

## Is there an Association between PLMS and Cardiovascular Disease?

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Periodic limb movements during sleep (PLMS) are characterized by periodic, repetitive, highly stereotyped, limb movements mainly of the lower extremities that occur during sleep. We noticed a small correlation between PLMS, hypertension and ischaemic heart disease in our charts review.

A retrospective charts review of 250 patients who were referred for polysomnography (PSG) at Peamount Hospital were analysed. 25(10%) patients were diagnosed as having PLMS only based on their PSG findings.

Focusing only on the PLMS group (25 patients), 11 (44%) were males and 14 (56%) were females. Out of these 25 patients, 1 (4%) patient was aged less than 30, 1(4%) patient was aged between 31 and 40, 10 (40%) patients were aged between 41 and 50, 7(28%) patients were aged between 51 and 60 and 6(24%) patients were aged greater than 60 years old. 2 (8%) patients were found with a Body Mass Index (BMI) were less than 25. 11 (44%) patients had a BMI between 25 and 30, 7 (28%) patients had a BMI between 31 and 35 and 4 (16%) patients had a BMI of greater than 40. Regarding their clinical symptoms, out of the 25 patients, 18 (72%) patients had daytime somnolence, 13(52%) patients had witnessed apnea and 22(88%) patients complained of snoring. 11(44%) patients had an epworth sleep score (ESS) of less than 5, 9 (36%) patients has an ESS between 5 and 15 and 5 (20%) patients had an ESS between 16-24. Regarding their comorbidities, 2(8%) patients had hypertension and ischaemic heart disease.

Although no studies have confirmed the relationship between

PLMS and hypertension, there is a hypothesis that PLMS cause brain-stem activation leading to increased sympathetic tone and thereby elevation in systolic blood pressure.

Regarding the cardiovascular system the most widely accepted mechanism is that periodic increases in heart rate and blood pressure associated with PLMS during sleep may result from sustained adrenergic surges causing persistent elevation in blood pressures, not only during sleep but also during wakefulness.

The clinical significance of PLMS and its relationship to cardiovascular disease remains an area of debate and controversy. Although there is a physiological pathway to the argument that PLMS increases the risk of cardiovascular disease (CVD) by increasing sympathetic nervous system activity resulting in tachycardia, hypertension and left ventricular hypertrophy, a conclusive association and causality remains to be demonstrated. Therefore further randomised interventional studies specifically targeting treatment of PLMS and evaluating the effect on CVD morbidity and mortality is needed. Until then, a strong recommendation for treatment of PLMS specifically to reduce CVD risk cannot be made and each individual patient will have to be assessed individually based on potential risks and benefit of treatment [1].

### References

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