

# 先天性高血壓大鼠延腦疑核區控制心跳的迷走機制正 常

## Cardiac parasympathetic output of nucleus ambiguus is not altered in spontaneously hypertensive rats

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### 摘要

本研究探討先天性高血壓大鼠(SHR)及中風型先天性高血壓鼠(SHRSP)，延腦後段腹側區控制心臟功能的副交感性神經細胞的分佈與反應能力是否與其正常血壓的控制組WKY及Wistar有所不同。大鼠以氯醛糖及尿酯作腹腔麻醉。以微注射方式用L-?胺酸(Glu, 10mM, 11nl)興奮延腦疑核附近的區域來探測降心跳點的分佈與最強能力。我們發現高血壓大鼠疑核降心跳區域的位置，大小及心跳作用能力均與正常血壓控制組沒有顯著的差異。同時控測延腦腹外側後段的降血壓反應，則發現高血壓大鼠降血壓能力大於正常血壓控制組大鼠，顯示交感神經控制區有明顯差異。同時考量此二結果可以解釋為何高血壓鼠在感壓反射偵測器減弱的狀況下有交感神經反應能力增加，心跳反應減弱的區別改變。

### Abstract

The distribution and reactivity of cardiac parasympathetic neurons in the ventral medulla of hypertensive rats (spontaneously hypertensive rats [SHR] and stroke-prone spontaneously hypertensive rats [SHRSP]) were compared with age matched normotensive rats (Wistar and Wistar-Kyoto [WKY]). Rats were anesthetized with  $\alpha$ -chloralose and urethane. L-glutamate (Glu, 10 mM, 11 nl) was microinjected into the medulla to map the distribution of the cardioinhibitory neurons in and around the nucleus ambiguus (NA). The distribution pattern of the bradycardiac sites was similar in the four strains of rats. Differences in the maximal bradycardiac responses were not statistically significant either. In comparison, hypertensive rats had significantly larger depressor responses to Glu microinjected into the caudal ventrolateral medulla. Taken together, the results suggest that the ventral medulla of hypertensive rats has enhanced sympathetic reactivity, whereas the parasympathetic cardioinhibitory mechanisms of the NA of hypertensive rats are not significantly altered. Therefore, the diminished cardiovagal response in the baroreflex of hypertensive rats may be due to an alteration on the input side.