Diagnostic accuracy and suitability of instruments that screen for sleep disorders in cardiac rehabilitation patients

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Background

It has been strongly recommended that all cardiac rehabilitation patients should be screened for potential sleep disorders with a validated screening instrument. However, there is currently no consensus on what specific tools should be used. Aim: To identify tools that are practical to use in the clinical environment and have high diagnostic accuracy.

Methods

We systematically searched online databases to identify patient reported outcome instruments that have been used in published research studies to assess the likelihood of obstructive sleep apnoea (OSA) in cardiac patients. In studies that provided diagnostic data, these data were extracted and verified via an evidence-based diagnostic calculator. Where sufficient numbers of studies were available, a meta-analysis (using Meta-Disc software) was conducted to determine pooled estimates of specificity, sensitivity and diagnostic odds ratios. Selected papers were qualitatively assessed using the Standards for Reporting Diagnostic accuracy studies (STARD).

Of the 21 instruments identified, six detected likelihood of OSA, two assessed daytime sleepiness, five assessed insomnia and eight examined sleep quality. The most frequently used instruments for assessment of OSA were the Berlin Questionnaire and the STOP-Bang. A meta-analysis of 14 studies that assessed diagnostic accuracy of moderate OSA, revealed moderate sensitivity for the Berlin Questionnaire, Sens = 0.49 (95% CI 0.45-0.52) and good sensitivity for the STOP-BANG, Sens= 0.93 (95% CI 0.87-0.96) but poor specificity at standard cut-off criteria. There were no published validation studies for assessment of insomnia in cardiac patients.

Conclusion

There are promising practical tools available to screen and identify patients with OSA and other sleep disorders in cardiac rehabilitation settings. Currently, the STOP-Bang instrument provided the best overall diagnostic capability but specificity could be improved. Validation of recently developed instruments with cardiac patients have not yet been published. Additional assessment of sleep quality may enhance prognostic ability with both OSA and insomnia screening.