

Dentoperiodontal pathology in patients with Alzheimer disease

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Summary

Purpose. The purpose of the study is to reveal the correlation between a neurodegenerative disease with genetic determinism - Alzheimer disease, also known as primitive dementia - and different types of dentoperiodontal lesions (edentations, caries, abrasion, lesions of the oral mucosa, influences on the salivary glands, oral hygiene).

Material and methods. Thirty-four patients were subjected to an interdisciplinary neurological and stomatological examination.

Results. Clinical and paraclinical exams showed that a nonspecific determinism between Alzheimer disease and dentoperiodontal lesions existed.

Conclusion. For a dental practician, all these influences require special therapeutical approaches.

Key words: Alzheimer disease, complementary examinations, dentoperiodontal lesions, interdisciplinarity, therapeutical approach.

Introduction

Neurodegenerative diseases - such as Alzheimer - may influence the evolution of certain dentomaxillary lesions and consequently the therapeutical approach. Neurological degenerative affections - generically known as dementia - are relatively frequent in elder people and they are the major cause for a longtime handicap. [1]

Alzheimer disease is part of these neurodegenerative affections and is also known as primitive dementia. It was first described by Alzheimer in 1907, under the name of dementia with neurofibrilar degenerescence

and cerebral senile plaques. Nowadays, this disease represents a major public health problem, only in the USA there are over 4 million persons diagnosed with Alzheimer dementia.

It is connected with the ageing process, senescence representing a major risk factor in the evolution of the disease. Its frequency ranges from 1% up to the age of 65, to 25% at 85 years old. The cerebral ageing process is associated with an ebb of mnesis and cognitive functions and also neuropathologic alterations, some of them common with those of Alzheimer disease.[2]

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Purpose of the study

The study intends to reveal the correlation between dentoperiodontal lesions and Alzheimer disease - a pathologic entity with genetic determinism.

Material and method

Thirty-four patients were subjected to an interdisciplinary examination during this five-year study (2000-2005). The subjects were institutionalized at the Institute of Cerebro-Vascular Diseases "Vlad Voiculescu" - Bucharest - and all diagnosed with Alzheimer disease.

Special clinical files were completed for each patient. The detailed investigations were done in different specialty centers and consist of:

- stomatological examination;
- dental radiographic examination;
- neurological clinical and paraclinical examination:
 - computer tomograph (CT)
 - nuclear magnetic resonance (NMR)
 - cerebral angiography
 - electromiography
 - Doppler ultrasonic examination

The present study evaluates the risk factors for dentoperiodontal lesions and the correlation with systemic diseases. The

information was synthesized in diagrams and tables with interpretation.

Results

The following observations were made upon statistically analyzing the data obtained from the previous examinations:

- the age of the patients in the study ranges from 51 to 90 years; (*Chart 1*)
 - the Alzheimer disease affects equally males and females;
 - the results obtained by analyzing the types of edentation can be visualized in *Chart 2*:
- 16 cases of bimaxillary total edentation (47%)
 - 9 cases of unimaxillary total edentation (26.5%)
 - 9 cases of partial bimaxillary edentation (26.5%)

- the dental examination also revealed other oral lesions: caries, loss of hard dental tissues of noncarious nature, periodontal diseases, mucosal lesions and salivary secretion disorders (*Table 1*).

As it can be noticed in the 3rd table, the most common oral affections, except edentations, are abrasion, periodontal diseases and salivary disorders.

Figure 1 shows the oral lesions in groups of patients divided by sex.

Table 1. Other types of lesions in patients with Alzheimer disease

Age	Sex	Dentoperiodontal and mucosal affections in patients with Alzheimer dementia					
		Carious lesions	Abrasion	Periodontal lesions	Mucosal lesions	Salivary disorders	Total
51-60	F.	1	1	1	0	0	3
	M.	2	2	2	0	1	7
61-70	F.	1	2	2	0	1	6
	M.	0	2	2	0	0	4
71-80	F.	0	1	0	1	3	5
	M.	0	2	0	1	3	6
81-90	F.	0	0	0	1	2	3
	M.	0	0	0	2	1	34

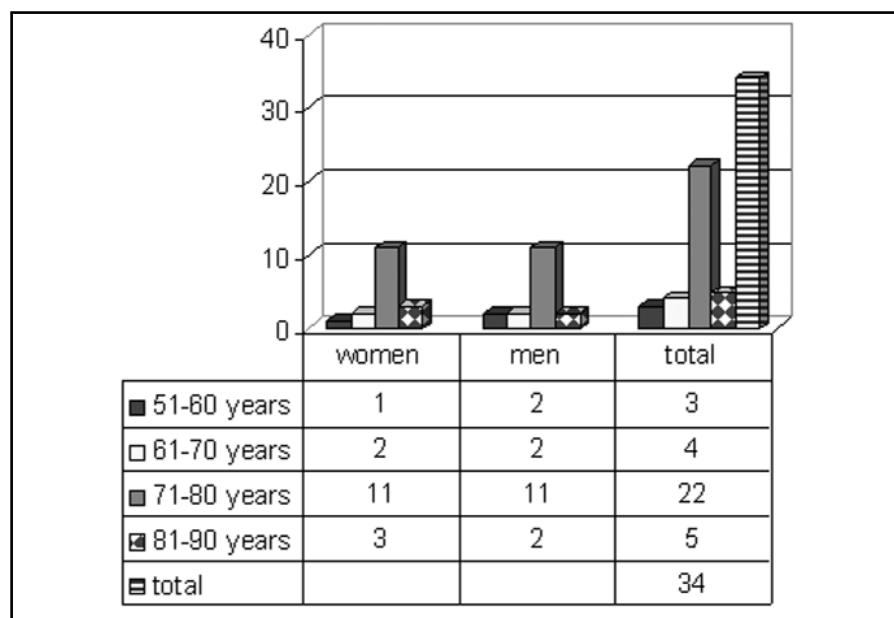


Chart 1. Alzheimer patients divided in sex and age groups

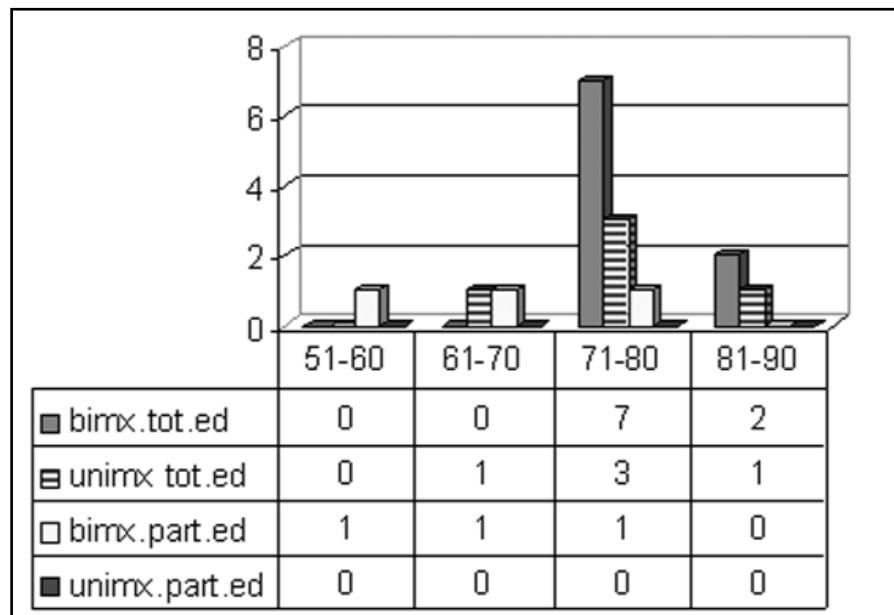


Chart 2. Edentations in patients with Alzheimer dementia grouped by sex and age
Unimx - unimaxillary; bimx - bimaxillary; tot - total; part - partial; ed - edentation

The study also took in consideration certain risk factors in patients with Alzheimer high blood pressure (HBP), dyslipemia (DyLp), ischaemic heart disease (IHD), chronic renal failure (CRF), atherosclerosis (ATS), chronic hepatitis (CH), stroke (S), oral hygiene (OH). The age decade of 70-80

was the most affected by these general diseases (*Table 1, Figure 2*).

Discussion

Psychiatry deals with the study of dementia. It is difficult to accept the corre-

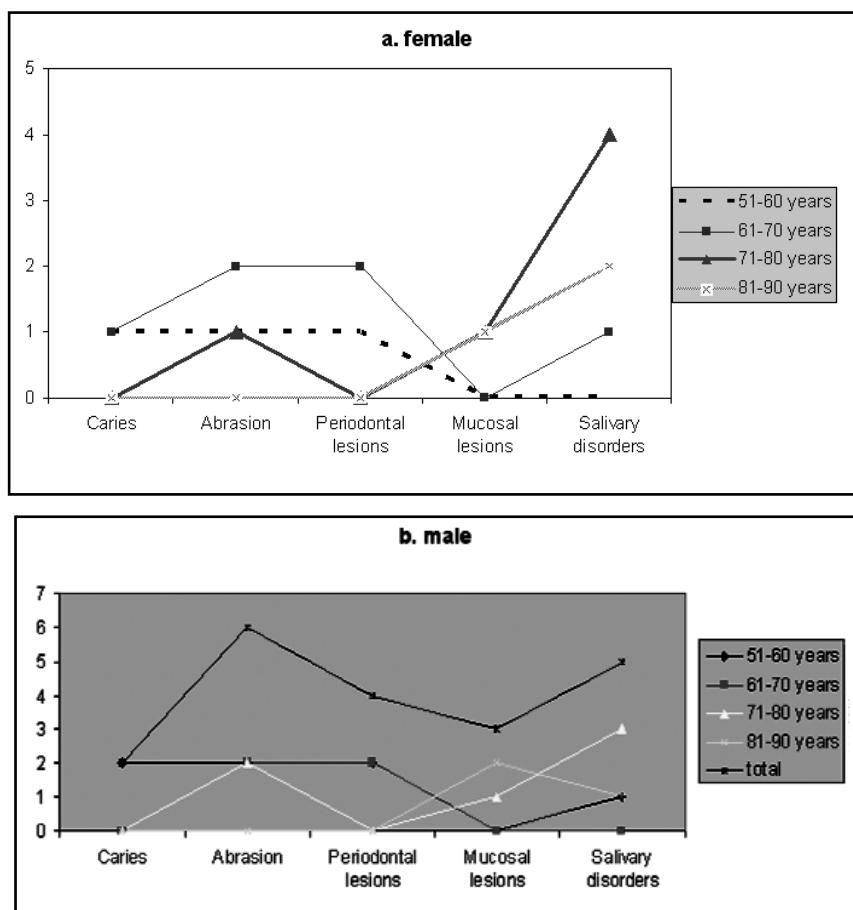


Figure 1. Other types of oral lesions in patients with Alzheimer disease are grouped by gender: (a) female, (b) male

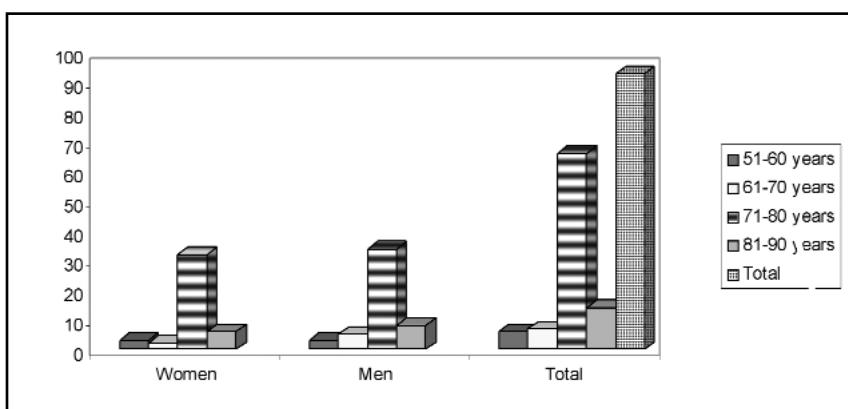


Figure 2. Risk factors divided by sex and age

lation between dental lesions and psychopathologic afflictions. The clinical examination of such patients is relatively difficult, because they do not cooperate with the doctor. The family consent is necessary in all cases.

The present study showed that dentoperiodontal affection is frequent in the 70-80 year-old age group. At this age, the most common affection is edentation, but it cannot be considered an expression of genetic disease, because its etiology is far more

complex, taking into consideration apoptosis, neural growth factors and the risk factors. [3,4,5,6]

Avitaminosis, bad oral hygiene, psychic disorders in patients with Alzheimer disease, the side effects of the specific medication - xerostomia - can explain the dental, periodontal and mucosal lesions that occur. [7,8,9]

Alzheimer patients are difficult to examine, because they do not cooperate with the doctor. The doctor-patient relationship, necessary for an optimum treatment is not possible [10]. These patients need full-time assistance in order to have an adequate treatment and to be able to maintain a proper oral hygiene. On the other side, the dentist has to be comprehensive and to take into account all risk factors, in order to establish an optimum treatment, as simple and efficient as possible. [11]

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Conclusions

Genetic dementia can heighten the dentoperiodontal lesions observed in patients with Alzheimer disease. The aspect of these dental afflictions is more complex, because we have to take into consideration the disease itself and also the other aggravating factors frequently associated with dementia. [12] The therapeutical approach concerns each of these factors and also the severity of the disease. A very important aspect concerns the patients' psychic disorders and communication between patient and doctor, both necessary for efficient treatment. Interdisciplinarity is required in order to improve the quality of life of patients with Alzheimer disease. [13,14]