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Oral Diseases in the Elderly, A Study in Ile-Ife, Nigeria

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ABSTRACT To highlight oral diseases found in an elderly Nigerian population. The records of 494 elderly patients were retrospectively reviewed. The presenting complaints, relevant extraoral and intraoral findings, clinical diagnosis and investigations carried out were recorded. The ages ranged from 55 years to 120 years with almost half (44.0%) in the 60 to 69 year age group. Pain was the commonest presenting complaint (66.2%). Attrition was present in only 8% and was not related to age or sex. Coronal and root surface caries was present in 12.8% and 0.8% respectively and caries was significantly commoner in females and those who were presenting for the first time ($p<0.05$ and 0.01 respectively). Chronic periodontitis was the most prevalent oral disease (73.9%) and appeared to worsen with age, and decline with the state of the oral hygiene ($p<0.05$). Denture sore mouth was present in only females ($p<0.01$). Majority of the elderly (96.0%) had more than 20 teeth while only 16(3.2%) were edentulous. Squamous cell carcinoma was found in 11 patients and it affected significantly more males than females ($p<0.05$). Significant differences exist in the pattern of oral diseases in Nigeria when compared with the findings in other countries. Such differences might be due to socio-cultural, genetic and environmental factors.

INTRODUCTION

The elderly constitute an important part of the general population. With increasing life expectancy in most parts of the world, the population of the elderly is increasing concomitantly. The world's population of persons aged 60 years and above increases by about a million every month and by the year 2035, it is projected that the elderly will constitute one in every four persons (Kalk et al.,1992). In Scotland, a national survey conducted in 1987 revealed that those above 75 years of age constituted 5.9% of the population and it is projected that by the year 2011, the percentage will rise to 20%(Walster et al., 1987). In 1900, persons aged 65 years and above made up 4% of the population of the United States of America and by 1995 their population had increased to 33.2 million representing 12.7% of the population (Ettinger, 1997).

Numerous surveys have found significant oral health impairment and poor oral hygiene among the elderly (Kiyak, 1987). This is particularly true among the institutionalized (Lamy et al., 1997). This trend has been attributed to several factors including age-related changes that affect the oral health (Berg and Morgenstern, 1997). Oral health is generally perceived to be a less important need among older persons than is physical health in general (Kiyak, 1987) and consequently old people are least likely to seek dental care except in emergency situations (Kiyak, 1989).

While preventive measures have been effective for other age groups, progress in non-curative oral health for older persons has occurred more slowly (Kiyak, 1987). Dentistry has an important part within a health care service for elderly people and therefore health promotion and preventive care for the elderly has been strongly advocated (Erickson, 1997).

The objective of this study is therefore to highlight oral diseases found in an elderly Nigerian population with the aim of providing baseline data for further studies. To the best of our knowledge, no such study has been conducted in our environment. It is anticipated that the data presented here will be useful in formulating health promotion and preventive policies for the elderly population.

MATERIALS AND METHODS

The case notes of 494 elderly patients (aged 55 years and above) who attended the Dental Clinic of the Obafemi Awolowo University teaching hospital between January 1996 and December 1997 were retrospectively reviewed.

Relevant information, which included age, sex and occupation, were recorded. Presenting complaints, relevant history and the details of the

intraoral and extraoral findings were also recorded. The provisional diagnosis, investigations, and treatments carried out were also noted.

All the above information were then fed into an IBM compatible microcomputer and analyzed using SPSS 7.5 for Windows programme. Simple proportions and percentages were computed, while key variables were cross-tabulated and differences checked using the chi squared test. The strength of association between some variables was also evaluated using Spearman's correlation. Differences were taken to be significant at $p< 0.05$.

RESULTS

In all, a total of 494 cases were recorded. Males predominated constituting 299 (60.5%) of the total population. Their ages ranged from 55 years to 120 years, majority (217, representing 43.9%) however was in the 60 to 69 year age group.

Attrition (present in 8%) did not seem to have any significant relationship with the age or sex of the subjects, $p = 0.19$ and 0.46 respectively. (Table 1)

Coronal caries was present in 63 patients (12.8%) while root caries was present in only 4 patients (0.8%). Caries was significantly commoner in females ($p<0.05$) and in individuals who had never visited a dentist before ($p< 0.01$). (Table 2)

Chronic periodontitis was present in 73.9% of the patients and appeared to be significantly affected by age ($p<0.05$, Table 3) but not gender (Table 4). Chronic periodontitis however appeared to worsen with the state of the oral hygiene as seen in Table 5 ($p<0.05$).

All the three patients that complained of denture sore were females ($p<0.03$,Table 6). Pain was the chief complaint in majority of the subjects (66.2%), no sex difference however was observed in the pain experience (Table 7). Significantly more subjects with pain had poor oral hygiene (Table 8) and subjects with less than 20 teeth (79 patients, 16%) had lower pain complaints than those who had more than 20 teeth.(415 patients,84%) (Table 9). Sixteen patients representing 3.2% were edentulous.

Table 1: Presence of attrition in relation to the age of the subjects

Attrition	*Age in years*									
	50-59		*60-69*		*70-79*		*80 & above*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Absent	125	96.2	197	90.8	89	89	43	91.5	454	91.9
Present	5	3.8	20	9.2	11	11	4	8.5	40	8.1
Total	130	100.0	217	100.0	100.0	100.0	47	100.0	494	100.0

χ^2= 4.67, df=3, p=0.19

Table 2: Caries in relation to previous dental visit

Caries	*Previous visit*					
	Yes		*No*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Present	237	90.8	188	83.2	425	87.3
Absent	24	9.2	38	16.8	62	12.7
Total	261	100.0	226	100.0	487	100.0

χ^2= 6.33, df=1, p=0.01

Table 3: Chronic periodontitis in relation to the age of the subjects

Chronic periodontitis	*Age in years*									
	50-59		*60-69*		*70-79*		*80 & above*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Absent	43	33.1	58	26.7	17	17	11	23.4	129	26.1
Present	87	66.9	159	73.3	83	83	36	76.6	365	73.9
Total	130	100.0	217	100.0	100.0	100.0	47	100.0	494	100.0

χ^2= 7.58, df=3, p=0.05

Table 4: Chronic periodontitis in relation gender

Chronic periodontitis	*Gender*					
	Female		*Male*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	59	30.3	70	23.4	129	26.1
Present	136	69.7	229	76.6	365	73.9
Total	195	100.0	299	100.0	494	100.0

χ^2= 2.89, df=1, p=0.09

Table 5: Chronic periodontitis in relation to the oral hygiene of the subjects

Chronic periodontitis	*Oral Hygiene*					
	Good oral hygiene		*Poor oral hygiene*		*Total**	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	4	66.7	116	24.5	120	25.0
Present	2	33.3	358	75.5	360	75.0
Total	6	100.0	474	100.0	480	100.0

χ^2= 5.63, df=1, p=0.02

*The 16 edentulous patients in the study population were excluded.

Table 6: Denture stomatitis in relation to gender

Pain	*Gender*					
	Female		*Male*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	192	98.5	299	100.0	491	99.4
Present	3	1.5	0	0.0	3	0.6
Total	195	100.0	299	100.0	494	100.0

χ^2= 4.63, df=1, p=0.031

Table 7: Pain in relation to the sex of the subjects

Pain	*Gender*					
	Female		*Male*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	59	30.3	108	36.1	167	33.8
Present	136	69.7	191	63.9	327	66.2
Total	195	100.0	299	100.0	494	100.0

χ^2= 1.82, df=1, p=0.178

Table 8: Pain in relation to the oral hygiene of the subjects

Pain	*Periodontal status**					
	Healthy		*Diseased*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	6	100.0	154	48.1	160	33.3
Present	0	0.0	320	51.9	320	66.7
Total	6	100.0	474	100.0	480	100.0

χ^2= 12.15, df=1, p=0.000
*Community Periodontal Index of Treatment Needs code 0 was recorded as 'healthy' while codes 1 to 4 were combined as 'Diseased'.

Eleven patients (2.2%) presented with squamous cell carcinoma. There was a predominance of males though the relationship was not statistically significant. There was also no statistically significant relationship with the age of the subjects. (Table 10). Bleeding during tooth cleaning had significant correlation with age (r=0.097, p<0.01) and gender (r=0.094, p<0.01), while gender

Table 9: Pain in relation to the number of teeth

Number of teeth	*< 20 Teeth*		*> 20 Teeth*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	50	52.6	117	29.3	167	33.8
Present	45	47.4	282	70.7	327	66.2
Total	95	100.0	399	100.0	494	100.0

χ^2= 18.63, df=4, p=0.000

Table 10: Squamous cell carcinoma in relation to gender

Squamous cell carcinoma	*Female*		*Male*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Absent	193	99.0	290	97.0	483	97.8
Present	2	1.0	9	3.0	11	2.2
Total	195	100.0	299	100.0	494	100.0

χ^2 = 2.14, df=1, p=0.14

was also significantly associated with the presence of dental caries (r=0.126, p<0.01) and denture sore mouth (r=0.097, p<0.01). Total teeth was significantly correlated with age (r=0.250, p<0.01), dental caries (r=0.176, p<0.01) and gender (r=0.089, p<0.05).

DISCUSSION

A major criteria of successful aging is the maintenance of a natural, healthy, and functional dentition throughout life, including all the social and biologic benefits such as aesthetics and comfort, and the ability to chew, taste and speak (Kalk et al., 1992). As the population of the elderly increases there will be an increasing demand on dental services by such individuals. The elderly has been defined in several ways (Kalk et al., 1992) and in our study we defined the elderly as people aged 55 years and above based on the average life expectancy in Nigeria which is presently estimated to be 52 years (W.H.O., 1998).

It has been observed that as the population ages, visit to the dentist tends to decrease and therefore dental services are underutilized by the elderly (Atchison et al, 1993) . In our study, a little over half of the elderly patients (52.8%) had never visited a dentist before. This is comparable to the study conducted by Steel et al. (Steel et al., 1996) where 57.3% were categorized as non-attenders (those who do not visit the dentist regularly or visit occasionally). In our environment a general lack of awareness about dental diseases and services may be responsible for this trend. Traditional oral hygiene practices are predominantly employed by the elderly (Fajemilehin and Ogunbodede, 2002) and most people believe they do not need dental services except an acute problem arises. Even when such situations occur, the native doctors, patent medicine shops and quacks are usually the first port of call. In cities where dental services exist, many elderly patients may not be able to afford the cost. Additionally, reduced access to dental care, occasioned by diminished mobility of the patient, travel difficulties and difficult access to the dental clinic also contribute to the low demand for dental services by the elderly, despite the high need (Drummond et al., 1988) .

Tooth wear assumes more importance with age and about 40% of an elderly population in Britain showed grade 3 or worse tooth wear (Steel et al., 1996). A small percentage of the patients we studied (8.1%) had signs of severe attrition. This is surprising in view of the coarse nature of the African diet. Perhaps this is an underestimation, as attrition was not graded in the patients' records.

Only 63 patients (12.8%) had untreated coronal dental caries. This is much lower than the range of 25% to 95% documented in other studies (Heft and Gilbert, 1991). Dietary differences may be responsible for this trend. Root surface caries is known to increase with age (Beck et al, 1988) , and in an American study, 18% of the elderly had root surface caries (Heft and Gilbert, 1991) while between 62% and 72% had such lesions in a British study (Steel et al, 1996). As with coronal caries, only a small proportion of our patients (0.8%) had root caries and the same reasons already adduced for coronal caries may be applicable.

It is a generally accepted fact that the prevalence and severity of periodontal diseases increase with age (Kamen, 1997). As aging populations retain more of their teeth, periodontal diseases assume a more important role in the dental status of the elderly (Erickson, 1997). Functionally dependent older adults (the physically frail, those with mental confusion and dementia) are even at greater risks (Ettinger, 1997) . Periodontal diseases are highly prevalent in Nigerians (Sheiham and Jeboda, 1981) and it is not surprising that 73.9% of our patients had chronic periodontitis. In fact it was the most prevalent oral disease we observed. While there was no gender difference, the prevalence decreased with age due to a decrease in the number of the teeth present. It was understandably worse in those with poor oral hygiene (Table 5). The trend in the industrialized countries is a decrease in the prevalence of gingivitis and severe attachment loss that is now seen in only a small proportion of the population (Douglass et al., 1983). We can hardly make that claim here and there is a need for a larger study on a national basis to clearly define the status in our elderly population.

Tooth loss is the dental equivalent of mortality even though is now accepted that tooth loss is not a necessary consequence of normal aging. Current preventive and restorative care tends to show that natural dentition can be preserved until old age (Antczak and Branch, 1985). As a consequence of this, edentulism has been found to be on the decrease (Douglass et al., 1983). Edentulousness is associated more frequently with lower socioeconomic groups and it is strongly influenced by education, place of residence, geographic region and cultural factors (Ettinger, 1997). When compared with data from the United States of America, where 36.7% of persons above 70 years were found to be edentulous (Marcus et al., 1996) , it would appear that there are fewer edentulous elderly in our community. Additionally, majority (84%) of those who had teeth had more than 20 teeth, a much higher figure than the 38.4% obtained in a similar study in Britain (Steel et al., 1996). From the above observations it appears more old people in our environment are retaining their teeth in old age despite a higher prevalence of periodontal diseases.

Denture stomatitis affects between 14% and 20% of the denture wearing population (Ambjornsen 1985; Jainkittivong et al., 2002). It is noteworthy that we recorded an exclusive female preponderance and the reasons for this can only be elucidated through further studies. Our finding that more males had squamous cell carcinoma is consistent with the general trend even though the gap between the sexes is reportedly closing (Erickson, 1997) . In our study, we did not record any relationship with age in spite of the fact that age has been recorded elsewhere to be the most important risk factor (White, 1993). Perhaps this is so because our sample were all elderly and equally at risk.

In conclusion, a variety of oral diseases affect our elderly population similar to what obtains in other parts of the world. Significant differences do exist however which may be due to sociocultural, environmental and genetic factors. Such differences include a higher prevalence of periodontal diseases as opposed to lower prevalence of coronal caries, root caries and edentulism among Nigerians. While this study provides an important baseline data for further study in this area, there is a need for larger population based studies to properly document and monitor oral diseases in our elderly population.

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