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## **Osseointegrated prosthetic limb for amputees – Single stage surgery**

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### **Background**

The Osseointegrated Prosthetic Limb (OPL) was introduced in 2011. The socket prostheses failed to address a few major requirements of normal gait. Our hypothesis was that using an Osseointegrated Prosthetic limb will result in superior function of daily activities, without compromising patients' safety.<sup>[1-26]</sup> Traditionally this surgery was done as a two-stage procedure.<sup>[27, 28]</sup>

### **Aim**

- A. To describe the single - surgical procedure of the OPL; and
- B. To present data on potential risks and benefits with assessment of clinical and functional outcomes at follow up.

### **Methods**

This paper presents our first 28 cases operated between 2012 and 2015 in a single centre, Sydney, Australia by a single surgeon as a single stage procedure. The criteria for inclusion were strict including a formal interview with the team including the surgeon, radiologist, anaesthetist, pain physician, psychiatrist, physiotherapist, rehabilitation physician and the prosthetist. Patient characteristics and demographics

were collected. Outcomes assessment included health related quality of life questionnaires (SF 36 and Q-TFA), Mobility Predictor (K Levels – AMPRO), functional testing (6MWT and TUG) and evaluation of energy expenditure. The data was collected at all stages of the patient journey and statistically analysed.

### **Results**

The total number of patients was 26 with 28 implantations. 2 patients were bilateral amputees. Both K scores, Time Up and Go and 6 MWT tests showed a statistically significant improvement, with high significance  $p=0.0006$ , and  $p=0.0149$ , respectively. HRQOL improved dramatically for all patients. The energy expenditure increased at an average 4 fold after the surgery at their final follow up. Infectious complications occurred in;  $n=2$ , 1 grade 1A, 1 grade 1C.

### **Discussion and Conclusion**

This study shows favourable results for OPL treatment for above knee as well as below knee amputees, compared to Socket prosthesis and minimizes the rehabilitation time frame and can be performed as a single

stage procedure. Our experience of these patients has revealed encouraging results with a major improvement in patient's functionality and quality of life, and a low rate of complications.

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