

ABSTRACT

Comparison Of The Effectiveness Implant Composites In Osteomyelitis Therapy (Literature Review)

Meliyana Hutasuhut

The aim of this study is to compare the effectiveness of several composite implants used in osteomyelitis therapy through a literature review supported by in-vitro, in-vivo and clinical studies. The literature used were searched from electronic databases such as Cochrane Library, NCBI/Pubmed, NCBI/PMC, Airlangga University Repository and Google Scholar that met the inclusion and exclusion criteria. From the search results, it was obtained that as many as 20 relevant literatures are used. Ten eligible clinical and ten pre-clinical studies were included. The effectiveness of composite implants is defined as the ability of the composite to deliver antibiotics to the target to achieve the success of OM therapy as measured by using parameters the type and cause of the defect, the healing duration of defect and the percentage of defect cure rate. Causes of defects in clinical studies include osteomyelitis due to diabetic foot infections, hematogenous, chronic, and post-traumatic. The mean healing duration of bone infection in pre-clinical study was 7,6 weeks (4 to 16) and clinical study was 17,93 months (7,5 to 42,8). In general, implant composites used in OM therapy must be biodegradable, biocompatible, osteoconductive, osteoinductive and have a porous structure to maximize the local effect of antibiotic therapy reaching the infected site. In this study, several composites used organic, inorganic and metal composites. The result of this study, showed that in pre-clinical studies implant with BHA-GEL-GEN-GA as composite in Budiati *et al.* (2014) research, has the shortest healing duration (4 weeks) with the antibiotic release concentration reaching the infected tissue more than MIC, this composite is able to release gentamicin as much as 86-90% in 28 days and can accelerate bone regeneration. In the other hand, in clinical studies implant with IMIL-GEN as composite has better effectiveness than some other composites which is shown by no recurrence in the test group, has a better cure rate than the control group, and has the shortest healing duration (6 months). This clinical study is the result of Pinto *et al.* (2019) research.

Keywords : Osteomyelitis, Biocompatible Composite Implant, Implant
Local Therapy OM, Effectiveness.