

Introduction

Very few factors, such as hypertension and smoking, have been identified as a risk for cerebral aneurysm. Obstructive sleep apnea (OSA) has been established as a risk factor for intractable hypertension. Additionally, recent studies have suggested an association between OSA and abdominal aortic aneurysm. However, no data are available on the association between OSA and cerebral aneurysm.

Methods

In this case-control cross-sectional study, trained doctors and medical students administered a validated Arabic version of the Berlin Questionnaire (BQ) to all patients admitted to the hospital with cerebral aneurysm between 2006-2011 (n=53). The same questionnaire was administered to the control group. The control group comprised patients attending primary health care clinics matched to cases for age, body mass index (BMI) and gender (n=518). BQ is a standardized validated questionnaire that has high sensitivity and specificity for detecting the risk for OSA.

Results

During the study period, 53 patients (62.2% males), with a mean age of 50.7 ± 15 years and a BMI of 27.9 ± 4.8 were admitted with cerebral aneurysm. Among cases, 75.5% complained of snoring compared to 50.6% in the controls ($p=0.001$). Hypertension was present in 67.9% of cases compared to 29.6% in the controls ($p<0.001$). Based on the BQ stratification for risk of OSA, 60.4% of the cases were considered as high-risk patients for OSA compared to 36.9% of the controls ($p=0.001$).

Discussion

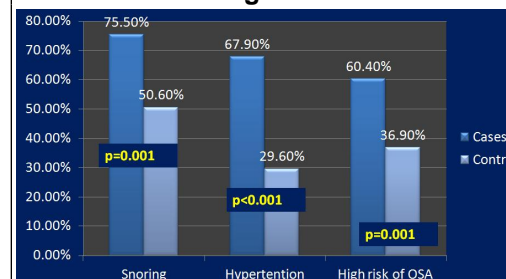
- Previous studies have reported a high prevalence of hypertension among patients with cerebral aneurysms, with a mean prevalence of 43.5%.
- In our study, co-existing hypertension was present in 67.9% of the cases compared to 29.6% of the controls.
- Hypertension is thus a strong link between OSA and cerebral aneurysms.
- Chronic hypertension may cause focal weakening of the vessel wall through intimal thickening and necrosis of the tunica media.

Table 1

	Patients n=53	Controls n=518	P-value
Age (Years)	50.7 ± 15.2	49.9 ± 8.1	0.554
BMI (Kg/m²)	27.9 ± 4.8	29.4 ± 6.3	0.104
Gender			
Male	33 (62.3)	303 (58.5)	0.595
Female	20 (37.7)	215 (41.5)	
Risk of Sleep Apnea (According to Berlin Questionnaire)			
Low Risk	21 (39.6)	327 (63.1)	0.001*
High Risk of Apnea	32 (60.4)	191 (36.9)	

General characteristics of both groups

Figure 1



Distribution of some of the responses to the BQ in both the cases and controls.

Conclusion

The prevalence of symptoms of OSA among patients with cerebral aneurysm is very high. Almost 6 out of 10 patients with cerebral aneurysm are at risk for OSA, and may benefit from proper evaluation for OSA.

Learning Objectives

To determine the prevalence of obstructive sleep apnea (OSA) in patients with intracranial aneurysm, and investigate a possible association between OSA and rate of intracranial aneurysm.

References

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