

Periodic limb movements in sleep as a potential cardiovascular risk factor in hemodialysis patients: association to cardiac structure and function

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Background: In haemodialysis (HD) patients, periodic limb movements in sleep (PLMS) constitute a common sleep disorder. Recent findings indicate a role for PLMS as a risk factor in the development of, or the aggravation of existing cardiovascular disease. The aim of the current study was to investigate the association of PLMS with indices of cardiac morphology and function in HD patients.

Methods: Based on PLMS diagnosis by an overnight polysomnographic evaluation, 19 stable HD patients were divided into the PLMS group (n=10) and the non-PLMS group (n= 9). During the overnight assessment, nocturnal blood pressure (BP) indices were also assessed. Left ventricular (LV) dimensions were examined by M-mode echocardiography whereas LV diastolic function was evaluated by conventional Doppler and Tissue Doppler Imaging the following day.

Results: LV internal diameter in diastole was significantly increased in the PLMS group (4.96 ± 0.61 vs. 4.19 ± 0.48 cm $P=0.007$) leading to a significantly increase in LV mass (202 ± 52 vs. 150 ± 37 g; $P=0.026$). In contrast, no between group differences were observed in diastolic function ($P>0.05$). A non-dipping pattern of blood pressure during sleep was observed in the PLMS group compared to their non-PLMS counterparts and this increase hemodynamic stress may partially explain the increase in LV mass.

Conclusions: In HD patients with PLMS, significantly larger LV morphology may represent part of the phenotype of greater cardiovascular disease risk in this group.