Screening and Treatment of OSA in Stroke Patients

Vidant Medical Center Stroke Center, Vidant Sleep Center and ECU Neurology

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BACKGROUND

34-56% of stroke patients have undiagnosed sleep apnea. Undiagnosed and untreated OSA contributes to higher stroke mortality rates and higher incidence for recurrent stroke. The American Heart and Stroke Association guidelines state, “A sleep study might be considered for patients with an ischemic stroke or TIA on the basis of the very high prevalence of sleep apnea in this population and the strength of the evidence that the treatment of sleep apnea improves outcomes in the general population” *(Class IIb; Level of Evidence B).* There are approximately 516-840 stroke patients being discharged annually from Vidant Medical Center (VMC) with undiagnosed sleep apnea. VMC has not previously provided standard OSA screening for the inpatient stroke population. A quality improvement project was implemented for stroke patients on the neurology teaching service on the Neurosciences Intermediate Unit (NSIU) from May 1, 2017 to August 1, 2017.

PROJECT AIM

Evaluate if implementation of OSA protocol results in an increase in the number of stroke patients screened and treated for OSA.

PROJECT DESIGN/STRATEGY

The STOP-Bang OSA screening tool was used to evaluate stroke patients admitted on NSIU on the Neurology service. Pregnant women, non-English speaking individuals, adults < 18 year of age and prisoners were excluded from the evaluation.

	Obstructive Sleep Apnea Screening Tool Questions	Yes	No
S	Do you Snore loudly (loud enough to be heard through closed doors or your bed-partner elbows you for snoring at night)?		
T	Do you often feel Tired, Fatigued, or Sleepy during the daytime (such as falling asleep during driving or talking to someone)?		
O	Has anyone Observed you Stop Breathing or Choking/Gasping during your sleep?		
P	Do you have or are being treated for High Blood Pressure?		
B	Body Mass Index more than 35 kg/m2?		
A	Age older than 50?		
N	Neck size large? Male, 17 inches/43cm or larger?		
	Female, 16 inches/41cm or larger?		
G	Gender = Male?		

STOP-BANG OSA Scoring:
Low Risk: Yes to 0 - 2 questions
Intermediate Risk: Yes to 3 - 4 questions
High Risk: Yes to 5 - 8 questions

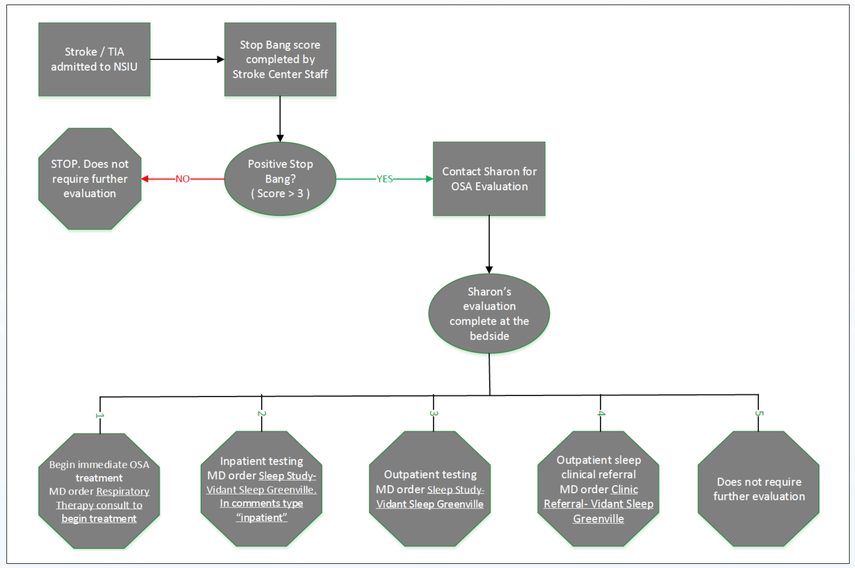

Figure 1: VMC Sleep Apnea Protocol

RESULTS

140 STOP-Bang screens were completed out of 146 attempted.
- 82% (115/140) had positive screens

STOP-Bang Score	Patients Identified
1	1%, (2/140)
2	12%, (17/140)
3	26%, (37/140)
4	27%, (38/140)
5	16%, (22/140)
6	12%, (17/140)
7	4%, (5/140)
8	1%, (2/140)

35% (40/115) of patients with positive STOP-Bang screen referred for further OSA evaluation and treatment
- 35% (14/40) outpatient sleep apnea testing
- 63% (25/40) sleep clinic appointment
- 3% (1/40) inpatient sleep apnea testing

Treatment Implementation
- 29% of patients recommended for outpatient testing received sleep study (4/14)*
- 12% attended their clinic appointments (3/25)*

**excluded out of VH system referrals and hospice*

8% of patients who received a recommendation for intervention were started on PAP therapy.

OUTCOMES

Approximately 80% of stroke patients screened had a positive STOP-Bang score and required further OSA evaluation. A positive score was defined as ≥ 3.

51% percent of positive screens were “intermediate risk.” Greater than 50% of the patients with an “intermediate risk” on STOP-Bang did not receive any further recommendations. 32% percent of patients with positive screens were considered “high risk”. For patients with a score between 7 – 8, 75% were referred for further evaluation.

The higher the STOP-Bang score, the greater likelihood of receiving a recommendation for treatment and being started on PAP therapy. For patients needing to follow-up post discharge at the sleep clinic or to have a sleep study, only 18% attended the scheduled appointment.

CHALLENGES AND LESSONS

Due to limited human and time resources, the OSA protocol was implemented on a small subset of the VMC stroke population (patients on Neurology service located on NISU). Patients would often have the screen completed before lunch, but would be discharged home in the early afternoon before further OSA evaluation could occur. Additional challenges included patients with aphasia or dysarthria, cognitive impairments or difficulty understanding questions on tool. Barriers for treatment initiation included patient not showing up to follow up appointment, no insurance and distance from VMC sleep center

NEXT STEPS

- Analyze data for trends in patient demographics
- Establish process for STOP-BANG evaluation on all stroke patients admitted to VMC.
- Evaluate the feasibility of a sleep navigator to complete STOP-Bang screens and coordinate intervention.
- Further investigate the barriers for OSA treatment initiation

REFERENCES

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