Assessment of Correlation Between Dementia and Periodontitis Using BigMouth Dental Data Repository

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Objectives: Dementia indicates a decline in cognitive function that interferes with everyday activities including oral health maintenance. Poor periodontal and oral health may play a key role in dementia progression due to underlying chronic inflammation. The purpose of this study was to determine any association between dementia and periodontal and oral health using a multi-institutional dental data repository called BigMouth.

Experimental Methods: Deidentified health records were obtained from eight US dental schools with the inclusion criteria of age > 50, dementia status and comprehensive periodontal exam (HSC-DB-21-0437). The dementia group (DG) and control group (CG) included subjects with or without patient-reported dementia, respectively. CG was further matched with DG for age, gender, tobacco use, diabetes, and cardiovascular disease. CG (N = 796) and DG (N = 1250) were compared for the average number of periodontal maintenances, osseous and gingival flap surgeries, scaling and root planing, full mouth debridement, deliveries of local antimicrobial agents, caries risk, periodontal diagnoses (2017 World Workshop classification), total teeth, probing depth, bleeding on probing, and clinical attachment loss. Chi square and Fisher's Exact tests were used for statistical analysis ($p < 0.05$).

Results: The CG had significantly higher number of periodontal maintenances, scaling and root planing, and gingival flap procedures. The DG had significantly higher number of full mouth debridement, deliveries of local antimicrobial agents, fewer teeth, more sites with probing depth > 5 mm, bleeding on probing, and clinical attachment loss. Other parameters were comparable in CG and DG.

Conclusion: Using a unique dataset from BigMouth, this retrospective study showed fewer periodontal procedures completed but worse periodontal conditions in people with dementia. With the rising incidence of dementia in the elderly, clinicians and dentists should be aware of the periodontal and oral health status and guide their practice accordingly.