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ORIGINAL ARTICLE

Odontogenic Pain and Its Associated Factors in Children of Peshawar, Pakistan

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ABSTRACT

Aims: To determine odontogenic pain and its associated risk factors in children's presenting to a Pediatric Dentistry Department Khyber College of Dentistry Peshawar.

Material and method: This cross-sectional study was conducted at the pediatric department of Khyber College of Dentistry Peshawar. A convenience method was adopted for sampling and data was collected through a pre-design structured Proforma filled in the outpatient department (OPD) of the pediatric dentistry department. Data were analyzed by using a statistical package for social science SPSS. Frequencies and percentages were obtained.

Results: Overall three hundred and ninety-five (395) children were engaged in this study. In which 60% were male and 40% female. All the participants attributed some signs and symptoms of odontogenic pain enlisted in Proforma. Dental caries with 71% was the most common associated factor which caused odontogenic pain. Periodontitis was 4%. Dental trauma was 19%. Dental hypersensitivity was 1% and other factors like eruption pressure and para functional habits etc. were 4%.

Conclusion: It is concluded from this study that all of the patients attending the pediatric dentistry department of Khyber College of Dentistry Peshawar were having odontogenic pain. Occurring mainly in the teeth that present dental caries. Most patients were male and a higher frequency of the pain was evident in the patient's age group ranging from 8-12 years i.e., in a mixed dentition period. The second peak frequency of odontogenic pain was due to dental trauma. A total of five cases were reported, in which the cause of odontogenic pain was dental hypersensitivity which was the lowest percentage.

Keywords: Odontogenic Pain, Dental Caries, Trauma, Hypersensitivity, and Periodontitis,

INTRODUCTION

Pain is a repulsive sensory and emotional experience that is caused by tissue damage. Odontogenic pain is considered the most common symptom of the most common consequence of oral diseases such as dental caries and gum disease. It is the most commonly reported pain in all types of orofacial pain in the world population (1). Several factors have been linked to the presence and perception of toothaches, such as low socioeconomic status, dental caries and dietary difficulties, and sleep disorders. The prevalence of odontogenic pain varies between different studies and age groups. The international study reports 9% episodic pain in Japan, 40% in England, and 11-39% in Brazil (2).

Odontogenic pain is very common worldwide and has a very negative impact on life. These adverse effects show resistance in terms of diet, locomotion, social interaction, absence from school, sleep, and leisure activities (3). Differences in pain experience are explained, among other things, by differences in pain threshold and tolerance. In addition, it is related to sensitivity (extension and localization of tissue lesion), genetic (related to the nociceptive system and pain modulation) cultural (learning, experience, symbolic meaning of pain (4). Oral diseases can cause pain, suffering, and mental distress that can cause harm to people (5). Due to its social importance, the reduction of toothache in the population for the year 2020 was considered worldwide, to reduce the number of absentees in school, and at work. In children, a toothache can often be considered an oral injury, primary tooth loss, and the permanent outbreak of teeth (6)

In 2016, a study was carried out on preschool children in Brazil to determine the relationship between odontogenic pain and the associated factors of prevalence and associated factors. They concluded that 21% of children suffer from odontogenic pain(7). Another study was carried out in 2017 at the Federal University of Espirito Santo, Vitoria in Brazil. He found that 54% of patients had odontogenic pain (8). A third study, conducted in 2002 in Manchester, UK, found that 48% of children were having odontogenic pain (9). A fourth study was conducted in 1994 in US urban hospitals, which stated that 60% of odontogenic pain was due to trauma, 35% to dental caries, and 5% to other causes (10). The fifth study was conducted in 1999 in Harrow, England, where 47% of women and 53% of men were included. In the sample, the proportion of white was 51%; blacks were 10%, Asians were 36.35%, and the Middle East was 0.3%. The frequency of pain was 47.5% in men and 17% in women (11). Therefore, this study was conducted to determine the frequency of odontogenic pain and its associated risk factors.

MATERIALS AND METHODS

The descriptive cross-sectional study was conducted in the department of Pediatric Dentistry, Khyber College of Dentistry, Peshawar. The study was conducted through interview Based Performa filled in Khyber College of Dentistry Peshawar in the pediatric dentistry department. The duration of this study was approximately 4 months. For this study, a non-probability convenience sampling technique was used. Physically and mentally healthy children and those patients who willingly give data were included in the study. Whereas, all the children older than 18 years, aesthetic restorative patients, and unwilling patients were excluded from the study. The sample size for this study was 395 children who underwent a Pediatric Dental Department at the Khyber College of Dentistry in Peshawar.

It is computed as

$n = p (1-p) (z/E) 2$

Whereas: n= sample size, p= prevalence, z = Z score, and E = expected error

A written application stating the purpose of the study with attached Performa was submitted to the head of pediatric dentistry. The dental examination at Khyber College of Dentistry Peshawar was carried out with written permission. Each part of the ethics related to the research study was extensively discussed with the pediatric dental director of Khyber College of Dentistry, and each feature of the research study was evaluated to ensure participants' confidentiality and privacy. Oral consent was also obtained from the study participants, and the consenting participants were asked to answer certain questions regarding odontogenic pain and its associated factor

The data was collected through ready-made structured Performa. The first part of Performa consisted of demographic variables such as name, age, gender, etc. The second part of the Performa looked at the factors that cause odontogenic pain. All Performa's were completed and the data was collected on the

patient's pediatric Dental Behavior. I clarified her doubts about every point that answered Performa.

To analyze the data, Statistical Package for Social Sciences (SPSS) Version 22 was used. Percentages and frequencies were used to determine different relationships. The data was presented in the form of tables.

RESULTS

In this study to find the frequency of odontogenic pain and its associated factors in children, the sample size of (395) patients has been presented to the Department of Pediatric Dentistry of the Khyber College of Dentistry in Peshawar. In the cluster of patients there were 60 % (237) were males and 40 %(158) were females. The highest percentage of patients age ranging between 8-11 years which was 210 patients (53%), second is between 4-8 years patients is 103 in number (26%), while least percentage is in the age group 16-18 years which was 11 patients (3%) of all the participants. The major portion of odontogenic pain contributes to dental caries which was 71%, dental trauma19 %(74 cases), periodontitis 4%, dental hypersensitivity 4%, and 4% of patients had odontogenic pain because of other factors like eruption pressure, para-functional habits, etc.

Table 1:

Gender of Patients			
		Frequency	Percent
Table-1	Male	237	60.0%
	Female	158	40.0%
	Total	395	100.0
Age of the Patients			
Table-2	4-8 Years	103	26.1%
	8-11 Years	210	53.2%
	12-15 Years	71	18.0%
	16-18 Years	11	2.8%
	Total	395	100.0%
Dental Caries			
Table-3	Yes	282	71.4%
	No	113	28.6%
	Total	395	100.0%
Periodontitis			
Table-4	Yes	282	71.4%
	No	113	28.6%
	Total	395	100.0%
Dental Trauma			
Table-5	Yes	74	18.7%
	No	321	81.3
	Total	395	100.0%
Dental Hypersensitivity			
Table-6	Yes	5	1.3%
	No	388	98.2%
	22.00	2	.5%
	Total	395	100.0%
Other Factors			
Table-7	Yes	15	3.8%
	No	380	96.2%
	Total	395	100.0%

DISCUSSION

In a study by Cullinan MP, Ford PJ, et al. From 2009 in Australia, it has been shown that orofacial pain is by far the most common reason for patients to seek treatment. Dental and intraoral loads are often the major causes of orofacial pain. Nonodontoginic oral pain can result from intraoral structures such as gingiva and oral mucosa. Odontogenic pain, also known as TOOTHACHE, is a common global disease and the most common type of oro-facial pain, derives from dental structures, pulpal or periodontal (9). A study by Mueller CE, et al. carried out in Brazil in 2017, describes that odontogenic pain has a high prevalence and is extremely detrimental to life. These adverse effects show resistance in terms of diet, locomotion, social interaction, absence from school, sleep, and recreational activities. Differences in pain experience are explained, among other things, by differences in pain threshold and tolerance. In addition, it is related to sensitivity (extension and localization of tissue lesion), genetic (related to the nociceptive system and pain modulation) cultural differences (learning, experience, symbolic meaning of pain) (4). Another study was published in 2015 by Lemes MGC et al. conducted the conclusion that mouth disorders can cause pain, distress, and psychological embarrassment that cause damage on a personal and population level. Due to its social importance, the reduction of toothache in the oral health population worldwide was considered in 2020, to reduce the number of absentees in school and work. In children, a toothache can often be considered an oral injury, primary tooth loss, and permanent dentition eruption (1).

This study in Pakistan found that 60% of the participants were male and 40% female. Our study was compared to a study conducted by Nalabolu GRK et al. Strengthened in India in 2016, involving 59% men and 41% women (5). Another study, published in 1999 by Shepherd MA, Nadanovsky P, et al. In England, showed that 53% were men and 47% of women showed an approximate relationship (8). In this study, we found that participants aged 4 to 8 years old had 27%, participants 8 to 11 years old 53%, participants 12 to 15 years old 18% and participants 16 to 18 years old were 03 %. The same study was carried out in Uganda by Kiwanuka SN, Åstrøm AN, and all in 2005 and they found that patients between the ages of 10 and 12 were 60%, and patients between the ages of 13 and 14 were40% (10).

In the current study, we found that 71% of odontogenic pain was due to dental caries, while 29% of odontogenic pain was due to other factors. A similar study was published in 2002 in England by Milson KM, Tickle M et al. 61% of odontogenic pain was due to dental caries and 39% due to other factors (33). Another study was also published in Nepal by Prasai Dixit et al in 2013, 52% of odontogenic pain was due to dental caries and 48% to other factors (11). Another study, published in 2013 by Kabir et al. in Karachi Pakistan was carried out, which shows that 77% of toothache is due to dental caries (12). The difference in the ratio is poor oral hygiene and high intake of sugar in Pakistan.

According to the most recent study, only 4% of participants suffered from odontogenic pain due to periodontitis. A similar study was conducted in Sweden by Hughson et al. in 2016, which shows that 17% of odontogenic pain is due to periodontal disease (13). The difference in value depends on the oral hygiene and para-functional habits of the patients. According to the present study, 19% of odontogenic pain in children was due to dental trauma, according to a 2011 American study by Aldrigui et al. It is to be borne in mind that 18% of the odontogenic pain in children is due to a tooth trauma (14). All the studies show a correlation with each other. In addition, some other factors such as eruption pressure, poor functional habits, and orthodontic problems. Has contributed very little to odontogenic pain, and that was only 4% of the total population.

All patients and their parents should be informed about things that cause damage to the teeth, such as improper oral hygiene, excessive consumption of higher-sugar foods, and so on. Health-promoting programs should be encouraged to highlight such symptoms to inform the population about odontogenic pain and its associated risk factors in children. The results of this study can serve as a basis for promoting these programs. A differentiated study needs to be conducted in a wide range of socio-graphies, consisting of a much larger population to re-evaluate more signs and symptoms of odontogenic pain.

CONCLUSION

From this study, it is concluded that all patients who participated in the pediatric Dental Deportment of Khyber College of Dentistry Peshawar had odontogenic pain that occurred mainly in the teeth that had dental caries. Most patients were male and a higher frequency of pain led to an age group of 8-12 years. That means mixed dentition. The second peak frequency of odontogenic pain was due to tooth trauma. Some cases have been reported in which

the cause of odontogenic pain was tooth hypersensitivity, which was the lowest percentage, i.e. 2%.

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