

Usefulness of Pulse Oximetry for Monitoring Immediate Improvement After Revascularization of Peripheral Arterial Disease

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Background --- An accurate non-invasive assessment of peripheral limb perfusion after revascularization is an important part of vascular surgery. Non-invasive assessment of peripheral perfusion has previously relied on clinical assessment, ankle artery Doppler pressures and transcutaneous oxygen measurements. Pulse oximetry is one of the most commonly employed monitoring modalities in the critical care setting. Joyce et al stated that pulse oximetry appears to be a more sensitive index of successful reperfusion following revascularization than transcutaneous oxygen measurements or ankle artery Doppler pressure and that, because of its accuracy and simplicity, it merits further use.

Objective --- To determine the usefulness of pulse oximetry for monitoring immediate improvement after revascularization of peripheral arterial disease.

Methodology --- This is a prospective cohort study involving 8 patients with peripheral arterial disease admitted for revascularization. Pre- and post-revascularization ankle-brachial index (ABI) and arterial oxygen saturation (SaO₂) of the limbs were determined and difference of change were analyzed. Correlation analysis of relationship between change in ABI and SaO₂ pre-and post-revascularization was also done.

Results --- A total of 10 patients with peripheral arterial disease were admitted at the Philippine Heart Center for revascularization from September to December 2008, however, only 8 patients were included in the study. Majority were male (87.5%) with mean age of 62.88 ± 7.32 years old. Most common risk factors noted were smoking (87.5%) and hypertension (75%). Majority of the patients (50%) presented with critical limb ischemia followed by acute limb ischemia (37.5%). Most common revascularization procedures performed were femoropopliteal bypass (25%), and embolectomy (25%). There was statistically significant change in ABI measurement of 0.62 ± 0.93 pre and post revascularization (p = .003). A statistically significant increase in O₂ saturations of 80.00 ± 33.47 (p = .000) was also noted when pulse oximetry was used for monitoring improvement after revascularization. However, no significant correlation between change in ABI and change in O₂ saturation was found (p = .26), although, there was a positive trend (r = 0.45).

Conclusion --- Our study confirms that pulse oximetry can be a useful additional tool to monitor improvement after revascularization of peripheral arterial disease, especially, after 24 hours of surgery. *Phil Heart Center J 2012;16:78-79.*