

**Meta-analysis of comorbidity between periodic limb movements in sleep (PLMS)
and cardiac disease**

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Abstract:

Introduction

PLMS has been proved to be associated with increased cardiac disease and associated with lower survival rate in patients with heart disease. We conducted a systematic review and meta-analysis of the previous studies, regarding the association between the PLMS and the cardiovascular risk.

Method and Materials

Under the guideline of meta-analysis of observational studies in epidemiology (MOOSE) statement, we conducted electronic database search on the PubMed, ScienceDirect, and ClinicalTrials.gov. The inclusion criteria applied in current study was as below: (1) published articles investigating the comorbidity between PLMS and CAD, either in forms of coronary artery disease or myocardial infarction, and (2) articles that were clinical trials in humans.

Result

Total six articles were eligible for the current meta-analysis; four provided the comorbidity data of CAD in patients with PLMS (patients with PLMS = 4144, mean age=76.1, mean female proportion=0.5%), and two provided the comorbidity data of AMI in patients with PLMS (patients with PLMS = 4035, mean age=76.6, mean female proportion=0.0%). The meta-analysis results revealed significantly higher comorbidity rates of CAD in patients with PLMS than those in controls without PLMS (Odds ratio = 1.434, 95% CI =1.100 to 1.871, $P=0.008$) with significantly positive association with the BMI (slope=0.473, $p=0.0002$). Besides, there was also

significantly higher comorbidity rates of AMI in patients with PLMS than those in controls without PLMS via meta-analysis (Odds ratio = 1.278, 95% CI =1.125 to 1.452, $P < 0.001$).

Conclusion

Patients with PLMS significantly had higher comorbidity rates of coronary artery disease and acute myocardial infarction. Further studies should be focused on other cardiovascular disease, and the potential benefit of treatment for PLMS in outcome of cardiovascular disease.