Predictive factors facilitate identification of potential aortic dissection in patients with obstructive sleep apnea syndrome

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Abstract

Objective: Investigating potential predictors of aortic dissection development in high-risk hypertensive patients with obstructive sleep apnea syndrome (OSAS). Methods: Hypertensive patients with aortic dissection, admitted to hospital between January 2010 and July 2020, was diagnosed with OSAS by overnight sleep study with polysomnography (PSG). Results: Male was liable to aortic dissection compared to female in both groups(84.7% and 86% respectively).There were actually significant differences with regard to neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR), mean platelet volume (MPV) / platelet count (PLT) ratio and D-dimer that we concerned about and were of great value in aortic dissection as previously reported. As multivariable regression analysis revealed, NLR (odds rate [OR], 2.258, 95% confidence interval [CI], 1.464-3.482, $P<0.05$), MPV/PLT (OR, 2.743, 95%CI, 1.713-4.392, $P<0.05$) and apnea and hypopnea index (AHI) (OR, 1.746,95% CI, 1.225-1.320, $P<0.05$) were all independent risk factors for aortic dissection. receiver operating characteristic curves analysis of NLR, MPV/PLT, AHI and combination of indicators for aortic dissection revealed combination of NLR, MPV/PLT ratio and AHI is of outstanding predictive value with sensitivity of 0.904 and specificity of 0.847. At the thresholds of 4.41 for NLR and 5.14 for MPV/PLT and 35.95 for AHI, 87.5% of all studied patients were expected to be correctly diagnosed with regard to aortic dissection. Conclusion: Inflammation, platelet alteration is crucial for initiation and progression of aortic dissection. Combined detection of NLR, MPV/PLT ratio and AHI could assist sleep physicians to identify silent or potential aortic dissection in patient comorbidity OSAS and hypertension.

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Table 1 Clinical and demographic characteristics of control group.pdf available at https://authorea.com/users/396520/articles/509674-predictive-factors-facilitate-identification-of-potential-aortic-dissection-in-patients-with-obstructive-sleep-apnea-syndrome

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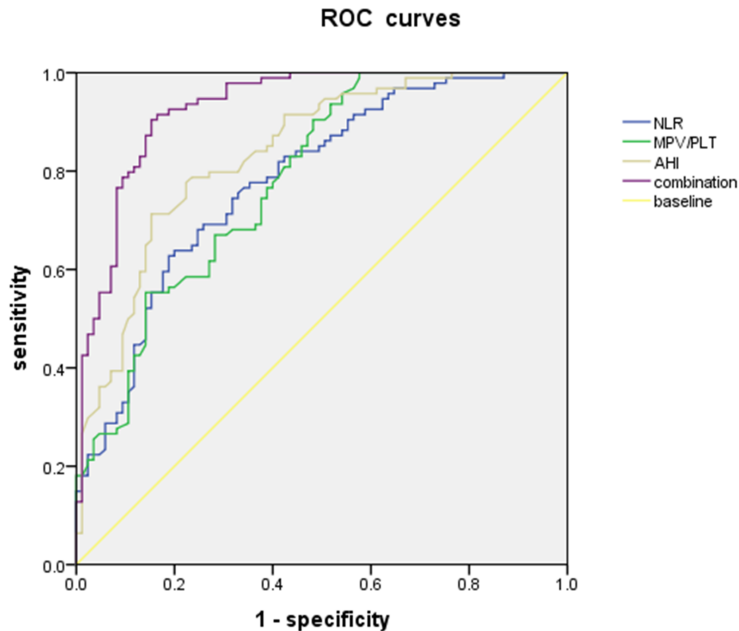

Figure 1 receptor operating characteristic curves of NLR,MPV/PLT,AHI and co-combination of 3 indexes