Association between Obstructive Sleep Apnea symptoms and incidence of de novo hypertension in a large French population-based epidemiological cohort

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Introduction

- There is a strong association between Obstructive Sleep Apnea (OSA) and hypertension but the effects of OSA symptoms on the risk of incident hypertension are not well documented
- The aim of this study was to examine whether OSA symptoms (snoring and sleepiness) are associated with the incidence of hypertension independently of confounding factors

Methods

The population-based CONSTANCES cohort

>200 000 volunteers

Aged 18 to 69 years

From 21 departments throughout metropolitan France

Recruited between 2012 and 2020

Follow up performed through yearly self-questionnaires

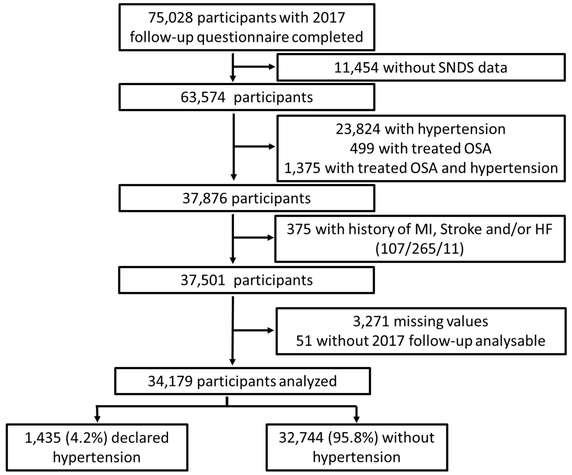
In 2017, sleep questionnaire (QR) including Berlin's items

Snoring and sleepiness considered as severe when they occurred ≥3 times a week

2012	2013	2014	2015	2016	2017	2018	2019	2020
inclusion	follow-up			evaluation	Sleep QR			
	inclusion	follow-up			Sleep QR			
		inclusion	follow-up		Sleep QR	evaluation		
			inclusion	follow-up	Sleep QR	follow-up	evaluation	
				inclusion	Sleep QR	follow-up	follow-up	evaluation

Exclusion criteria:
- **Baseline BP ≥140/90mmHg**
- **History of hypertension through QR or National Health Data System (SNDS)**
- **Treated OSA, stroke, MI or HF before 2017 through QR or SNDS**

Hypertension occurrence (anti-hypertensive drug delivering in SNDS)

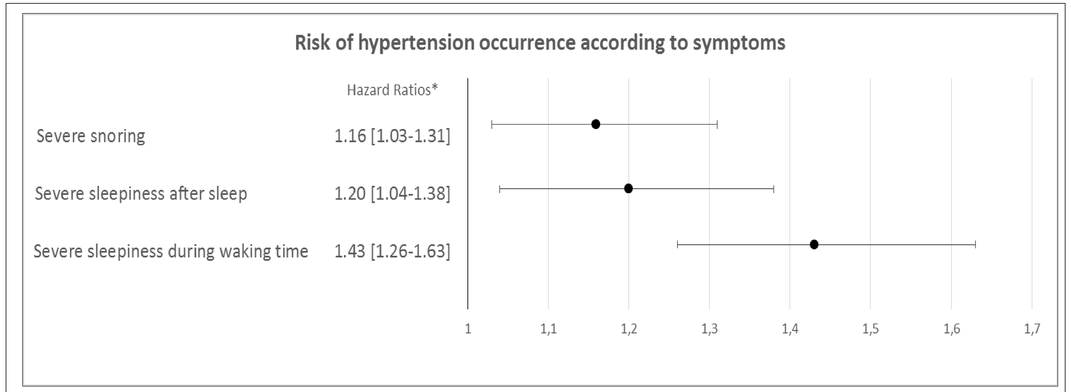


Median follow-up 3.1 years IQR (3-3.5)

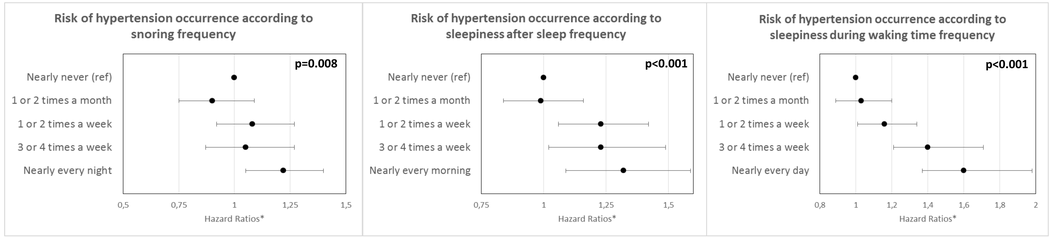
Population characteristics	Total n=34,179
Age mean (SD)	47.5 (12.6)
Male sex n (%)	15,250 (41.4)
BMI mean (SD)	23.8 (3.7)

Results

Prevalence of severe snoring was 23,7%, severe sleepiness after sleep 16,5% and severe sleepiness during waking time 19,0%.



Risk of de novo hypertension increased with the weekly frequency of these symptoms with a dose-dependent relationship (p for trend <0.05).



*Adjusted for sex, age, marital status, household income, education level, smoking, alcohol consumption, physical activity, baseline level of BP and BMI

Main Finding

Self-declared snoring and sleepiness are associated with an increased risk of developing de novo hypertension

Primary care patients should be routinely screened for these symptoms, not only to identify possible OSA, but also to encourage preventive measures and regular blood pressure monitoring