

Status of Oral Prosthetic Rehabilitation of Edentulism at the University Clinics of Kinshasa (CUK), DR Congo

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Abstract

Objective: The present work aimed to identify the most common edentulousness and prosthesis type (prosthetic treatment), to improve the management in oral prosthetic rehabilitation in DR Congo. **Material and Methods:** It was a documentary, longitudinal, and retrospective study of the medical records of edentulous patients admitted to the prosthetic service of the Dental Department/Kinshasa University from January 1983 to December 2020. Age, sex, cause of teeth loss, and prosthetic treatment (partial removable prosthesis, complete removable prosthesis) were evaluated. The Chare square test was performed to compare significant differences between the variables and the P-value < 0.05 was set as significant. **Results:** One thousand six hundred and ninety patients in that 901 were men (47 ± 16 years) and 789 women (42 ± 15 years) had undergone prosthetic treatment. One thousand eight hundred and forty-four edentulous teeth were viewed according to the Kennedy classification. Kennedy class 1 was the most predominant (61.4%) followed by Kennedy class 3 (24.8%). Two thousand one hundred and ninety-one prostheses were performed. The removable partial prosthesis with plate (acrylic resin) was the most performed (78.8%; $n = 1727$) and followed by the joint (17.4%; $n = 384$). Dental caries (52.6%) and periodontitis (36.4%) were the main causes of these edentulous teeth. **Conclusion:** The present study showed that edentulism is becoming a concern for the implementation of a real oral health policy.

Keywords

Prosthetic Rehabilitation, Edentulousness

1. Introduction

The teeth, an integral part of the maxillary and mandibular arches, play a crucial role in the performance of the function, such as mastication, sucking, gustation, phonation, swallowing and salivation [1]. Despite a clear evolution of dental medicine for the prevention and treatment of caries, periodontitis, and other oral pathologies, it is of utmost importance to note that dental loss continues to be a concern of the populations [2]. Epidemiological studies in African and world societies reveal that 3% of anterior-premolar teeth and 90% of molars are extracted due to caries and periodontitis [3] [4] [5] [6]. The stomatological studies carried out in DR Congo had shown that the majority of teeth are extracted [7] [8]. As a result, there are a high number of edentulous teeth, both posterior and anterior. These gaps are largely uncompensated because of the population's lack of knowledge of the negative impact of tooth loss on the quality of life. These lost teeth should necessarily be replaced to avoid harmful consequences on general health and oral health, in particular for the stomatognathic system [9].

Prosthetic oral rehabilitation of edentulous teeth is one of the treatments that can restore and preserve the patient's oral function, comfort, appearance, and health by replacing the missing teeth, as well as the peripheral and maxillofacial tissues [10]. This study aimed to identify the most common edentulism, the type of prosthesis performed, and to determine the causes of teeth loss to improve the management of prosthetic oral rehabilitation.

2. Materials and Methods

It was a documentary, longitudinal, and retrospective study of the medical record of edentulous patients admitted to the prosthetic service of the Dental Department/Kinshasa University from January 1983 to December 2020, either 38 years. The choice of this period was dictated by the relative abundance of prosthetic work done. It is in line with the awareness of the population and health legislators on the fact that partial or very edentulous patients are currently classified in the category of people living with disabilities [11]. Inclusion criteria was those medicals records that containing the sociodemographic parameter, date of admission to Kinshasa University Hospital, reported cause of the losing tooth loss, and Prosthetic or non-prosthetic treatment. However, all cases in which tooth loss involved only the wisdom tooth(s) were excluded from the study. Descriptive statistics (means, standard deviations, percentage) was carried out and the Chare square test was performed to compare differences between the variables. The P-value < 0.05 was set as significant.

3. Results

The results of this study are based on 1690 records of patients restored in dental prosthesis Service out of 43,265 records registered and consulted the services. **Table 1** shows that Kennedy class 1 is the most fitted (61.4%) followed by class 3 (24.9%); ($p = 0.05$). **Table 2** shows that out of the total of 1844 edentulous teeth,

the maxilla was most affected (59.4%; n = 1094) than the mandible (40.6%; n = 750) with a significant difference ($p = 0.00$) The removable partial prosthesis (RPP) in acrylic resin was dominates with 78.8% (Table 3) and dental caries and periodontitis are the main causes of tooth loss (Table 4). The difference is significant for periodontitis between male and female subjects ($p = 0.00$).

Table 1. Distribution of edentulousness of patients fitted by Kennedy class and by gender.

Kennedy Class	Male	Female	Total	%
K class I	658 (35.6%)	477 (25.8%)	1135	61.4
K class II	55 (2.9%)	76 (4.1%)	130	7
K class III	263 (14.2%)	199 (10.7%)	462	24.9
K class IV	31 (1.6%)	45 (2.4%)	76	4.1
K class V	29 (1.5%)	12 (0.6%)	41	2.2
	1036 (56.1%)	808 (43.8%)	1844	99.6

Table 2. Distribution of edentulousness of the patients fitted according to the dental arches.

Kennedy Class	Maxilla. n = 1094 (59.2%)			Mandible. n = 750 (40.6%)		
	Male	Female	Total (%)	Male	Female	Total (%)
K class I	382 (20.7)	263 (14.2)	645 (34.9)	277 (14.9)	214 (11.7)	491 (26.6)
K class II	39 (2.1)	49 (2.7)	88 (4.8)	16 (0.8)	27 (1.5)	43 (2.3)
K class III	160 (8.7)	129 (6.9)	288 (15.6)	103 (5.6)	70 (3.8)	173 (9.4)
K class IV	21 (1.2)	31 (1.7)	53 (2.9)	10 (0.5)	14 (0.8)	24 (1.3)
K class V	14 (0.8)	8 (0.4)	21 (1.2)	16 (0.8)	4 (0.2)	20 (1)
Total (%)	615 (33.3)	479 (25.9)	1094 (59.2)	421 (22.8)	329 (17.8)	750 (40.6)

Table 3. Distribution of the types of prosthesis performed ad gender.

Prosthesis	Male	%	Female	%	Total	%
RPP acrylic resin	976	45	752	34	1727	78.8
R P. Complete	29	1	12	1	41	1.8
P. Fixed	134	6	249	11	384	17.5
P.A. Surgical	18	1	21	1	39	1.7
TOTAL	1157	53	1034	47	2191	99,9

Legend: R. P. = removable prosthesis.

Table 4. Distribution of the causes of tooth loss of the patients with dentures according to sex.

Causes	Male		Female	
	N = 901	%	N = 789	%
Carie and/ or its complications	477	28	413	25
Periodontitis	393	23	224	13
Other causes	31	2	152	9
Total	901	53	789	47

Legend: N = number of patients.

4. Discussion

The results of this study indicate that posterior tooth loss was most in the maxilla and in the male contrary to several studies indicated that posterior loss was most pronounced in the mandible and in the female subjects [12] [13] [14] [15]. Kennedy's class I constitutes 61.4% of the edentulous teeth in our sample. This observation is confirmed by the study of Mumghamba *et al.*, [16] who report that Kennedy's class 1 accounts for 86.6% of oral rehabilitation in Tanzania. This high frequency of posterior tooth loss in both sexes may justify by the fact that the reduction in the quality of life of DR Congolese patients, especially in its masticatory component, can lead to gastrointestinal disorders and a decrease in calorie intake [9]. Furthermore, our study shows that 52.6% of people at the Kinshasa University Hospital have lost their teeth due to caries and/or its complications. The present results corroborate those of other studies [17] [18] which have shown that dental caries are the main cause of dental extractions during the first four decades of human life in Asia, Europe, America, and Africa.

As for periodontal losses (36.4%), our results corroborate the Dannewitz study conducted on periodontal losses in Africa and other countries of the world [19]. Certain maxillofacial pathologies as well as trauma often require ablation and are mostly accompanied by a more or less important dento-osseous loss depending on the case [12] [20] [21]. From this study, it appears that in thirty-eight years, the prosthetic service of the Dental Department, the PAP in acrylic resin (78.8%) was much performed compared to other types of prosthesis. This may be explained by the fact that the socio-economic level of the population is low and some patients prefer to live with this disability. Although those who have lost a large number of teeth have weakened subjective and objective health; their edentulousness can be rehabilitated by offering good quality acrylic resin partial dentures that are regularly checked [22].

5. Conclusion

Unrehabilitated edentulous Kennedy class I, II, and III patients may have negative consequences related to mastication and quality of life in Oral and General Health. Taking into account the large proportion (78.8%) of acrylic resin RPs made in 38 years, the randomized prospective interventional cohort study should be conducted to highlight the pathological changes amplified by PAPs on oral health and to determine the impact of wearing or not wearing PAPs on quality of life.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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