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**EFFECTS OF CHRONIC INTERMITTENT HYPOBARIC HYPOXIA ON CAROTID SINUS BAROREFLEX IN DEVELOPING RATS**

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**Objectives** The purpose of present study was to investigate the effect of CIHH on CSB and the underlying mechanism in developing rat.

**Methods** Neonatal male Sprague-Dawley rats were randomly divided into four groups: 42-day CIHH treatment group (CIHH 42), 56-day CIHH treatment group (CIHH 56), 42-day control group (Con 42) and 56-day control group (Con 56). CIHH neonatal rats with the maternal rats were exposed to hypoxia mimicking 5000 m altitude (O<sub>2</sub>:11.1%) in a hypobaric chamber for 42 and 56 days, 6 h per day, respectively. The control animals lived in the same environment as the CIHH animals with free access to food and water excepting hypoxia. Isolated carotid sinus perfusion technique was used to record the CSB in anaesthetised developing rats. The parameters used to evaluate the CNS include Peak slope (PS), Reflex decrease (RD), Threshold pressure (TP), Equilibrium pressure (EP) and Saturation pressure (SP).

**Results**

(1) CIHH inhibits CSB in developing rats.

Compared with Con 42 and Con 56 rats, the functional curves of CSB in CIHH 42 and CIHH 56 rats shifted upward and rightward. PS in CIHH 42 and CIHH 56 rats were  $0.35 \pm 0.01$  and  $0.35 \pm 0.02$  mm Hg, respectively, markedly decreased ( $p < 0.01$ ) compared with  $0.43 \pm 0.01$  and  $0.42 \pm 0.03$  mm Hg in Con 42 and Con 56 rats. RD in CIHH 42 and Con 56 rats were  $36.64 \pm 1.48$  and  $36.36 \pm 2.12$  mm Hg, respectively, obviously decreased ( $p < 0.01$ ) compared with  $43.71 \pm 2.59$  and  $42.66 \pm 2.76$  mm Hg in Con 42 and Con 56 rat. TP were  $72.64 \pm 3.04$  and  $71.64 \pm 3.60$  mmHg in CIHH42 and CIHH56, respectively, markedly increased ( $p < 0.01$ ) compared with  $62.97 \pm 1.68$  and  $63.72 \pm 1.61$  mm Hg in Con 42 and Con 56 rats. EP were  $94.50 \pm 1.56$  and  $93.99 \pm 1.60$  mm Hg in compared with  $92.24 \pm 1.65$  and  $92.36 \pm 1.08$  mm Hg in Con 42 and respectively, markedly increased ( $p < 0.01$ ) compared with  $173.64 \pm 2.60$  and  $173.30 \pm 1.86$  in Con 42 and Con 56 rats.

(2) Bay K 8644 cancelled the inhibitory effects of CIHH on CSB in developing rats. Bay K 8644 (500 nmol/l), an agonist of L-type calcium channel, had no effect on functional parameters of CSB in developing rats. Bay K 8644 shifted functional curve of CSB downward and leftward in CIHH 42 and CIHH 56 rats. PS and RD were increased, TP and SP were decreased.

(3) L-NAME (100  $\mu$ mol/l) had no effect on CSB action of CIHH in developing rats.

L-NAME (100  $\mu$ mol/l), an inhibitor of NO synthesis, had no effect on functional parameters of CSB in CIHH and Con rats.

**Conclusions** Taken together, Chronic Intermittent hypobaric Hypoxia inhibits CSB in anesthetised developing rats through blocking of L-type calcium channels in carotid sinus baroreceptor. The effect of CIHH on CSB is not related with NO.