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Increased Vagal Tone and Sleep Apnea Syndrome

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It has been observed that atrial overdrive pacing abolishes sleep apnea syndrome, but how it does so has not been explained. There is a possibility that it sends a retrograde inhibitory impulse to the vagal center in the brainstem, which in turn reduces the vagal tone, and thus prevents sleep apnea. Therefore, medical vagolytics such as atropine type of drugs should have the same effect. This is a case report of such an attempt.

Keywords: increased vagal tone, sleep apnea syndrome, hyoscine-N-butylbromide

For more than 30 years, I have had a problem with snoring; over the last 15 years, it is progressively getting worse as my wife states. My body mass index remains static at around 28 during this period of 15 years. I have daytime sleepiness and often fallen asleep behind the wheel, although fortunately not met with accident while driving yet. I have not undergone sleep studies to confirm obstructive sleep apnea, but I feel that I am suffering from it.

It has been observed that atrial overdrive pacing abolishes sleep apnea, both obstructive and nonobstructive, but how it does could not be explained.¹ Assuming that increased vagal tone during sleep causing bradycardia and triggering sleep apnea, and atrial overdrive pacing sending retrograde inhibitory impulses to the vagal center in the brainstem, may be a plausible explanation.

I have tried on myself, in an attempt to reduce vagal tone, hyoscine-N-butylbromide (Buscopan) tablet 10 mg at night before going to bed. This has brought about improvement in my daytime sleepiness, and at the same time, the snoring as witnessed by my wife (Figure 1).

Recently, I have tried the effect of hyoscine-N-butylbromide on a 48-year-old man (B.U.) who has severe symptoms of snoring and daytime sleepiness for more than 5 years. He shares a room with 3 friends who are very much disturbed by his nighttime snoring, and every night, they have to wake him up to break his snoring and threatened him to leave his room and to find another place to sleep.

The patient was told that we will be trying on him 3 kinds of tablets for his snoring to see which one was the best. When the snoring was mild, his roommates did not wake him up, and when moderate or heavy, they woke him up and stated how bad it was (Figures 2–4).

Buscopan shows a consistent positive effect in both nocturnal snoring and daytime sleepiness. It would be worth trying it on patients with snoring and daytime sleepiness, that is, obstructive sleep apnea.

REFERENCE

1. Garrigue S, Bordier P, Jais P, et al. Benefit of atrial pacing in sleep apnoea syndrome. *N Eng J Med.* 2002;346:404–412.

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The authors have no conflicts of interest to declare.

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Snoring Nights ----->		On buscopan 10 mg nocte							Without buscopan							On buscopan 10 mg nocte						
Grades		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Mild		*	*	*	*	*	*	*	*									*	*	*	*	*
Moderate		*							*	*	*	*	*	*		*	*					*
Heavy														*	*							

FIGURE 1. Effect of buscopan tablet on snoring on self.

	22.5-28.5.2013. Buscopan 10mg -2 tablets nocte							29.5-4.6.2013. Multivitamin -2 tablets nocte							5.6-11.6.2013. Buscopan-10mg -2 tablets nocte.							
Grades:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Snoring	Nights ----->																					
Mild	✓	✓	✓	✓	✓	✓	✓										✓	✓	✓	✓	✓	✓
Moderate								✓														
Heavy									✓	✓	✓	✓	✓	✓								
Day time Sleepiness	Days ----->																					
Mild	✓	✓	✓	✓	✓	✓	✓										✓	✓	✓	✓	✓	✓
Moderate		✓						✓	✓						✓							
Heavy								✓	✓	✓	✓	✓	✓									*

FIGURE 2. Effect of buscopan tablet on snoring and daytime sleepiness compared with that of a placebo (multivitamin tablet).

		12.6 - 18.6.2013.							21.6 - 27.6.2013							28.6 - 4.7.2013.						
		Pyridoxine tablet. -20mg. nocte							Buscopan 10mg -2 tablets nocte							Pyridoxine tablet -20 mg nocte.						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Grades:																						
Snoring	Nights →																					
Mild									✓	✓	✓	✓		✓	✓							
Moderate		✓	✓	✓	✓	✓	✓						✓			✓						
Heavy		✓															✓	✓	✓	✓	✓	✓
Day time Sleepiness	Days →																					
Mild										✓		✓	✓	✓	✓							
Moderate		✓	✓	✓	✓	✓	✓		✓		✓					✓	✓					
Heavy		✓				✓													✓	✓	✓	✓

FIGURE 3. Effect of buscopan tablet on snoring and daytime sleepiness compared with that of a placebo (pyrodoxine tablet).

		5.7 - 11.7.2013.							12.7 - 18.7.2013.							20.7 - 26.7.2013						
		Buscopan- 10 mg -2 tabs nocte							Multivitamin -2 tablets nocte							Buscopan-10 mg -2 tablets nocte						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Grades:																						
Snoring	Nights →																					
Mild		✓	✓	✓	✓	✓	✓									✓	✓	✓	✓	✓	✓	✓
Moderate											✓											✓
Heavy									✓	✓		✓	✓	✓	✓						✓	
Day time Sleepiness	Days →																					
Mild		✓	✓	✓	✓	✓	✓									✓	✓	✓			✓	
Moderate											✓					✓				✓		✓
Heavy									✓	✓		✓	✓	✓	✓							

FIGURE 4. Effect of buscopan tablet on snoring and daytime sleepiness compared with that of a placebo (multivitamin tablet).