

**Research Article**

# **Prevalence of Self-reported Medical Conditions and Drugs Used in Periodontally Compromised Geriatric Population**

Ashish Agarwal<sup>1\*</sup> • Narinder Dev Gupta<sup>2</sup>

<sup>1</sup>Assistant Professor, Department Of Periodontology, Institute Of Dental Sciences, Bareilly, India

<sup>2</sup>Professor, Department Of Periodontology, Dr. Z. A. Dental College, Aligarh Muslim University, AligarhBds, Mds (Periodontics)

\*Corresponding Author; E-mail: drashish.aag@gmail.com

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## **Abstract**

**Background and aims.** An absolute knowledge of a patient's medical problems, especially in geriatrics, is crucial for providing safe and appropriate dental treatment in the context of any systemic disorders, intake of medications, or other oral pathologies. The purpose of this article was to determine the prevalence of self-reported medical conditions and drugs used in periodontally compromised geriatric population.

**Materials and methods.** Information regarding age, sex, medical conditions, and drug used was recorded from interview of 2480 periodontally compromised patients (age  $\geq 60$  years) and analysed with chi-square test.

**Results.** 72.8% of patients reported a positive finding in medical histories with most frequent problems being bone/joint dysfunction, hypertension, allergy, diabetes mellitus, eye/ear dysfunction, and cardiovascular diseases. 58% of patients were taking at least one medication. Non-significant differences were recorded with male and female patients.

**Conclusion.** With regards to the observed high prevalence of medically-compromised geriatric dental patients, dentists should consider the conditions that are contraindicated for certain dental procedures or medications.

**Key words:** Drugs, Self Medication, periodontitis

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## **Introduction**

The prevalence of periodontitis is increased considerably with age and has been associated with a number of systemic diseases.<sup>1-3</sup> Geriatric patients often have chronic and sometimes complex systemic health problems and consume more medications than any other age group.<sup>4-6</sup> The disorders most commonly encountered in patients with periodontal disease are allergy, cardiovascular disorders, endocrine

disturbances, blood vascular disorders and orthopaedic diseases including arthritis.<sup>5,7,8</sup>

Periodontists may frequently see patients that are older than the patients in other dental specialities, and therefore, it is imperative that they become familiar with such patients' medical condition. Reviewing the medical history before treatment is one of the most crucial and often overlooked aspects of dental therapy. An understanding of the prevalence of various systemic disorders and exposure to medi-

cations in periodontal geriatric patients is essential for proper diagnosis, prognosis and management of the involved condition.

There appears to be little, if any, published literature on the systemic conditions and medications used, specifically in geriatric patients seeking periodontal care. Therefore the purpose of this study was to examine the prevalence of medical problems, and drugs used in geriatric patients affected by periodontal diseases.

### Material and Methods

Interview about age, sex, medical conditions and medication intake was recorded from the sample of 2480 patients (age  $\geq 60$  years, mean 68.6) treated for various periodontal conditions in department of periodontology, Aligarh Muslim University, Aligarh, India. Subjects were interviewed for their medical health and medication by single investigator. Only medical conditions that patients had at the time of the periodontal treatment were used to categorize as positive for a given condition. After recruitment of the patients, the study protocol and procedures were explained, and written informed consents were obtained from every patient. All the examinations, and procedures associated with this study followed the principles according to the Declaration of Helsinki. The study was properly reviewed, and approved by the ethical committee of Aligarh Muslim University. The type of medical conditions detected were categorized into the following general group: drug aller-

gies, cardiovascular, gastrointestinal, bone and joint, diabetes mellitus, endocrine disorder other than diabetes (mostly hormonal imbalance), psychogenic problems, respiratory, tumors, renal dysfunction, and anaemia. Medications were grouped as for cardiac diseases, antihypertensive, nutritional substitute, eye/ear preparations, gastrointestinal disorders, for respiratory disease, musculoskeletal disorders, herbal products, central nervous system, blood forming agents, genito urinal/sex hormones, psychotherapeutic. Chi square test ( $\chi^2$ ) was used to test the difference in the incidence, type of medical conditions, and medications in relation to sex. A two- sided ( $\alpha = 2$ )  $p < 0.05$  was considered statistically significant.

### Results

The results of this study demonstrated that total 72.78% (1805) of geriatric patients were suffering from at least one medical disorder, in these male were 68.59% (793), and females were 76.43% (1012) (Table 1). The most frequent self-reported medical disorders were bone and joint dysfunction with 26.8% (664) incident. The next most significant categories were hypertension 23.2% (575), allergy 19.2% (476), diabetes mellitus 16.8% (417), eye/ear dysfunction 12.3% (305), cardiovascular diseases 11.6% (287) gastrointestinal disorder 9.2% (228), endocrine diseases other than diabetes 8.8% (218), respiratory diseases 6.5% (161), neuromuscular diseases 5.6% (139), anemia 3.3% (82), psychogenic disorder 3.1% (77), renal diseases 0.8% (20), hepatic

**Table 1. Prevalence of self-reported medical conditions and medication intake.**

	Total patients	Patients with disease	Patients with medication used
Total patients	2480	1805 (72.78%)	1438 (57.9%)
Male	1156	792 (68.59%)	676 (58.4%)
Female	1324	1012 (76.433%)	762 (57.5%)

**Table 2. Different medical conditions in relation to sex.**

	MALE (1156)	FEMALE (1324)	TOTAL (1805)	$\chi^2$ value (M vs F)	P value (M vs F)
BONE/JOINT	211 (18.2%)	453 (34.2%)	664 (26.8%)	80.202	<0.001**
HYPERTENSION	273 (23.6%)	302 (22.8%)	575 (23.2%)	0.225	0.635 <sup>NS</sup>
ALLERGY	226 (19.5%)	250 (18.8%)	476 (19.2%)	0.178	0.673 <sup>NS</sup>
DIABETES MELLITUS	195 (16.8%)	222 (16.7%)	417 (16.8%)	0.005	0.946 <sup>NS</sup>
EYE/EAR DYSFUNCTION	140 (12.1%)	165 (12.4%)	305 (12.3%)	0.071	0.790 <sup>NS</sup>
CARDIOVASCULAR DYSFUNCTION	125 (10.8%)	162 (12.2%)	287 (11.6%)	1.220	0.269 <sup>NS</sup>
GASTRO INTESTINAL DISORDERS	99 (8.5%)	129 (9.7%)	228 (9.2%)	1.028	0.311 <sup>NS</sup>
ENDOCRINE DISORDERS OTHER THAN DM	101 (8.7%)	117 (8.8%)	218 (8.8%)	0.008	0.930 <sup>NS</sup>
RESPIRATORY DISEASES	77 (6.6%)	84 (6.3%)	161 (6.5%)	0.102	0.750 <sup>NS</sup>
NEUROMUSCULAR DISORDER	62 (5.3%)	77 (5.8%)	139 (5.6%)	0.239	0.625 <sup>NS</sup>
ANEMIA	31 (2.6%)	51 (3.8%)	82 (3.3%)	2.644	0.104 <sup>NS</sup>
PSYCHOGENIC	34 (2.9%)	43 (3.2%)	77 (3.1%)	0.193	0.661 <sup>NS</sup>
RENAL	11 (0.9%)	9 (0.6%)	20 (0.8%)	0.570	0.450 <sup>NS</sup>
HEPATIC	9 (0.7%)	6 (0.4%)	15 (0.6%)	1.087	0.297 <sup>NS</sup>
TUMORS	4 (0.3%)	7 (0.5%)	11 (0.45%)	0.466	0.495 <sup>NS</sup>

NS:  $p > 0.05$ ; Not Significant; \*  $p < 0.01$ ; Significant

dysfunction 0.6% (15), and tumors 0.45% (11) (Table 2). Non significant difference was reported for obtained incidences of all the diseases except in relation to bone/joint disorder which was more significantly present in females.

Prevalence of medication taken was 57.9% (1438), with male 58.4% (1156), female 57.5% (1324) (Table 3). Major medications were for cardiac diseases 9.6% (239), antihypertensive 14.7% (367), nutritional substitute 12% (300), eye/ear 165 (228), gastrointestinal disorders 6.6% (165), respiratory disease 4.9% (122), musculoskeletal disorders 4.7% (119), herbal products 4.4% (111), central nervous system 2.9% (72), blood forming agents 2.2% (56), genito urinal/sex hormones 1.2% (30), psychotherapeutic 0.8% (21). Only nutritional substitute was taken more significantly higher in female.

### Discussion

The present study proposed an incidence of 72.78%, and 57.9% for self-reported medical problems and medications intake respectively in periodontally compromise geriatric patients with non significant difference between male and female individuals. Major complications were bone/joint dysfunction, hypertension, allergies, diabetes mellitus, eye/ear dysfunction, cardiovascular diseases, gastrointestinal disorder, endocrine diseases other than diabetes, respiratory diseases, neuromuscular disturbances, anaemia, psychogenic disorder, renal diseases, hepatic dysfunction, and tumors.

Different studies in literature have determined different prevalence of medical conditions in dental patients. The prevalence of medical problems recorded (72.8%) in this somewhat selective group falls within the range (10-82.5% percent) reported in the literature.<sup>5-10</sup>

Frequency of self-reported medical complications in our study is less than the result of a similar previous

study of 590 periodontal patients.<sup>5</sup> That study showed the occurrence of 52.5% but the examined population was mainly of younger group (84%). The oldest group ( $\geq 60$ ) of their sample had almost a 70% prevalence of systemic problems, somewhat close to our study. Observations of another study suggested the frequency of 81.96% for at least one medical disorder with 1044 patients suffering from periodontitis; these results are higher in magnitude than our study.<sup>11</sup> They found hypertension (29.51%) followed by digestive disorders (18.92%), coronary artery disease (16.54%), kidney and urinary tract disorders (16.24%), endocrine disorders (10.58 %), rheumatoid arthritis/rheumatism (9.68%), diabetes (8.79%) allergic reactions (8.79%), liver and gallbladder disorders (7.30%), osteoporosis (5.51%) and respiratory disorders (5.36%) as major complications.

In a recent study prevalence rate of 42% with hypertension, diabetes, asthma, arthritis, and various allergies constituted the main systemic complications, but less than 10% of their patients were above the age of 60 years and patients were not specifically periodontally compromised.<sup>12</sup> Jainkittivong et al<sup>6</sup> in their study of 510 dental patients (age  $\geq 60$ ), reported incidence of medical conditions was 82.5% with 65.5% were taking at least one medication.

In context to periodontal patients, 74.1% identified with medical problems with cardiovascular, orthopaedic, endocrine, and psychiatric disturbances remain the major systemic complications. In this data age was not consider as the specific criteria. In the same study when authors calculated the medical problems in geriatric age group; frequency of medical problems was 83%.<sup>8</sup> Occurrence of 49.4% for self-reported systemic disorders with allergy, hypertension, psychogenic, and cardiovascular disorders as main complications, in 1006 patients (age range 40-86, mean age 53.1) referred to a specialist clinic for periodontal treatment has been documented.<sup>13</sup> Another study observed 60% of periodontal patients

**Table 3. Different medications in relation to sex.**

	MALE (1156)	FEMALE (1324)	TOTAL (1805)	$\chi^2$ value (M vs F)	P value (M vs F)
CVS drugs	113 (9.7%)	126 (9.5%)	239 (9.6%)	0.047	0.828 <sup>NS</sup>
Antihypertensive drugs	176 (15.2%)	191 (14.4%)	367 (14.7%)	0.312	0.576 <sup>NS</sup>
Nutritional substitute	117 (10.1%)	183 (13.8%)	300 (12%)	7.948	0.005*
Eye/ear drugs	99 (8.5%)	129 (9.7%)	228 (9.1%)	1.028	0.311 <sup>NS</sup>
GIT drugs	73 (6.3%)	92 (6.9%)	165 (6.6%)	0.399	0.528 <sup>NS</sup>
Respiratory system drugs	52 (4.4%)	70 (5.2%)	122 (4.9%)	0.821	0.365 <sup>NS</sup>
Musculoskeletal drug	43 (3.7%)	66 (4.9%)	119 (4.7%)	2.351	0.125 <sup>NS</sup>
Herbal products	51 (4.4%)	60 (4.5%)	111 (4.4%)	0.021	0.885 <sup>NS</sup>
CNS drugs	37 (3.2%)	35 (2.6%)	72 (2.9%)	0.680	0.410 <sup>NS</sup>
Blood forming agents	24 (2.0%)	32 (2.4%)	56 (2.2%)	0.325	0.569 <sup>NS</sup>
Genito urinal/sex hormones	13 (1.1%)	17 (1.2%)	30 (1.2%)	0.131	0.717 <sup>NS</sup>
Psychotherapeutic drugs	12 (1%)	9 (0.6%)	21 (0.8%)	0.944	0.331 <sup>NS</sup>

NS:  $p > 0.05$ ; Not Significant; \*  $p < 0.01$ ; Significant

with one or more systemic problems, but their periodontal patients had mean age of 53.26 years, in old age group prevalence of systemic diseases was increased significantly to 71% that is in agreement with presented study. The main medical diseases were allergy, hypertension, heart disorder, asthma, and diabetes mellitus.<sup>14</sup>

Reports in literature have suggested that 52-77% of person 65 year and older take medication.<sup>6,15,16</sup> Our results indicated the use of drugs in subjects aged 60 years and more is 57.9%. A study in Canada revealed that 90% of the Canadian older population were taking at least one medication most of which are analgesic, diuretics, and gastrointestinal agents.<sup>17</sup> A more recent study analysed the frequency of drug taking by older population is 65%.<sup>6</sup> Average number of drug categories used simultaneously increase with age; the most common drugs reported were, anti-hypertensive agents, cardiovascular drugs, vitamins, and analgesics.<sup>18</sup> Elderly were frequently on long term or multidrug therapy, therefore, they were more likely to have adverse drug reactions.<sup>15</sup> Findings of our study demonstrated that most common medication used were hypertensive agents, nutritional substitute, cardiovascular drugs, gastrointestinal medicines, musculoskeletal drugs, respiratory drugs.

Studies on identifying medically compromising conditions in dental patients have advocated using structured in-depth interviews by the dentist or patient self-reporting.<sup>19-21</sup> Evidences regarding accuracy for both types of approaches are available. On comparison of self-reported health status by histories documented in medical records; over 95% of the sample showed reasonable agreement between these two approaches.<sup>22</sup> Although the information provided by the subject may not be as accurate as compared to laboratory testing, it is nevertheless a reliable source of information which can be utilized cost-effectively in research studies.<sup>19</sup> Non-significant differences were obtained on comparison of self-reported oral health status to clinical examination by dentist itself in elderly patients.<sup>23</sup> Reliability of a self-administered questionnaire in dental patients in a teaching hospital proposed that maximum yield of information regarding known medical problems was only produced by using the self-administered questionnaire with a check of this by the receiving surgeon.<sup>20</sup>

Variations in prevalence in different studies may be due to diverse patient structure, socioeconomical level, awareness, severity of medical conditions and using different methodologies. Further studies with inclusion criteria of systemic conditions's parameters

should conduct, and will definitely give more appropriate results. This study demonstrates the importance of general medicine knowledge and clinical experience during dental education and the value of rigorous training in obtaining valid data by dental students and interns.

### Conclusion

Dentists need to be aware about the medical problems and medication that may require dental management modifications. Thorough medical history taking should be mandatory in this age group.

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