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Prevalence of Ellis Class III in Patients Above 16 Years

Research Article

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Abstract

Trauma to the anterior teeth is seen in children and adolescents. It has an intense effect on the individual's appearance, function and speech. Trauma occurs due to their eruptive position and protrusion during eruption. The aim of this study is to find out the number of Ellis class III in patients above 16 years who are visiting University in Chennai. A retrospective study was carried out in University in Chennai between July 2019-March 2020.The data were collected from patients records analysed from the data of 86000 patients between June 2019 - March 2020 and entered in Excel sheet. Statistical Analysis was done using SPSS software. A chi square test was done between age and teeth number and gender and teeth number. The results were formulated in tables and graphs. The results showed that totally 378 patients were reported with ellis class III. Out of 378 patients, 260 were males while 118 were females.17-27 age group had highly reported with ellis class III is about 42.6%. The study concludes that the 17-27 age group had a higher prevalence rate of ellis class III. Maxillary central incisors are most commonly affected with ellis class III.

Keywords: Age; Ellis Class III; Gender; Trauma; Teeth Number.

Introduction

Traumatic dental injuries are considered to be an important issue due to its high prevalence, mainly in areas of social privation [1].They have a strong impact on children's and adolescents life quality because they cause physical and emotional distress and in children also might have a high negative impact on social relationships. One of the greatest assets a person can have is a smile that shows beautiful and natural teeth. An untreated fracture of an anterior tooth can affect the behaviour of individuals. Trauma to anterior teeth is undesirable and treating the fracture brings beneficial, confident levels to the individuals [2].The main etiological factors are falls, fight and road accidents and during sports. These factors are associated with biological, socioeconomic, physiological and behaviour of individuals [3]. The predisposing dental risk factors include increased mucosal overjet, open bite, protrusion and lip competence [4].

It is a dental emergency situation in young patients [5]. The majority of dental injuries involve anterior teeth, especially the maxillary incisors because of the exposed position in the dental arch [6]. Studies reported frequencies ranging from 9.4%-41.6% in primary dentition [7]. Traumatic injuries in permanent teeth have been reported to have a prevalence rate between "6.1%-58.6%." Dental trauma to the permanent dentition can lead to clinical complications and its management may considerably challenge a practitioner [8].Traumatic dental fractures are divided into various categories based on the Ellis classification system. Under Ellis classification, there are 9 classes. Ellis class III denotes fracture involving enamel, dentin and pulp.

Treatment suggestions for ellis class III is root canal treatment followed by crown placement. The root canal treatment is common in dental practice. The main indications of rct are irreversible pulpitis and necrosis of pulp caused by dental caries or dental trauma [9]. Successful endodontic treatment depends on diagnosis and adequate mechanical preparation [10] of the pulp space for restoration [11, 12] .The efficacy of diagnostic aids plays an

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important in treatment plan [13] . Irrigants play an important role in debridement and disinfection of the root canal space [14, 15]. Removal of the microbial organisms from the root canal system is a prerequisite for the successful outcome of any root canal treatment is can be achieved by using intracanal medicaments [16]. Postoperative pain is common sensation after endodontic treatment [17]. The incidence of postoperative pain was reported to range from 3% to 58%(18) .Previously our team has a rich experience in working on various research projects across multiplediscliplines [19, 33]. Now the growing trend in this area motivated us to pursue this project.

The aim of the study is to find out the number of Ellis class III patients above 16yrs.

Materials and Methods

Study Population:

A retrospective study was carried out in patients who visited University in Chennai with ellis class III fracture. The data were collected from patients records between June 2019-March 2020.The data contains details of patients, intraoral photographs and treatment being done.

Inclusion Criteria:

Patients above 16 years.
Ellis class III.

Exclusion Criteria:

Patient below 16 years.
Other Ellis class fracture.

Sample Size:

Sample size was the total number of patients who visited the University in Chennai with ellis class III fracture. Their distributions according to age, gender, teeth injured are recorded.

Ethical Approval:

Ethical clearance was obtained from the Institutional Ethical Committee and Scientific Review Board (SRB) of University in Chennai. SDC/SIHEC/2020/DIASDATA/0619-0320.

Data Analysis:

The data collected were entered in Excel sheet and subjected to statistical analysis using SPSS software. Descriptive statistics was done i.e. frequency and cross tabulation. A chi square test was done between age and teeth number, gender and teeth number. Mean and standard deviation was done for age and gender. Independent variables are age and gender while dependent variables is teeth number. The level of significance was $p<0.05$.

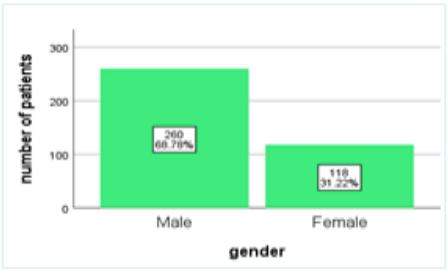
Results & Discussion

Traumatic dental injury is not a result of disease but a consequence of certain factors that will accumulate throughout life if not properly treatment.

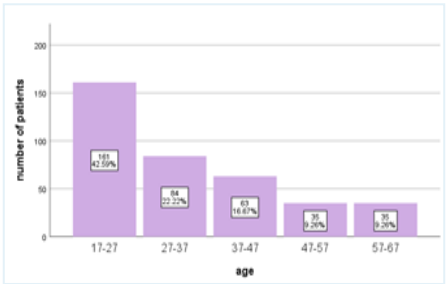
Our aim of this study is to find out the number of Ellis class III above 16 years who visiting Saveetha Dental College. Totally, 378 patients were reported with ellis class III. Out of 378 patients, about 68.8% were males and 31.2% were females. Increased frequency was found to be among males than females which was 68.8%.Similar result were found in different geographical location conducted by Veera kishore et al., [1].(Graph1).

The highest frequency of Ellis class III were found in the 17-27 age group about 42.6% and lowest were found in above 47 years

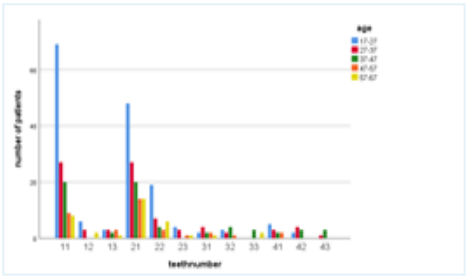
Graph 1: Bar chart showing distribution of study population based on gender across the scale of patient scale. X-axis represents gender and Y-axis represents patients count. It shows that male patients (68.78%) highly reported with Ellis class III when compared to female patients (31.22%).



Graph 2: Bar chart showing the distribution of study population based on gender across the scale of patient count in the y-axis and age group in the x-axis. From the graph we found that higher prevalence of ellis class III seen in the 17-27 age group (42.59%) followed by 27-37 age group (22.22%)and least one is 47-67age group (9.26%).



Graph 3: This graph represents the association between teeth number and age group where blue colour denotes 17-27 age group, red colour denotes 27-37, green colour denotes 37-47, orange colour denotes 47-57 and yellow colour denotes 57-67. X-axis represents teeth number and Y-axis represents number of patients. It shows that maxillary central incisors were most commonly affected with ellis class III in the age group 18-27. Male and female patients were had ellis class III fracture mostly in maxillary central incisors. P value<0.005, significant (Chi-square test)



Graph 4: This graph represents the association between teeth number and gender where blue colour denotes female and red colour denotes male. X-axis represents teeth number and Y-axis represents number of patients. It shows that male and female patients had ellis class III fracture mostly in maxillary central incisors. P value<0.005, significant (Chi-square test).

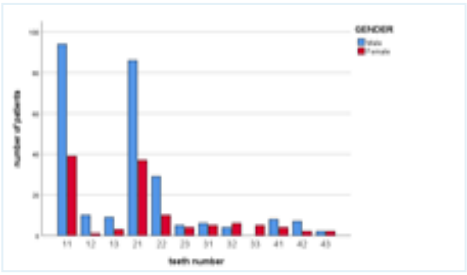


Table 1. Shows chi square test between teeth number and age which was found to be highly significant.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi square test	61.981[a]	44	0.038
Likelihood Ratio	64.973	44	0.021
N of Valid Cases	378		

a. 45 cells (75.0%) have expected count less than 5. The minimum expected count is 0.37.

Table 2. Shows chi square test between teeth number and gender which was found to be highly significant.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi square test	21.253[a]	11	0.031
Likelihood Ratio	22.026	11	0.024
N of Valid Cases	378		

a. 11 cells (45.8%) have expected count less than 5. The minimum expected count is 1.25.

about 9.3%.(graph 2).17- 27 age group had highly reported with ellis class III in maxillary central incisors were found to be statistically significant. (graph 3,table 1).t Males were frequently reported with ellis class III in maxillary central incisors were found to be statistically significant (graph 4,table 2).

A study done in Indore among 8-11 years old school children concluded that 68.38% boys experienced dental trauma injuries which was accordance with present study showed males were highly reported with ellis class III fracture about 68.8% which is similar to our present study [34]. A study done among 5-16 years old children, concluded that prevalence of traumatic dental injuries was found highly in males about 59.2% similar results was found in our present study with male predominance about 68.8%.[35]. A study done in India among adolescents concludes that prevalence of ellis class III fracture were founded to be 13.20%.[36]. A study

done in University of Alberta among patients visiting emergency clinic concludes that prevalence of ellis class III fracture found to be 6.7%(37) Our institution is passionate about high quality evidence based research and has excelled in various fields [38-48]. We hope this study adds to this rich legacy.

Limitations

The main limitation of this study was limited geographic location and confined to specific sample size. This can be corrected by inclusion of patients from different states, different universities to obtain more results.

Conclusion

The aim of this study is to find out ellis class III patients above 16 years who visiting University in Chennai. Within this limitation of this study, Males were frequently reported with ellis class III when compared to females.17-27 age group were highly reported with ellis class III. Maxillary central incisors are most commonly affected with ellis class III because of their eruptive position and protrusion. Management of patients with anterior tooth fracture provides greater challenge to clinicians both from functional and esthetic perceptive.

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