Bone mineral density and mandibular bone quality in patients receiving dental implants

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Dear Editor,

I interestingly have read a case-control study about the differences in parameters of mandibular bone quality between normal and osteoporotic females receiving dental implant [1]. To my knowledge, this is the first report that investigated bone histomorphometric indices of the human mandible, although there were some studies about the association between dental radiography measures and skeletal bone mineral density (BMD). The authors conclude that there is no association between systemic osteoporosis and parameters of mandibular bone quality; however, I have several concerns about the study protocol and discussion.

1) The authors estimate mandibular cortical shape according to Klemetti's classification. However, it is likely that intra-observer agreement of the examiners may largely influence on the result [2]. In this study, three dental surgeons determine mandibular cortical shape. How are these examiners trained about Klemetti's classification? In our recent study including 60 investigators from 16 countries, intra-observer agreement was significantly increased in observers who specialized in oral radiology than the others including oral surgeons [3].

2) The authors evaluate trabecular bone pattern of the mandible by classifying into two groups: dense and rarefied. However, trabecular bone bone pattern is considerably different among the regions (incisor, premolar, and molar regions). Further, dental infection easily influence on this pattern, resulting in dense or rarefied. How did the authors avoid the regions influenced by dental infection? Which regions of the mandible did the authors evaluate? How about the intra- and inter-observer agreement about the estimation of trabecular bone pattern? Additionally, trabecular bone pattern cannot be accurately estimated on dental panoramic radiographs compared to periapical dental

radiographs because of lesser image resolution.

3) The authors obtained a bone fragment during the surgical procedure of dental implant placement. It is likely that dental implant site may be largely influenced by dental infection because tooth was extracted in this site due to some reasons such as dental caries, periapical disease, or periodontal disease. How did the authors consider the influence of dental infection on a bone fragment in dental implant placement site?

4) Limited to cortical shape of the mandible defined by Klemetti's classification, I cannot find any previous studies reporting no association between cortical shape and skeletal BMD. The authors cited the study of Mohajery and Brooks; however, this study did not refer cortical shape of the mandible, but thickness of the cortex at the angle of the mandible. Insufficient statistical power due to small sample size may partly contribute to their negative finding.

References

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