MAXILLOMANDIBULAR FRACTURES TEACHING HOSPITAL: EPIDEMIOLOGICAL PROFILE AND PERCEPTION OF USERS

Fraturas maxilomandibulares no hospital de ensino: perfil epidemiológico e percepção dos usuários

Fracturas maxilomandibulares hospital docente: perfil epidemiológico y la percepción de los usuarios

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ABSTRACT: Objectives: To investigate the epidemiological profile of patients with fractures of the maxillomandibular complex and to understand the perception of these users regarding the maxilomandibular trauma event. **Method:** Adopted a mixed method, through a quantitative and qualitative approach. Data collection was carried out from July to November 2014 on users' returns with the Dental Service. We used a semi-structured interview with sociodemographic information from users and three guiding questions. The methodological framework used was the Bardin content analysis and theoretical one was the General Theory of Orem Nursing. **Results:** There was a predominance of males, young people, victims of motor vehicle accidents, and fractures in the jaw. **Conclusions:** The results of this study support the conclusion that individuals face trauma and blocking intermaxiliar have deficits in self-care, particularly in aspects of oral hygiene and diet and impaired verbal communication can further compromise the needs.

Keywords: Facial Injuries. Ambulatory Surgical Procedures. Perioperative Nursing.

RESUMO: Objetivos: Investigar o perfil epidemiológico dos pacientes com fraturas no complexo maxilomandibular e compreender a percepção desses usuários quanto ao evento trauma maxilomandibular. **Método:** Adotou-se o método misto, mediante uma abordagem quanti-qualitativa. A coleta de dados foi realizada nos meses de julho a novembro de 2014, nos retornos dos usuários junto ao serviço odontológico. utilizou-se uma entrevista semi-estruturada, com informações sociodemográficas dos usuários e três perguntas norteadoras. O referencial metodológico utilizado foi a análise de conteúdo de Bardin e a Teoria Geral da Enfermagem de Orem. **Resultados:** Predominaram indivíduos do sexo masculino, jovens, vítimas de acidentes com veículos motorizados, com fraturas na mandíbula. **Conclusões:** Os resultados encontrados neste estudo permitem considerar que os indivíduos, vítimas de trauma de face e bloqueio intermaxiliar, apresentam déficit no autocuidado, sobretudo nos aspectos da higienização bucal e alimentação, além de comunicação verbal prejudicada, que pode comprometer ainda mais suas necessidades.

Palavras-chave: Traumatismos faciais. Procedimentos cirúrgicos ambulatórios. Enfermagem perioperatória.

RESUMEN: Objetivos: Investigar el perfil epidemiológico de los pacientes con fracturas del complejo maxilomandibular y comprender la percepción de estos usuarios en relación con el caso de un traumatismo maxilomandibular. **Método:** Se adoptó un método mixto, a través de un enfoque cuantitativo y cualitativo. La recolección de datos se llevó a cabo de julio a noviembre de 2014 los rendimientos de los usuarios con el Servicio Dental. Se utilizó una entrevista semiestructurada con información sociodemográfica de los usuarios y tres preguntas orientadoras. El marco metodológico utilizado fue el análisis de contenido de Bardin y teórico de la Teoría General de la Enfermería de Orem. **Resultados:** Hubo un predominio del sexo masculino, jóvenes, víctimas de accidentes de automóvil, fracturas en la mandíbula. **Conclusiones:** Los resultados de este estudio apoyan la conclusión de que las personas enfrentan el trauma y bloqueo intermaxiliar tienen déficits en el auto-cuidado, sobre todo en aspectos de la higiene oral, de la dieta y además la comunicación verbal alterada, que puede comprometer aún más a sus necesidades.

Palabras clave: Lesiones faciales. Procedimientos Quirúrgicos Ambulatorios. Enfermería perioperatoria.

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INTRODUCTION

The fractures of the maxillomandibular complex have higher incidence among male, young individuals, victims of car accidents, assaults and falls, with the fractures of the jaw and the zygomatic complex more often observed, and they can be associated to other types of trauma[1-4]. These fractures are treated surgically, when it is necessary the reduction and stabilization of the bone fragments involved, or in a conservative way, such as the use of intermaxillary blocks[4,5]. Great part of the fractures treated surgically also need intermaxillary block to promote adequate interdental position[4,5]. Due to the trauma's acute nature, health professionals do not have the opportunity of preparing the patient for neither the surgical or the conservative treatment nor the intermaxillary block.

The success of the treatment with the intermaxillary block depends on the medical–dental procedure and the nursing assistance provided. It is necessary to guide patients to perform their oral hygiene, their special liquid and pasty food, with the aid of straws or small spoons, in case of vomit proceed with the breaking of the block, to avoid asphyxia or bronchoaspiration[6]. It is noteworthy that the intermaxillary block hinders the communication process, which is considered an important foundation so that the relation of care takes place in an effective and efficient way, in addition to providing the understanding of the patient regarding its complexity, with qualitative results of attention, dignity and respect toward the one being taken care of[7].

The inclusion of a family member or escort in this process may foster a satisfactory postoperative evolution, free of physical and emotional discomfort. A study that had the objective of identifying the needs of information of the patient on the postoperative period from the orthognathic surgery, an elective procedure, highlights the difficulty in relation to memorizing postoperative guidelines, which shows the importance of a printed educational material to be handed in to patients submitted to surgical procedures, in a way to reinforce the verbal guidelines given and to help dealing with the difficulties experienced in the postoperative period of the orthognathic treatment[6]. It is considered that these difficulties may be even greater among victims of face trauma, since it is not an elective procedure and also because of the possibility of there being other associated traumas.

The study is justified considering that the knowledge on the epidemiology of the maxillomandibular trauma and the feelings of patients submitted to intermaxillary block may support improvement in the management of the services aiming at the quality of the medical–dental and nursing assistance.

This way, the study has the objective of investigating the epidemiological profile of patients with fractures in the maxillomandibular complex being taken care of by the dental service of the teaching hospital and understanding the perception of these patients regarding the event of the maxillomandibular trauma and the treatment with the intermaxillary block.

METHOD

We adopted the mixed method (QUAN → which) for a deeper understanding of the objective of the study[8]. In the quantitative approach, it was carried out a cross-sectional and retrospective study using a convenient sample and trying to know the epidemiological profile of the victims of maxillomandibular trauma. In the qualitative approach, the objective was to know the experience of patients to elucidate the different facets of the phenomenon.

The study was carried out in the dental service of a teaching hospital in the municipality of Botucatu, country side of São Paulo, which covers, annually, (60 patients) victims of trauma of the craniofacial complex with indication of intermaxillary block. Besides the discussion of the cases, along with the expertises of otolaryngology and plastic surgery, it is up to the dental service to install orthodontic braces which allow, though fixation on the dental arches with orthodontic elastics, the intermaxillary block. The intermaxillary blocks are held during surgery when the fracture is surgically treated. When the treatment is conservative one (bloodless), the intermaxillary blocks are made in the dental care itself.

The study was carried out in different stages. In the first stage, we used the secondary data from 2012 to 2013, including victims of craniofacial traumas with fracture of the maxilla and/or mandible treated at the dental service, aged 18 years old or older. The sociodemographic data of the patients were verified in addition to the cause of trauma, type of fracture, and treatment adopted. Patients with incomplete data were excluded from the study.

In the second stage, considering the same criteria, we included the patients who attended the follow-up of the dental service and who communicated verbally. The end of the qualitative data collection occurred as the information became recurrent, not resulting into new findings.

To carry out the interview, we used a routing containing sociodemographic data of the patients and the treatment and guiding questions: tell how it was to perform oral hygiene; tell how it was to feed; tell me how you communicated during the intermaxillary block. Data collection occurred in the period from August to November 2014 after the approval by the Research Ethics Commission of the HCB (CAAE: 32256914.5.0000.5411- Protocol No. 737.515).

To turn the interviews into narratives, we used the transcription and textualization. In the transcription, the contents recorded were heard in detail and the discourse of the patients reproduced faithfully, turning oral language into written language. To organize and analyze the qualitative data from the guiding questions, we adopted the methodological reference of content analysis according to Bardin[9].

The analysis of the content is a set of communication techniques aiming at obtaining systematic procedures and objectives of the description of the contents of the messages, allowing the inference of knowledge relating to the production/reception conditions of such, which define them as a research technique for the objective and systematic description of the contents in the communication. In the qualitative analysis, it is the presence or absence of a content characteristic or a set of characteristics in a determined fragment of message which is taken into consideration[9].

The method of analysis of content consists of three stages: pre-analysis (organization of the data, initial reading of the full content, choice of documents or records and determination of criteria); exploration of the material (coding the themes, which allows the thematic representation of the content, forming the categories); and interpretation (data are treated so that they are significant and valid)[9].

The findings were discussed under the General Nursing Theory proposed by Orem[10] supported by the premise that all have the potential, in different degrees, to take care of themselves and the ones under their responsibility. This theory consists of three theoretical constructs, such as self-care, self-care deficit, and nursing system. Self-care describes and explained the practice of care executed by the patients and a need to keep health and the well-being. The self-care deficit is the essence of a theory for outlining the need for nursing assistance, justified when the individuals find themselves unable or limited to promote continuous and efficient care. And, at last, the nursing system describes and explains how people are helped though nursing and the fully compensatory system when the individuals is unable or limited; partially compensatory, when the patients take part in the actions; and the system of backup and education, when the individuals needs guidance and teaching[10].

RESULTS

Fifty-four patients with maxillomandibular fracture were included in the study, prevalently males (87%). The average age was 30.6 years, varying between 18 and 64 years, with higher concentration (50%) of patients between 18 and 29 years, originally, mainly, from other cities in the state of São Paulo. Table 1 describes the characteristics of the participants in this study.

As for the etiology of the trauma, accidents with motor vehicles (53%) stand out, and in relation to the location of the fractures, they were more frequent in the mandible (68.51%) of which 6 (11.11%) were in the condyle (Table 2).

According to the recommendations of Bardin, the data were treated with equality, grouped and categorized so that they can be interpreted. Thus, three categories emerged, namely:

Table 1. Characterization of patients taken care by the dental services in years 2012 and 2013. Clinical Hospital of Botucatu (SP), Brazil, 2014.

Variables	n	% Relative
Gender		
Male	47	87.00
Female	7	13.00
Age (years)		
18–29	27	50.00
30–39	18	33.33
40–49	5	9.25
≥50	4	7.40
Precedence		
Botucatu	15	27.77
Other cities in SP state	36	66.66
Other states	3	5.55
Year of the care		
2012	27	50.00
2013	27	50.00

Category 1: Poor oral hygiene

The statements revealed different practices in the performing of self-care regarding oral hygiene:

- P1 – *It's difficult ... you can't ... Because it blocks the tooth. Then you can't clean the inside, the middle, back here, you almost can't clean anything, just the front. And the sensation was that it was not clean. The first thing was the bad breath ... Even with the mouthwashing. Oh, it's a little embarrassing.*
- P2 – *It was difficult ... besides the block there were also the stitches in and out. I couldn't do it. Then I started doing it slowly with a brush and toothpaste ... but it leaves a bitter taste. A feeling that it's not clean.*
- P3 – *I didn't do it ... couldn't do it.*
- P5 – *It was a little complicated. You can't brush ... you can't do much, so it was more like mouthwashing. Brushing was complicated, there was no way to do it.*
- P6 – *I cut a toothbrush in half like this, I made a strip out of it and used it slowly, sometimes I would wrap it up in cotton and use it ... Not everything was clean, no. Then I bought the ... I went to the drugstore and they gave me a med which burned a lot, bad as hell, then I was able to clean up. And then I would mouthwash with it, hourly.*
- P7 – *I used antiseptic ... but the sensation was awful ... of a dirty mouth.*
- P8 – *It was very bad ... oh, I would buy mouthwashers and clean with it ... about three times.*
- P9 – *with "colgate®", the mouthwasher. Not now, now I can bush the outside, because it's still tied up. So now I mouthwash and brush.*
- P10 – *oh, I had to depend on my family for hygiene, right, so they could help, mom, dad ... I washed only with the mouthwasher, because brushing really, I couldn't do it, just on the outside ... three times a Day, early, at lunch and at dinner time.*

Table 2. Characterization of the cause of trauma, location of the trauma, and care performed in patients from the dental services from 2012 and 2013. Clinical Hospital of Botucatu (SP), Brazil, 2014.

Variables	n	% Relative
Cause of trauma		
Motor vehicle accident	29	53.70
Assault	12	22.22
Fall from height	10	18.51
Unknown	3	5.55
Location of the fracture		
Mandible	37	68.51
Maxillary	12	22.22
Multiple fractures	5	9.25
Type of treatment		
Conservative	25	46.3
Surgical	29	53.7

Category 2 – Altered nutrition and weight loss

Despite the great advances of the surgery, maxillomandibular fixations in post-op allow the feeding of patients only with a liquid diet, and consequently there is an impairment in the nutritional status, as can be proven in the statements by the patients:

- P1 – *Straw and only soup on the side; of vegetables, fruit, mashed potatoes, about seven times a day. And it hurt a little but I could suck. Before I used to open the bottle with my teeth. I had more strength. Nowadays, even to chew, if I chew a lot it starts to hurt.*
- P2 – *60 days of liquids only, soup, and in the beginning I didn't have the strength to suck. I lost 15 kg.*
- P3 – *very hard ... I spent 50 days having soups, I had to have it many times a day, and everything hurt. I lost 4.5 kilos.*
- P4 – *I lost 35 kilos, I spent 45 days with the block, I started up having soup ... but it wasn't enough; then I started blending rice, beans, meat ... anything that would satisfy me ... just soup is impossible.*
- P6 – *It swelled a lot and I couldn't open my mouth, I couldn't eat anything ... three days. I couldn't eat anything. Not even soup I could swallow. After that the feeding was with a straw, I spent many days eating ... Everything in a straw, I would have a lot of yogurt, a lot of vitamin shakes, beans, beans soup ... I had a lot of beans soup.*
- P5 – *... You're at the table, then your family, everybody is eating at will and however much you drink the liquid, you're not satiating your will, so it was complicated because you had to drink everything, but you knew that wouldn't supplement your diet.*
- P7 – *I felt and still fell very insecure to eat. At the beginning I would eat only mashed things, I lost 12 kilos ... today I'm still afraid of chewing, for example, meat, an Apple ... it still hurts.*
- P8 – I lost *5 kg ... There were times I would mash thing in a blender, I had a lot of yogurt, a lot of liquids. Soup,*

beans, vitamin shakes … I could drink things, yes, in a straw … I would choke, because sometimes I had to suck, like this, and it slid right down.

Category 3: Impaired verbal communication

- P1 – *… I couldn't open my mouth … I could speak, but it was very difficult for people to understand. Annoying, pretty annoying.*
- P2 – *Oh, in the beginning I couldn't speak much. Then I could, But I would speak a little mumbled yet.*
- P3 – *I would find a way to talk even with my mouth trapped.*
- P5 – *… it was the same as to shut your teeth and not being able to open anymore, then you get to talk a bit … I could speak through clenched teeth, they were kept closed.*
- P6 – *Oh! I could talk. I could talk, even with those things in the mouth I could. Now, on the first Day I, the Day I got really hurt, I could even talk to the nurses there, I talked on the paper, I would write on the paper and speak.*
- P7 – *I would write messages on the cellphone or on a paper … it was quite hard … I couldn't speak.*
- P9 – *I couldn't speak. I would write, and gesture to my wife, my daughter, when they understood good, when they didn't I would write … the difficulty was the tongue.*
- P10 – *Communicating was difficult, speaking was complicated … it was already difficult to communicate before the surgery, then after the surgery itself, it started getting easier … I mumbled a bit, but they were patient enough to make an effort and ask what was it …*

DISCUSSION

According to the findings in the literature, there was a predominance of young patients (males) in the study samples (less than 30 years of age)[11,12]. Considering that the service covers a great part of São Paulo state, most of the participants in the study are from different municipalities in the state of São Paulo. It was observed, also, that the study was carried out within 2 years, there was no significant variation in the number of traumas taken care of in our service.

As for the etiology, the main cause of trauma is the one occurred with motor vehicles (53.70%), followed by assault (22.22%), which is coherent to other studies[11,12]. Most fractures were in the mandible, which corroborates the data in literature[11]. There was a slight predominance of surgical cases (53.7%) in relation to the ones treated in a conservative way (46.3%), corroborating with the data in the literature[1-4].

The surgical and the conservative treatments have similar results and provided precise indication. From the management point of view, the better the indication, the lower the cost, since it does not need surgical intervention and hospitalization, besides the repercussions among patients due to these events. Moreover, even in surgical cases, the previous installing of orthodontic brackets with power armys, performed in the dental service, significantly reduces the surgical time if compared to the installation of the arch or bar of Erick or bicortical screws, both installed in surgical centers. It is noteworthy that, usually, the installation of an arch or bar of Erick take, on average, 90 min, when performed by an experienced surgeon. It is understood that the multidisciplinary work (dental and surgical services) in the conservative treatment of maxillomandibular fractures may minimize the cost of the surgery, in addition to not causing sequelae in the peridonto and dental roots, such as those resulting from the use of the arch of Erick and bicortical screws[13].

The statements of the patients allow a discussion regarding the trauma followed by intermaxillary block and the life experience of these patients in performing self-care. The universal requirements related to self-care, such as balanced diet, adequate water intake, exercises practice, and body and oral hygiene, are common to all human beings, during all stages of the cycle of life and must be seen as interrelated factors, affecting one another[10]. A systematic view, in which the multiple elements interact to produce a result, the care with oral health is understood as one of the essential components of the health-care system, in their multiple dimensions[14].

In the poor oral hygiene category, it is evident the space so that the nurse, using health education, develops alternatives in these individuals for performing oral hygiene, stating the importance of self-care. The cares with oral hygiene has the objectives of reducing oral colonization, preventing and controlling infections, keeping mucosal integrity, besides providing confort[15]. It is observed, by the statements of the patients, that the block hinders or prevents performance of an adequate oral hygiene, further impairing the comfort of the users.

Furthermore, the World Health Organization recognized that oral diseases cause pain, suffering, psychological embarrassment, and social deprivation resulting in individual and collective impairments[16]. The oral health problems have been increasingly recognized as important causes of the negative

impact in daily performance and quality of life of the individuals and the society[17].

The oral health care, intrinsic to the phenomenon of caring, implies, in both individuals and collective areas, in a process of recognition of the influences of oral care in the various dimensions of the process of human life and the consequent responsible decision making and actions directed to the promotion of oral health, aiming at protecting life itself. The care with oral health, thus, is built daily and goes beyond the present time and space which implies a full view of the human being and their relations with other beings, with society, and with the environment[14].

The general Theory of Orem provides a view on the nursing phenomena, allowing that the nurse, along with the individuals, implement actions of self-care adapted according to their needs, so that the help relations are expressed through open dialogue and promotes the exercising of self-care[10]. The theories identifies five help methods, in self-care deficit: acting or making for the other; guiding the other, supporting the other (physically or psychologically); providing an environment that promotes personal development; and becoming able to meet full demands or current actions; and teaching the other[10].

Given the reports in the altered nutrition and loss of weight category, it is understood that the families should be trained to fulfill and manage the diet. The approach must be carried out by a multidisciplinary team, including a nurse, surgeon, dentist, and nutritionist, among others. The transition from hospital to home care must be done with caution, considering the characteristics of each individual and family, also inserting a health strategy of the family in the process. It should also be reinforced their engagement in planning the nursing assistance, considering it as a being of creative and reflexive capacity, which may choose and decide what is best for themselves.

Theories exist to promote changes in the professional practice, allowing the creation of new researches to be applied in practice and remodeling the structures of rules and principles. The works of Orem have been contributing to the learning of self-care in nursing practice, also being able to be applied to patients of facial trauma and maxillary fixation[10].

In the impaired verbal communication category, it was observed that while the patient has the intermaxillary block on, the verbal communication is impaired, which may increase anxiety. The nurse, together with patients and family, must establish codes, so that the communication process occurs.

To implement the actions of self-care to the patients submitted to mandibular fixation, it is necessary to communicate among nurses, patients, and family. Communication is a basic human need and, therefore, determines and makes an expressive care in the area of patient assistance, being this the common denominator of all actions from health professionals[18]. The nonverbal dimension of communication involves all manifestations of behavior not expressed through words, whose meaning is connected to the context in which they occur[18]. The nonverbal signs were used to supplement, substitute, or contradict verbal communication, as stated by the interviewed ones.

The competence in communication is a condition for the exercising of nursing as a quality and citizenship, the capacitation in communication prepares the nursing team to be professional, as demanded by the users of the health system[7]. Communication is an important foundation so that the caring relation is established effectively and efficiently, providing the understanding of the user in their complexity, with qualitative results of attention, dignity, and respect to the being to be taken care of[7].

Study, considering individuals who have also had intermaxillary block, points out the need for written information and the presence of family members at the moment of guidance to help and reinforce the verbal information received, as well as preparing printed educational material[6]. It is agreed that the care given in households is a continuation of the care given by the nursing team, these being professionals, also, responsible by capacitation and support to the families. It is not enough to only guide, but it is also necessary to get to know the reality of each user and, thus, have an individual planning[19]. The health education, performed by the multidisciplinary team, is of an even greater importance in this study, considering the acute trauma event and, in some cases, the presence of multiple injuries.

Considering the educational supporting system proposed by Orem, which is indicated when the individual needs assistance in the form of support, guidance, and teaching, it is necessary to train families during the intermaxillary block[10].

Finally, it was observed that patients with intermaxillary block have different need for performing self-care. However, understanding their need makes room for performing a planned, humanized, and quality care. This work indicates the opportunity to new studies and signals the importance of a nurse along with the multidisciplinary team.

The limitations of the study are due to the use of secondary data and convenience sample, being important the carrying out of new investigations through studies with other designs.

CONCLUSION

It is concluded that the patients with mandibular fractures treated by the dental service of the clinical hospital are, mostly: males (87%), young people between 18 and 40 years of age (50%), victims of motor vehicles (53.70%), with higher incidence in the mandible and predominantly surgical treatment.

The results found in this study allow considering that individuals who were victims of face trauma and intermaxillary block have self-care deficit, especially regarding oral hygiene and feeding, considering that the impaired verbal communication may compromise, even more, their needs.

The treatment requires a multidisciplinary approach, including dentists, doctors, nutritionists, speech–language therapists, and nurses. The team must prepare users and family members, in the transition process from hospital to domestic care, to perform self-care and, thus, minimize the discomfort caused by the block.

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