

Supplementary information

Prevalence of obstructive sleep apnoea and its association with atherosclerotic plaques in a cohort of subjects with mild-moderate cardiovascular risk

METHODS

Procedures

Study design and characteristics of the ILERVAS project

The ILERVAS project is a randomized intervention study performed from 2015 to 2018 with a cohort of 8,330 subjects who were randomly selected from the primary health care centers across the province of Lleida (Spain). The main objective was to determine the prevalence of subclinical arterial disease and hidden kidney disease in a cohort with mild-moderate cardiovascular risk. Eligibility criteria included women aged 50-70 years and men aged 45-65 years with at least one of the following cardiovascular risk factors: hypertension, dyslipidaemia, obesity, smoking or first-degree family history of premature cardiovascular disease. The exclusion criteria of the study were a previous history of cardiovascular disease, diabetes, chronic kidney disease, active cancer or life expectancy less than 18 months. More detailed information of the study has been published elsewhere¹.

Sleep evaluation

Cardiorespiratory polygraphy was performed by the ApneaLink Air device. This is a simplified method for the screening of sleep apnoea, and it is composed of a nasal

cannula for measuring airflow and snoring, one thoracic band, pulse-oximeter and position sensor². Sleep recordings with less than 3 hours of recording or with absent or invalid signals were repeated.

Cardiorespiratory polygraph records were scored manually according to standard criteria. Apnoea was defined as the absence or reduction in nasal airflow >90% for at least 10 seconds. Obstructive apnoea was scored when the apnoea was associated with respiratory effort, and mixed apnoea was defined as a lack of respiratory effort at the beginning of the event followed by the resumption of the effort during the second part of the event. Central apnoea were defined by the absence or reduction of >90% in the airflow for more than 10 seconds associated with an absence in the respiratory effort. Hypopnoea was scored as a reduction of 30% to 90% in oronasal airflow for at least 10 seconds associated with an oxygen desaturation of at least 3%. The apnoea/hypopnoea index (AHI) is considered the total number of apnoea and hypopnoea episodes divided into hours of study. CT90 was defined as the percentage of time with an oxygen saturation <90%³.

Atherosclerotic plaque evaluation

To evaluate the presence of atheroma plaques, a vascular ultrasound was performed using a VIVID-I BT12 version ultrasound system (General Electric Healthcare, Waukesha, WI). Following the current guidelines¹, vascular ultrasound was performed with the subject in the supine position using the ultrasound transducer 12L-RS, which works at frequencies between 4-13 MHz. The territories evaluated were bilateral carotid (common artery, bifurcation, internal, and external) and femoral (common and superficial). Following the criteria of the American Society of Echocardiography (ASE) Consensus Statement^{1,4}, the presence of plaque was defined as an intima-media thickness greater than 1.5 mm protuberant in the lumen. All plaques were measured,

and the total plaque area (cm²) was used to calculate the atherosclerotic burden which was defined as the sum of the area of each plaque.

More detailed information on the methodology used in the ILERVAS project is provided elsewhere ¹.

REFERENCES

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- 2 Berry RB, Purdy S, Kantner G, Blase A, Javed F, Benjafield A *et al.* 0463 Validation of a Home Sleep Apnea Testing Device for the Diagnosis of Sleep Disordered Breathing based on AASM 2012 guidelines. *Sleep* 2019; **42**: A186–A186.
- 3 Lloberes P, Durán-Cantolla J, Martínez-García MÁ, Marín JM, Ferrer A, Corral J *et al.* Diagnóstico y tratamiento del síndrome de apneas-hipopneas del sueño. *Arch Bronconeumol* 2011; **47**: 143–156. doi: 10.1016/j.arbres.2011.01.001
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