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Title
Osseointegrated implants in patients with diabetes mellitus: a case series of eight patients

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Summary
Traditionally, amputees with diabetes have been excluded from osseointegrated reconstruction. In the project we look into a case series of 8 diabetic patients who received an osseointegrated implant and report on their clinical outcomes.

Introduction
Osseointegration is a novel approach to eliminate socket related problems experienced by amputees. Over 70% of amputations in developed countries are due to vascular causes with the prevalence of diabetes mellitus reaching pandemic status leading to more amputations. Traditionally, diabetic patients with amputations have been excluded from osseointegrated reconstruction due to higher risks of complications. This is the first study reporting on the clinical outcomes of diabetic patients receiving an osseointegrated reconstruction.

Methods
This is a case series with one-year follow-up in eight diabetic patients with trans-tibial or trans-femoral amputation, and have received osseointegration implants between 2013 and 2016. Clinical and functional outcomes were assessed including pain, prostheses wearing time, mobility, walking ability and quality of life. Adverse events were monitored and recorded, including infection, fractures, implant failure, revision surgery, further amputation and death.

Results
Three trans-tibial and five trans-femoral amputees (aged 48-73 years) were included in this study. All patients were pain-free and still using the osseointegrated prosthesis at 12-months post-surgery. The mobility of all patients improved at follow-up. Notably, five of the eight patients were wheelchair-bound prior to surgery, but all were able to walk and perform daily activities at follow-up. Two patients experienced infection events which were treated by surgical

debridement. One patient experienced peri-prosthetic fracture after a fall which was fixated by a lag screw. No other adverse events were recorded.

Conclusion

Lower limb amputees with a history of diabetes mellitus have been traditionally excluded from osseointegrated reconstruction. Here we report the initial results of treating diabetic amputees with osseointegration, demonstrating improvements in function, mobility and quality of life. It can be expected that the improved function and mobility can serve a protective role in controlling the underlying diabetic conditions in these patients which makes osseointegration an attractive alternative to conventional socket prosthesis.

References

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