

I-4. The effect of osteotome technique on primary stability according to bone quality : In vitro study

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Background

The primary stability of implants is an important factor to predict the osseointegration. Recently, the resonance frequency analysis has been used to measure the primary stability. It is an objective method to monitor the stability of implants during healing phase. This study is to validate the differences in the effect of the osteotome method according to the bone quality as well the thickness of cortical bone.

Materials and Methods

270 implants of 3.75mm in diameter (Neoplant, Neobiotech, Korea) were placed in 135 bovine ribs. The bone quality is classified into 3 classes according to the number of bone marrow spaces which implants would be placed, and then classified into 9 subclasses after the ribs were trimmed. Two implants were placed in 15 specimens of each class.

Result and Conclusion

The conclusion were as follows:

1. In case of less dense cancellous bone, the osteotome method is more effective in primary stability rather than the drilling method is ($p < 0.05$).
2. If there was cortical bone, it is more advantageous to get stronger primary stability.
3. If cancellous bone is more dense or if cortical bone exists, there is no statistically significant difference between drilling and osteotome method ($p < 0.05$).