OBSTRUCTIVE SLEEP APNOEA IS COMMON IN PATIENTS WHO HAVE HAD SURGERY FOR NON-FUNCTIONING PITUITARY ADENOMAS; PRELIMINARY DATA

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OBJECTIVE

Some patients with non-functioning pituitary adenomas (NFPA) complain of excessive daytime somnolence following pituitary surgery despite optimal hormonal replacement.

We aim to investigate the presence of obstructive sleep apnea (OSA) in a group of patients with NFPA following surgery.

METHODS

We assessed the prevalence of OSA in 25 routinely selected patients following surgery for NFPA and 13 obese controls attending a tertiary referral centre, by means of the Epworth Sleepiness Score (ESS) and polysomnography.

Subject details including diagnosis, age, gender, body mass index (BMI) and pituitary hormone deficiencies were recorded (Table 1). All patients underwent previous surgery, most of them being transsphenoidal resection (n= 23). Patients with ACTH and TSH deficiency received hydrocortisone and thyroxine replacement. All men and premenopausal women with gonadotrophin deficiency received gonadal steroid replacement. Patients with growth hormone deficiency who were less than 70 years of age received growth hormone replacement.

The Epworth Sleepiness Score was used to assess somnolence after surgery. The Epworth Sleepiness Score (ESS) is an 8-part questionnaire that gives a subjective measure of daytime somnolence. Each question evaluates patient´s perceptions of their likelihood of falling asleep in eight different everyday situations. The patient is asked to rate from 0 (no risk) to 3 (high risk) of falling sleep in each situation (Figure 1). Daytime somnolence is defined as an ESS greater than 10/24. All subjects with sleep apnoea were offered continuous positive airway pressure therapy (CPAP).

	Age (years)	Gender	BMI	N of anterior hormonal deficits	AHI	AHI>5	ESS	ESS>10
1	72	M	29.1	4	17.2	YES	4	NO
2	62	F	36.3	2	3.4	NO	1	NO
3	44	M	41.5	3	43.1	YES	15	YES
4	65	M	29.4	4	55.7	YES	1	NO
5	30	F	37.85	3	4.5	NO	9	NO
6	49	M	29.89	4	6.7	YES	10	NO
7	60	M	29.6	0	27	YES	11	YES
8	48	F	34.6	4	63.4	YES	7	NO
9	70	F	28.3	4	3.5	NO	9	NO
10	70	M	26	4	29	YES	3	NO
11	54	M	27.8	4	45.6	YES	6	NO
12	60	M	27.6	4	11	YES	9	NO
13	62	M	23.4	3	5	YES	12	YES
14	55	F	26.3	4	14	YES	11	YES
15	55	F	22.1	3	4	NO	12	YES
16	69	F	30	4	12	YES	7	NO
17	62	M	29.3	4	22.7	YES	8	NO
18	37	M	32.6	1	7.5	YES	18	YES
19	64	M	33	2	1.8	NO	10	NO
20	73	M	24.8	4	24.3	YES	12	YES
21	60	M	26	4	2.1	NO	13	YES
22	53	F	26	4	2.4	NO	3	NO
23	43	M	29.3	2	9.2	YES	13	YES
24	32	M	22.7	0	0.5	NO	6	NO
25	56	M	29	3	46.8	YES	12	YES

Table 1. Description of patients with NFPA, results of ESS and polysomnography.

0 = would **NEVER** doze
1 = **SLIGHT** chance of dozing
2 = **MODERATE** chance of dozing
3 = **HIGH** chance of dozing

SITUATION	CHANCE OF DOZING (0-3)
Sitting and reading	
Watching television	
Sitting inactive in a public place (e.g. a theater or meeting)	
As a passenger in a car for an hour without a break	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to someone	
Sitting quietly after a lunch without alcohol	
In a car, while stopped for a few minutes in the traffic	
TOTAL SCORE	

SCORE RESULTS:

1-6 Congratulations, you are getting enough sleep!
7-8 Your score is average
9+ Very sleepy and should continue to seek sleep assistance.

Figure 1. The Epworth Sleepiness Scale (ESS)

RESULTS

Age: The median age in NFPA group was 60 years (IQR: 48, 64) vs 49 years (IQR: 43, 56), *p=0.023*.
Gender: Male: 17/25 (68%) in NFPA vs 7/13(53%) in control group, p=0.89.
Hypopituitarism: 23/25(92%) patients had postoperative hypopituitarism and were on appropriate hormonal replacement at the time of evaluation.
ESS in NFPA and control group: Median ESS was 9 (IQR: 6, 12) in NFPA patients and 5.7 (1.75, 18.55) in controls, *p = 0.04*.
Polysomnography: 17 (68%) NFPA patients had apnoea hypopnoea index (AHI)>5, compared to 7 patients(53%) in the obese control group, *p=0.043*, with 14/25(56%) with complete anterior pituitary failure. 12/14(85%) patients with complete anterior pituitary failure were diagnosed from OSA (AHI>5) and were offered CPAP therapy.
Body mass index (BMI) did not correlate with apnoea hypopnoea index [apnoea - hypopnoea index (AHI), r = -0.17, P = 0.79], which suggests that factors other than obesity might explain the prevalence of sleep apnoea after surgery in patients with NFPA.

CONCLUSIONS

•Obstructive sleep apnea is common following surgery for NFPA, and is not solely explained by associated obesity.

•Polysomnography should be offered to NFPA patients with somnolence or symptoms of obstructive sleep apnea as they are amenable to treatment.

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