Significance of ankle brachial index and collaterals for prediction of critical limb ischemia in infrainguinal peripheral arterial occlusive disease.

Abstract:
Chronic limb ischemia (CLI) is a clinical diagnosis, but should be approved by technical tests like the ankle-brachial index (ABI). Although the ABI is well established, less is known about the influence of collateralization on clinical stage. Magnetic resonance angiographies (MRA) of 129 lower extremities were searched for morphological changes and for the number of collateral vessels according to Sorlie. Ankle pressures were recorded as higher (APmax) and lower (APmin) systolic blood pressures of the two ankle arteries with consecutive calculation of ABImax and ABImin. In comparisons of ROC curves, APmax (AUC=0.749) did significantly better as a prognostic marker than APmin (AUC=0.642) (p=0.005) and ABImax (AUC=0.744) did significantly better than ABImin (AUC=0.650) (p=0.019). APmax showed a positive likelihood ratio (+LR) of 5.79 and a negative likelihood ratio (-LR) of 0.47 (cutoff<=55 mmHg). For the number of collateral vessels a +LR 2.27 and a -LR of 0.09 and in patients with an APmax<=55 mmHg a +LR of 5.50 and a -LR of 0.00 were calculated (cutoff<=1 collateral vessel). Whereas APmax is more eligible for verification of CLI, collateral count is better in exclusion of CLI. Both seem to be independent factors for validating the clinical diagnosis of CLI.
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