

Prediction of wound healing in diabetic foot ulcers : an observational study in tertiary hospital in Indonesia

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Abstrak

Aim: to evaluate the role of clinical characteristics, functional markers of vasodilation, inflammatory response, and atherosclerosis in predicting wound healing in diabetic foot ulcer.

Methods: a cohort study (February-October 2010) was conducted from 40 subjects with acute diabetic foot ulcer at clinical ward of Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta, Indonesia. Each subject underwent at least two variable measurements, i.e. during inflammatory phase and proliferation phase. The studied variables were clinical characteristics, complete peripheral blood count (CBC) and differential count, levels of HbA1c, ureum, creatinine, lipid profile, fasting blood glucose (FBG), marker of endothelial dysfunction (asymmetric dimethylarginine/ADMA, endothelin-1/ET-1, and flow-mediated dilation/FMD of brachial artery), and marker of vascular calcification (osteoprotegerin/OPG).

Results: median of time achieving 50% granulation tissue in our study was 21 days. There were nine factors that contribute in the development of 50% granulation tissue, i.e. family history of diabetes mellitus (DM), previous history of wound, wound area, duration of existing wound, captopril and simvastatin medications, levels of ADMA, ET-1, and OPG. There were three out of the nine factors that significantly correlated with wound healing, i.e. wound area, OPG levels, and simvastatin medications.

Conclusion: in acute diabetic foot ulcers, wound area and OPG levels had positive correlation with wound healing, whereas simvastatin medications had negative correlation with wound healing.