

Improving the screening of Obstructive Sleep Apnoea Syndrome (OSAS) in Patients receiving Inpatient Neurorehabilitation

Background

- OSAS is common in adults within neurorehabilitation services
- It is the presence of repetitive apnoeas during sleep and excessive daytime sleepiness
- It may lead to reduced quality of life and increased rates of cardiovascular disease and death

AIM: To improve the screening of those at risk of OSAS and facilitate the referral pathway for investigation

Standards

- The 2015 NICE Clinical Knowledge Summaries for OSAS
- The 2003 SIGN guidelines for OSAS in adults

Methods

- Audit cycle of adults in a UK neurorehabilitation centre
- Conducted July 2018 with re-audit January 2019

Inclusion criteria

Adults with BMI $\geq 30\text{kg/m}^2$ with either:

Excessive sleepiness	Witnessed apnoeas	Waking unrefreshed	Mood changes

- Patients completed a STOP-BANG questionnaire
- Low risk of OSAS: 0-2, intermediate risk: 3-4, high risk: 5-8
- Changes following the initial audit:
 - Staff education
 - Creation of a modified STOP-BANG questionnaire (see below)
 - Creation of a local sleep service referral pathway

Screening Questionnaire for Obstructive Sleep Apnoea: STOP-BANG

Patient name:
Hospital number:
DOB:

Consider screening patients with any of the following:

- Excessive daytime sleepiness and snoring (and/or poor concentration)
- Witnessed apnoeas or choking noises whilst sleeping
- Feeling unrefreshed upon waking
- Mood swings/personality changes/depression
- Nocturia

For the patient:

Do you snore loudly? (or noted by nursing staff?)	Yes	No
Do you often feel tired, fatigued, or sleepy during the day?	Yes	No
Has anyone observed you stop breathing during sleep?	Yes	No
Neck circumference >16 inches (40cm)?	Yes	No

For the doctor:

BMI $>35\text{kg/m}^2$?	Yes	No
Age >50 ?	Yes	No
Male?	Yes	No
Hypertension?	Yes	No

TOTAL SCORE

If total score ≥ 3	<ul style="list-style-type: none"> Complete Epworth Sleepiness Scale and consider sleep service referral. If there are concerns over sleepiness and driving: please advise not to drive until a sleep service review and document this has been done.
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Adapted from:
STOP questionnaire: a tool to screen patients for obstructive sleep apnoea.
Chung F, Yegneswaran B, Liao P, Chung SA, Vairavanathan S, Islam S, Khajehdehi A, Shapiro CM.
Anesthesiology. 2008 May;108(5):812-21.

Results

	Functional Neurological Disorder	Stroke	Spinal cord injury	Peripheral Nerve Vasculitis	Myopathy	Multiple Sclerosis Relapse
Initial Audit	4	2	1	1	0	1
Re-audit	3	1	0	0	1	0

	BMI $\geq 30\text{kg/m}^2$	Symptoms	STOP-BANG ≥ 3	Known diagnosis of OSAS	Referred for sleep study/ had one done
Initial Audit	9	8	5	0	2
Re-audit	5	4	2	2	1

- 27 patients screened and nine included in initial audit
- In re-audit 26 patients screened and five included
- In the re-audit per consultants' feedback, two patients were referred to the local sleep service but neither completed a sleep study prior to discharge
- One patient required repeated studies due to insufficient data leading to significant anxiety
- The second was discharged prior to completion of the study due to difficulties obtaining equipment

Discussion and Recommendations

- Following the audit there was improvement in the screening process and the referral pathway to sleep service
- Liaised with the local sleep service to obtain sleep studies
- Challenges faced:
 - Obtaining sleep studies for patients at high risk of OSAS
 - Distance between the two hospital sites and the co-ordination required
 - Patients with cognitive/physical difficulties who could not report symptoms
- Liaised with nursing staff to report symptoms in such patients
- Recommendations included:
 - Screening of patients on admission or during ward round
 - Referral to local sleep service during admission or on discharge (GP notified).

Changes Implemented

Improved screening process and referral pathway with plan to purchase overnight pulse oximeter and the development of an enhanced referral pathway incorporating data from this device.

Selected References

- Chung F, Yegneswaran B, Liao P, Chung SA, Vairavanathan S, Islam S, Khajehdehi A, Shapiro CM (2008) STOP questionnaire: a tool to screen patients for obstructive sleep apnoea. *Anesthesiology* 108(5):812-21.
- SIGN (2003) Management of obstructive sleep apnoea/hypopnoea syndrome in adults: a national clinical guideline. Scottish Intercollegiate Guidelines Network. www.sign.ac.uk.
- Yaggi HK, Concato J, Kernan WN, Lichtman JH, Brass LM, et al. (2005) Obstructive sleep apnea as a risk factor for stroke and death. *N Engl J Med* 353:2034-2041