

ABSTRACT**VARIOUS CARRIERS STUDIES OF GENTAMICIN
RELEASE FOR OSTEOMYELITIS THERAPY***Literature Review*

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Osteomyelitis is a progressive bone infection that can lead to tissue damage and bone necrosis. Since osteomyelitis therapy takes 4-6 weeks at a dose of 10 times the MIC value, it is necessary to have an appropriate carrier on the implant preparation to assist the release of gentamicin. This study aims to determine the release duration of gentamicin in PMMA carriers, calcium carbonate, calcium sulphate and bovine hydroxyapatite based on literature review. The results of this study showed that the release time of gentamicin in PMMA carriers was around 10 to 12 days. Calcium sulphate combined with nanohydroxyapatite containing gentamicin before and after implant hardening had a discharge of 28 and 10 days with a value of 100 times the MIC on the first day and 10 times the MIC thereafter. Meanwhile, the calcium carbonate in the Herafill-G implant released the gentamicin within 7 to 12 days. The duration of gentamicin release in combination bovine hydroxyapatite was 18 and 28 days with a value of 10 times the MIC. Therefore, it can be concluded that the best release is in the combination of calcium sulphate and hydroxyapatite containing gentamicin before implant hardening and the combination of Bovine Hydroxyapatite, gelatine and glutaraldehyde because it is able to release gentamicin in about 28 days.

Keywords: Release, Gentamicin, PMMA, *Bovine Hydroxyapatite*, Calcium Sulphate, Calcium Carbonate, Osteomyelitis.