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博士後期課程 鍼灸学分野 入学試験(二次募集)
問題用紙

鍼・後期

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問題 下記の英文はある論文を要約したものです。全文を和訳し、別紙解答用紙に記入しなさい。

1. Acupuncture has been used to improve the dysfunctions caused by disturbances in cerebral blood flow (CBF)¹⁾, such as stroke²⁾, although the mechanisms of this improvement have not yet been clarified.
2. Activation of cholinergic neurons originating in the nucleus basalis of Meynert (NBM)³⁾ has been reported to induce a cholinergic neural vasodilative response⁴⁾ in the cerebral cortex⁵⁾, independent of systemic blood pressure⁶⁾ and metabolic vasodilation⁷⁾.
3. Based on this report, we found increased cortical CBF when acupuncture stimulation was applied to the forepaw⁸⁾ under anesthetized rats.
4. Because this CBF response completely disappears when the brachial plexus⁹⁾ is severed, it indicates that the acupuncture stimulation was input via somatic afferent nerves¹⁰⁾.
5. Furthermore, the CBF response elicited by acupuncture stimulation was significantly unchanged when either the sympathetic or parasympathetic nerves were severed, so the autonomic nerve efferents may not be essential for the CBF changes.
6. Since naloxone¹¹⁾ injection did not affect the CBF changes, the endogenous opioid system also does not appear to be directly involved in the CBF responses elicited by acupuncture stimulation.
7. We can summarize that the CBF response elicited by the acupuncture stimulation of a forepaw in rats is a reflex response whose afferents are somatic afferent fibers and efferents are cholinergic fibers originating in the NBM.
8. Alzheimer's disease typically involves both neurodegenerative and vascular pathologies and is known to be associated with reductions in CBF.
9. Although the NBM-induced cholinergic cortical vasodilation response declines with age, the CBF increase response elicited by somatic afferent stimulation, including acupuncture stimulation, occurs even in very old rats.
10. Our experimental findings support the application of acupuncture in older adults and patients with disturbances in the CBF, such as stroke and Alzheimer's disease.

- 1) cerebral blood flow (CBF) : 脳血流
- 2) stroke : 脳卒中
- 3) nucleus basalis of Meynert (NBM) : マイネルト基底核 (前脳底部に存在する神経核)
- 4) cholinergic neural vasodilative response : コリン作動性神経血管拡張反応
- 5) cerebrum cortex : 大脳皮質
- 6) systemic blood pressure : 全身の血圧
- 7) metabolic vasodilation : 代謝性血管拡張
- 8) forepaw : 前足 (前肢の先端部分)
- 9) brachial plexus : 腕神経叢
- 10) somatic afferent nerves : 体性求心性神経 (感覚神経)
- 11) naloxone : ナロキソン (オピオイド受容体拮抗薬)

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