism (5) Symptoms that are clinically significant are more likely to emerge when there is subclinical hyperthyroidism. The two most prevalent types of hyperthyroidism are Thyroxine overload (exogenous causes) leading in hyperthyroidism (11)Excessive use of thyroxine will

treat hypothyroidism nontoxic multi nodular goitre and thyroid cancer results in endogenous hyperthyroidism ,Excessive thyroid hormones synthesis and release causes domestic hyperthyroidism (6).The syndrome that results from hyperthyroidism is often curable with thyroxine dosage decrease and is more frequently brought on by exogenous sources than endogenous ones(5) Yet, endogenous hyperthyroidism's pathogenic components are intricate while hyperthyroidism affects all populations, it has a greater impact on people in nations with adequate iodine diet. The prevalences rate of hyperthyroidism is 0.3% in Australia 0.5% and 0.7% clinical in the US, and 0.2% to 1.3% in other iodines sufficient nation (11) The causes and processes of hyperthyroidism are summarised in detail below. Grave disease account for 70 to 80% of cases of hyper-thyroidism in iodine sufficient nation and around 50% of cases in iodine deficient nations.(12) Patients with Grave diseases frequently experiences wide spread goitre hyper-thyroidism ophthalmo pathy 20–30% of individuals experience this and thyroid acropachy (13). Even though the pathophysiology of Grave disease is not fully understood key pathogenic mechanisms mostly consist of increases of thyroid hormones synthesis & the emergence of diffuse goitre brought on by the thyro-tropin receptor antibody(8) .Induced stimulation of thyroid hormones synthesis and the onset of a diffuse goitre, auto immune mediated deaths of the thyroid gland and invasion of thyroid antigen-specific T-lymphocytes into tissues expressing the thyroid stimulating hormones receptor TSH-R (14)According to reports from throughout the globe, women between the ages of 30 and 50 are more commonly affected with Graves' illness the ages of on-set of (GD) has dropped since 2016 possibly as a result of earlier diagnosis and treatment(15). The prevalence of thyroid related eye illness is dropping which may be attributable to fewer smokers and more specialised medical care provided to patients in the early stages of thyroid disease.(16) The over secretion of thyroid hormones is the primary cause of thyroidotoxicosis. Toxic nodular goitre is one of the most prevalent pathogenic causes of thyrotoxicosis in older people in iodine-deficient environments (12)According to a research, toxic multinodular goitre is mostly caused due to iodine deficiency 3.6 v 1.6 / 100,000 per year(17) . While solitary toxic nodules are primarily affected by women and frequently occur in the released of preformed thyroid hormone from thyroid that is inflamed causes hyperthyroidism associated with thyroiditis.(18) This kind of hyperthyroidism is often transient and self-limited, with a typical hypothyroid period afterward before resuming thyroid(19) condition 10–20% of thyroiditis-related permanent hypothyroidism is caused by thyroiditis and the frequency of these situations varies according to the root reason . Thyroiditis is significantly more common in girls than in males (about 1.5:1 .A Minnesota research found that there were 4.9 instances per 100,000 people annually, and 15% of individuals went on to acquire lifelong hypothyroidism. So, it is crucial to continuously check thyroid function. (12)Amiodarone, IFN lithium tyrosine kinase inhibitor highly active anti-retroviral treatment immunological checkpoint mediator and humanised mono clonal antibodies are used to treat multiple sclerosis can all cause hyperthyroidism (20). Since the 1960s, an iodine-rich substance called amiodarone has been utilised to treat refractory atrial and ventricular tachyarrhythmias. Pathophysiology of thyrotoxicosis brought on by ami-odarones. Hyperthyroidism caused due to iodine owing to amiodarone high iodine content which account for roughly 37% of the molecular weight (21). Thyroiditis caused by amiodarone's direct toxicity on follicular cell and induction of thyrocytes death. In iodine deficient parts of the world the prevalence of amiodarone induced thyrotoxicosis might reach 6% yet in iodine deficient parts of Europe this percentage can reach 10%, and it appears to impact males more than women (22). Although amiodarone has a negative effect on the thyroid, it is necessary in the different situation. Amiodarane is only antiar rhythmic medication that is extensively uses in clinical practise and has considerable curative benefits. Amiodarone have T3 antagonist properties effect on heart and may block T4 to T3 conversion in the heart, raising the risk of cardiac thyrotoxicosis or death from ventricular fibrillation (23). As a result, some thyroidologists advise initiating combination therapy with antithyroid medications and corticosteroids as soon as AIT is diagnosed. Some medicines that produce hyperthyroidism can promote Graves' disease by activating the immune system, although the mechanisms are unknown. The Jod Base dow phenomenon refers to iodine-induced hyperthyroidism (24) Thyroid hormones are mostly

made up of iodine. Excessive iodine consumption or iodization programmes temporary increase the risk of iodine-induced hyperthyroidism particularly in elderly people with nodular goitre and chronic iodine insufficiency(25). Furthermore, in patients with a history of multi-nodular goitre or persons with chronic iodine insufficiency the risk of hyperthyroidism is considerably enhanced following the administration of radio-graphic agent.(12)Hyperthyroidism in pregnancy is a benign, temporary illness that commonly occurs in the first trimester, especially when caused by Grave disease and thyro-toxicosis.(26) During pregnancy, maternal hyperthyroidism and foetal damage induced by trans-placental transfers of maternal antibodies and thiamine medications must be considered According to a survey conducted in the United States 31% & 9% of women who are underwent methimazole and or propylthiouracil therapy, respectively terminated their pregnancy preferentially because to concern about the teratogenicity of anti-thyroxine medicines.(12) Estimating prevalences of sub clinical hyperthyroidism is challenge due to the use of varied diagnostic criteria in epidemiological research. According to NHANES III, those aged 20-39 and above 80, particularly women, were more likely to have subclinical hyperthyroidism (27) also, ethnicity impacted the likelihood of developing subclinical hyperthyroidism. Subclinical hyperthyroidism was found in 0.4% of black American 0.3% of Mexican American and 0.1% of white Americans as well as 0.43% to 3.9% of Asians apart from levo-thyroxine which is known to cause subclinical hyperthyroidism, iodine insufficiency is the most significant risk factors for sub-clinical hyperthyroidism(28) According to some studies, the prevalence of subclinical hyperthyroidism rises from roughly 3% in iodine sufficient nations high for 6% to 10% in iodine deficient countries (12)

Hypothyroidism

Primary hypothyroidism is as common in Australia as it is in the United States (4.6% of the population), with 0.3% symptomatic and 4.3% subclinical cases. Moreover, thyroid autoimmunity affects 10 to 20% of the Australians population but the frequency varies with age, gender and ethnicity (29).The great majority of instances of primary hypothyroidism are caused by iodine deficiency and autoimmune (Hashimoto thyroiditis) illness. Depending on the populations studied, the incidence of overt hypothyroidism ranges from 0.2% to 5.3% in Europe and from 0.3% to 3.7% in the United States (12). Hypothyroidism affects between 1% and 2% of the population. Hypothyroidism affects up to 7% of people aged 85 to 89 years. As a result, the ageing population may be more susceptible to hypothyroidism and women ten times more likely to be afflicted (6). According to the NHA NES III survey the overall prevalence of hypothyroidism 4.6%. which was consistent with the incidence in white people but much higher than the rate among Afro-Caribbean people1.7%. Iodine sufficiency has grown in recent decades, leading in an increases in the incidence of the subclinical hypothyroidism from 3.22% to 16.7% in China (30). A cross-sectional research in India found that inland areas had much higher incidence of hypothyroidism (10%) than coastal areas. Despite increasing iodizing salt consumption hypothyroidism remain a serious public health issue in India (12).Hypothyroidism is readily recognised and treated, but if left untreated, it can cause major health problems and even death. Hypothyroidism is largely characterised by biochemical indicators due to its vague clinical presentation(4). Serum (TSH) concentration is the most sensitive and specific marker, and it is routinely used for thyroid function monitoring TSH levels clearly above the guideline range (0.4 to 4.0 miu/l and free thyro-oxine concentrations below the reference ranges identify overt and subclinical primary hypothyroidism (31) TSH values above the reference range accompanied by free thyroxine concentrations within the normal range constitute mild or subclinical hypothyroidism, which is widely seen as a symptom of early thyroid failure. Nonetheless, the TSH and free thyroxine reference ranges have been contentious in recent years (32).Adults the upper limit of TSH range normally increase with age and age specific references range were linked with contradictory outcomes among young people in the UK and Australia.(11) Because few statistical assessments of the world population have been conducted, the present reference ranges are contentious. The causes and processes of hypothyroidism are discussed in length here (32).Regions with varying iodine status will have a direct impact on the occurrence of hypothyroidism. Populations with low iodine diet and those with too much iodine consumption have greater incidence of

hypothyroidism(33) The establishment of mandated salt iodization programmes in any country has resulted in a reduction in worldwide iodine deficiency (34).According to studies, the frequency of autoimmune thyroiditis rose when forced iodization programmes were implemented. The mechanism is complicated but it might be related to the iodization impact of thyroglobulin via alter epitope expression and improved immunogenicity (mostly high levels of thyroid peroxidase antibodies and anti-thyroglobulin antibodies(35)According to a polish research, the prevalence of hypothyroidism increased from 1.4% to 2.1% when obligatory iodine prophylaxis was implemented Research have revealed that hypothyroidism primarily affects women, the elderly (>65 years), and white people, while studies comparing ethnic groups have not been conducted (27) Excessive iodization has led in an increase in the prevalence of thyrotoxicosis, as indicated by an increase in iodine-induced thyrotoxicosis cases in Tasmania, Australia. While eliminating iodine shortage is vital, iodization initiatives should be properly supervised to avoid iodine overexposure (36). Amino-darone an iodize rich medication may limit thyroid hormone productions due to iodine excess Wolff Chaik off effect result in thyroid hormone synthesis suppression. According to a comprehensive study and meta-analysis, around 14% of individuals treated with amiodarone developed hypothyroidism (37)Lithium is a popular bipolar illness therapy. Lithium suppresses thyroxine production and release, leading in hypothyroidism. Throughout the course of 18 months of lithium prescription, around 6% of patients required thyroxine replacement therapy, according to a large cohort study(21) Tyrosine kinase inhibitors are often used to treat a variety of malignancies.US Food and Drugs Administration Adverses Event Reporting System, sunitinib caused hypothyroidism, which led to an increase in the number of patients requiring sorafenib therapy(24) Other medicine interferon thalidomide, certain monoclonal antibodies antiepileptic pharmaceuticals and second-line therapy therapies for multi drug resistant TB can also induce Hypothyroidism (38). Manifestations of hypo-thyroidism can ranges from sign or symptom to life threat symptom myxedema coma as a result of prolong untreatable and severe hypothyroidism(39). Since myxedema coma has a high death rate (about 40%), early identification and treatment are crucial. Myxedema coma is characterised by altered mental state, hypothermia, increasing lethargy, and bradycardia, as well as multiple organ dysfunction syndrome and death. As a result, early thyroid hormone replacement treatment and other supporting measures are crucial (40). Hypo-thyroidism affect almost all organ but the cardio-vascular system suffers the most. Hypothyroidism is frequently associated with increase vascular resistances lower cardiac output diminished left ventricular function and alterations in cardiovascular contractility indices Additionally, hypothyroid individuals have a greater frequency of myocardial injuries, pericardial effusions, and cardiovascular risk factors as well as metabolic syndrome of traits as hyper-tension and dyslipidemia .Total cholesterol low density lipo-protein and homocysteine levels were elevated in hypothyroid individuals. Reversible dementia prevalent in hypothyroid individual although the prevalence of dementia and percentages of instances that were reversible remain unknown (12)

Role of micronutrients

Iodine is a non-metallic micronutrients are essential for synthesis of thyroid hormone(32).In addition to iodine, a number of dietary components have been proven to have an impact on the thyroid. A class of micronutrients known as goitrogens can result in thyroid gland hypertrophy. Cruciferous vegetables and soy products are two of its primary subgroups. Numerous animal research and human case reports emphasised the impact of these micronutrients and their potential contribution to improved thyroid disease treatment, despite the dearth of significant clinical investigations in this field(32)

Iodine

Iodine is a frequent nutritional item found in iodized salt, seafood (including fish and seaweed), certain cereal or bread(46) Patients frequently ask about dietary adjustments they might make to cure or reverse their thyroid dysfunction during ordinary clinical practise. In general, there is solid evidence to support the benefits of selenium supplementation for Graves' disease patients and appropriate but not excessive iodine consumption for thyroid function. In addition to

these, there is a paucity of scientific evidence demonstrating how dietary modifications might considerably improve hypo- or hyperthyroidism (47)

Cruciferous vegetables

The Brassicaceae family of crops, which includes kale, turnips, cauliflower, and others, are known as cruciferous vegetables because they are high in indole glucosinolate (48) This substance was discovered to break down in animal tests into the goitrin metabolite thiocyanate, which prevents the thyroid cell from absorbing iodine. It functions by limiting thyroid hormone production by competitively inhibiting the sodium/iodide symporter (49). Although cruciferous vegetables are frequently touted for their anti-carcinogenic properties, same advantages might also increase the risk of hypothyroidism, especially if iodine deficit is present. Heating might be advantageous since it transforms the goitrogenic substance into a less dangerous metabolite (48)

Soy Products

Goitrogens have been discovered in soy-based goods. Several investigations on isoflavone, the most prevalent phytoestrogen in soy, have discovered that it suppresses thyroid hormones in patients with iodine shortage but is unlikely to have an impact on those who are euthyroid(50)

Other nutrients

Selenium is a different micronutrient that has an impact on thyroid function (47) A meta-analysis examined how selenium affected patients with Graves' illness. At a 6-month follow-up, patients who got selenium supplements shown a transient improvement in thyroid function. In contrast to those who received a placebo, this improvement, however, did not sustain for 9 months. Even if adjuvant selenium supplementation has some advantages for patients with graves disease, it cannot be included in the recommended course of treatment until more convincing data are available (35). Another previously reported goitrogen is cassava, a starchy tuberous root of a tropical tree that is a staple food in certain African nations. Iron, vitamin D, vitamin B12, and other minerals are also crucial for the production of thyroid hormones. The structure and function of the thyroid can vary as a result of dietary changes in certain substances. However, by utilizing the appropriate nutritional supplements, we can reduce the signs and symptoms of hormonal illnesses even if they are typically incurable (51).

Conclusion

Studies have shown thyroid is endocrine gland with imperative role in hormone imbalancing various metabolic processes in fetal, childhood and adult life. Hormone thyroixine T4 and triiodothyronine T3 in thyroid, involve in playing critical role in growth and development and in adults it circulates the metabolic processes effecting on every organ. Thyroid gland present in neck portion. There are two types of thyroidism Hyperthyroidism and Hypothyroidism. Hyperthyroisism happens when the thyroid gland makes too much thyroid hormone, overactivation cause in speed up of body metabolism and cause weight loss. When the thyroid gland begins producing excess hormones, your metabolic rate increases. This means your body starts burning more calories than it needs. This can lead to weight loss. Metabolism is measured by the amount of oxygen your body uses over a certain period hypothyroidism happens when the thyroid gland doesn't make enough thyroid hormone. This condition also is called underactive thyroid. Hypothyroidism is associated with decreased metabolic rate, and has also been shown to correlate with a higher body mass index (BMI) and a higher prevalence of obesity. There is clinical evidence suggesting that even mild thyroid dysfunction in the form of subclinical hypothyroidism is linked to significant changes in body weight and represents a risk factor for overweight and obesity. Transient Congenital Hypothyroidism TCH is a short-term deficiency of thyroid hormone recognise after birth with low T4 and elevated thyrotropin TSH. Transient occur under condition of prematurity, maternal thyrotropin receptor blocking antibodies. Both hypo and hyperthyroidism could be caused by different mechanisms, The main motive of this study will be review the basics of thyroid hormone therapy, nutritional factors pay an important role in normalising the circulation of thyroid hormone with the respect of these factors many micronutrients involve. Children and adolescents can under control multiple disciplinary treatment based on diet, physical activity, and behavioural strategies. Iodine is major micronutrient

that involve in thyroid hormone therapy it can make to treat or converse their thyroid dysfunction. Commonly, there is reasonable corroboration that sufficient but not excessive iodine intake is beneficial for thyroid health same as intake of selenium supplementation is also helpful.

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