Abnormal sympathetic and cardiovascular reactivity during mental stress in patients with Narcolepsy and Cataplexy

Donadio V, Plazzi G, Pizza F, Liguori R

IRCCS, Istituto delle Scienze Neurologiche di Bologna, Ospedale Bellaria and Dipartimento di Scienze Biomediche e NeuroMotorie, Università di Bologna, Bologna, Italy

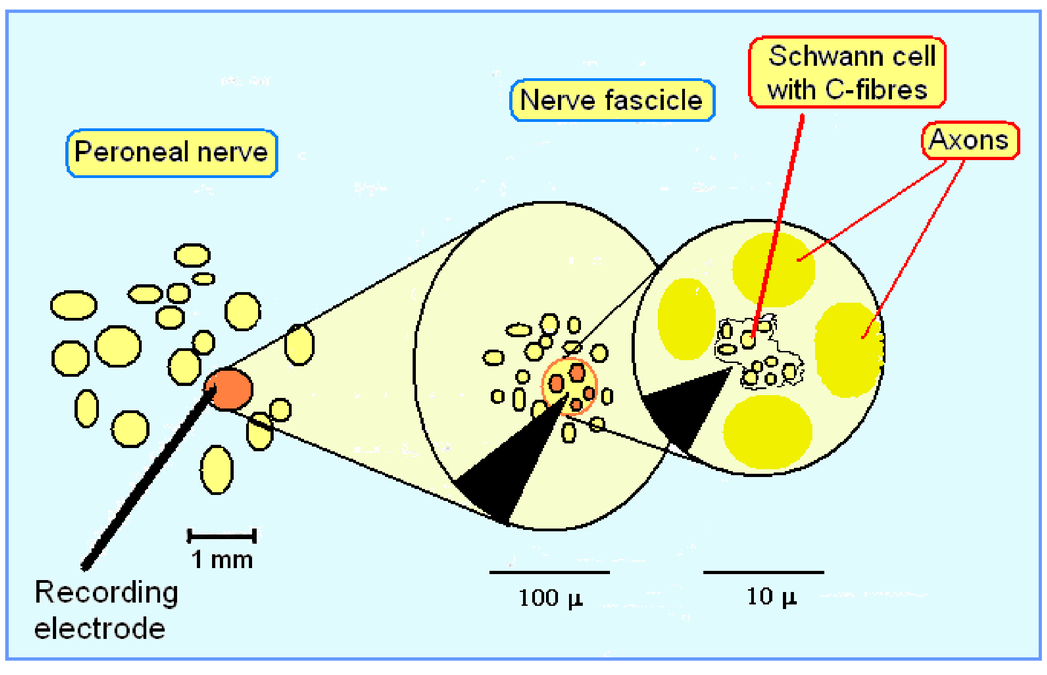
Objective

Narcolepsy and cataplexy (NC) may display autonomic abnormalities. The aim of this study is to ascertain abnormalities of sympathetic and cardiovascular reactivity during mental stress in patients with NC.

Methods

We studied 10 untreated patients with established criteria for NC and hypocretin deficiency, and 15 sex and age matched healthy subjects. Subjects underwent sitting microneurographic recording of muscle sympathetic activity (MSNA) from peroneal nerve, heart rate (HR) and blood pressure (BP) during resting state and mental stress (3-min of paced auditory serial arithmetic test -PASAT) and a cold test (two minutes immersion of a hand in ice water). The awake state was continuously monitored by an ambulatory polygraphic recorder.

Results



	Age	Resting				Mental stress				Cold test			
	years	MSNA B/100HB	SBP mmHG	DBP mmHG	HR b/min	MSNA B/100HB	SBP mmHG	DBP mmHG	HR b/min	MSNA B/100HB	SBP mmHG	DBP mmHG	HR b/min
Controls	39±6	59±13	140±18	86±28	69±6	53±18	157±23	96±32	74±2	66±15	152±24	95±37	66±18
NC	38±8	53±18	137±22	84±12	68±7	51±17	140±13	82±10	69±4	71±19	145±30	94±16	65±6
p	0.3	0.2	0.4	0.8	0.7	0.1	**0.04**	**0.002**	**0.04**	0.6	0.3	0.8	0.8

NC patients disclosed a tendency to show decreased MSNA and BP during resting state compared to controls although the difference was not significant. However during mental stress NC patients showed decreased MSNA, BP and HR compared to controls but no difference were found during cold test.

Conclusion

Our data demonstrated a decreased sympathetic and cardiovascular reactivity during mental stress in NC patients suggesting a possible regulation of hypocretin on autonomic reaction during mental activation as reported in animal models