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**Title**

Osseointegrated implants in patients with peripheral vascular disease.

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**Summary**

The objective of this study is to look at success of osseointegration for patients with peripheral vascular disease in comparison to a traditional socket prosthesis and the rate of occurrence of all subsequent complications after a patient receives osseointegration surgery.

**Introduction/ basics**

Osseointegration is an alternative treatment for amputees who have inability or difficulty in wearing socket prostheses. Although the majority of limb amputations are due to vascular disease, they represent perceived contraindications for osseointegration surgery. For the first time, this case series reports the outcomes of osseointegrated reconstruction in patients with limb amputation due to peripheral vascular disease in Australia, Canada and United States.

**Material method; implementation/ process**

This is a multi-centre case series with minimum 24-months post-operative follow-up in patients with trans-tibial and trans-femoral amputation and a history of peripheral vascular disease, who have received osseointegration implants during 2014–2019. Clinical and functional outcomes assessed included pain, prosthesis wearing time, mobility, walking ability, and quality of life. Adverse events were monitored and recorded, including infection, fractures, implant failure, revision surgery and death.

**Results**

13 trans-tibial and 14 trans-femoral amputees (aged 30–87 years) were included in this case series with two patients being bilateral amputees. All patients were pain-free and using the osseointegrated prosthesis at follow up minimum 24-months post-operation. The mobility of all patients improved at follow-up. Notably, 6 of the 25 patients were wheelchair-bound prior to osseointegration surgery, but all were able to walk again and perform daily activities. Two

patients underwent removal of osseointegration implant within an average of 1.9 years post-op due to infection. Two patient experienced ongoing pain which was successfully treated with a neurectomy procedure.

### **Discussion/ conclusion; conclusion for the practice**

Patients with limb amputations and a history of peripheral vascular disease have been traditionally excluded from prosthetic reconstruction. An osseointegrated implant may be considered as a feasible alternative to the conventional socket prosthesis for these patients. The osseointegrated prosthesis may provide such patients with immense benefits, including improved function, mobility, quality of life, and even survival. Further evidence is required to confirm the possibility of implementing osseointegration surgery as the standard of care for these patients.

### **References**

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