# Crucial role of the carotid body chemoreceptors on the development of high arterial blood pressure during chronic intermittent hypoxia

Iturriaga R.

Andrade D.C.

Del Rio R.

Exposure to chronic intermittent hypoxia (CIH), the main feature of obstructive sleep apnea, produces autonomic and cardiorespirartory alterations, and leads to systemic hypertension. These alterations are associated with enhanced carotid body (CB) chemosensory and ventilatory hypoxic reflexes and a decrease baroreflex (BRS) efficiency. The aim of this study was to determine the therapeutic effect of CB ablation on the elevated arterial blood pressure, the reduced BRS and the potentiated ventilatory response induced by CIH in conscious rats. Arterial blood pressure (BP) was continuous measured by telemetry in male Sprague-Dawley rats exposed to CIH (5 % O<inf>2</inf>, 12 times/h, and 8 h/day). After 21 days of CIH, the CBs were selectively cryodestroyed, and rats were kept one more week in CIH. Ventilatory responses to hypoxia were assessed by whole body plethysmography and spontaneous BRS measured by the sequence method. Exposure to CIH produces hypertension, increased the chemoreflex ventilatory hypoxic responses, and decreased BRS. The ablation of the CBs normalized the elevated BP, and the altered ventilatory response and BRS. Present results suggest that the CB play a crucial role in the development of high arterial pressure and autonomic alterations induced by CIH. © Springer International Publishing Switzerland 2015.

Baroreflex

Carotid body

Chemoreflex

Intermittent hypoxia

Obstructive sleep apnea

ablation therapy

animal experiment

animal model

arterial pressure

Article

autonomic neuropathy

body plethysmography

carotid body chemoreceptor

chronic intermittent hypoxia

controlled study

disease association

environmental exposure

hypertension

lung function

male

nonhuman

pressoreceptor reflex

priority journal

rat

telemetry

tidal volume

treatment response

ventilatory hypoxic response

animal

anoxia

carotid body

chronic disease

hypertension

pathophysiology

physiology

reflex

Sprague Dawley rat

Bovine respiratory syncytial virus

Rattus

Animals

Anoxia

Carotid Body

Chronic Disease

Hypertension

Male

Rats

Rats, Sprague-Dawley

Reflex