

# Respon jaringan tulang setelah implantasi miniplat dan screw magnesium ecap dengan pulasan imunohistokimia pengamatan khusus respon terhadap collagen-1, osteocalcin, alpha smooth muscle actin, cd68 = Bone tissue response post ecap processed magnesium miniplat and screw implantation by immunohistochemical staining specific response observation towards collagen-1, osteocalcin, alpha smooth muscle actin, cd68

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## Abstrak

Latar Belakang: Magnesium ECAP mempunyai sifat mekanis yang baik dan pengaruh osteoanabolik, namun magnesium memiliki sifat korosif. Imunohistokimia mengidentifikasi respon proses korosi dengan melihat jejak jaringan sekitar.

Metode: Tulang femur dipasang miniplat dan screw dikelompokkan 1-3-5 bulan. Tulang kontrol diambil pada sisi berlawanan. Hasil Imunohistokimia dinilai dengan skoring. Data diuji nonparametrik dengan tingkat kepercayaan 99.

Hasil: Perbedaan bermakna kelompok perlakuan dengan kelompok kontrol  $p=0,000$ . Peningkatan pembentukan trabekula dan respon osteogenesis. Peningkatan revaskularisasi dan reaksi kluster diferensiasi terhadap gas poket hingga bulan ke-3.

Kesimpulan: Respon jaringan sekitar tertoleransi dengan terjadinya peningkatan osteogenesis, tidak ditemukannya jaringan nekrosis, dan penurunan nilai gas poket.

.....Background : ECAP processed magnesium has an excellent mechanical properties and osteoanabolic effect. However metal materials are known to have corrosive nature, and magnesium was no exception. Immunohistochemistry is able to identify corrosion process response in living organism by looking into its traces in surrounding tissues.

Methods : The femur bone samples were implanted by ECAP processed magnesium miniplat and screw for 1, 3, and 5 months. The opposing femur was left alone as control samples. Afterwards, immunohistochemical staining results were scored and tested using nonparametric tests with confidence interval of 99.

Results : Significant differences were found between treatment groups and control groups  $p=0.000$ . The increase of trabeculae formation and osteogenesis responses also revascularisation and differentiation clusters to gas voids are observed well into the 3 month samples.

Conclusion : Surrounding tissue responses are tolerated as shown by the increase of osteogenesis, untraceable necrotic tissues, and the decrease in gas voids score.