Temporary diaphragm pacing after cardiac operations with easily removable electrodes. [Japanese]

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Abstract:

A stimulating electrode for temporary diaphragm pacing after cardiac operation was proposed. This electrode is constructed by flexible carbon fiber and fibrin glue. It can be attached to phrenic nerves easily. Developed electrodes were applied to 2 mongrel dogs with full time pacing. For 7 days, the inter electrode impedance, stimulating threshold current and tidal volume were measured. In each cases, the inter electrode impedance was less than 800 OMEGA and stimulating threshold current was less than 2.14mA and tidal volume was between 13.6ml . kg⁻¹ and 27.7ml . kg⁻¹. These values were allowable for temporary diaphragm pacing. After 7 days from the implantation, the electrodes could be pulled out safely without any bleeding or nerve injury. Proposed stimulating electrode and its application for temporary diaphragm pacing after cardiac operation is promising.