# Measurement of the local blood flow in peripheral nerves


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# 1987 Fiscal Year Final Research Report Summary

## Measurement of the local blood flow in peripheral nerves

Research Project

### Project/Area Number

60480336

### Research Category

Grant-in-Aid for General Scientific Research (B)

### Allocation Type

Single-year Grants

### Research Field

Orthopaedic surgery

### Research Institution

Kanazawa University

### Principal Investigator

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### Project Period (FY)

**1985 – 1987**

### Keywords

blood flow / electrochemically generated bydrogen / 電解式水素クリアランス法

### Research Abstract

In order to measure the blood flow of tissue we employed the electrochemically generated hvdrogen method. There are,however,some problems in clinically application of this method:one is to determine the diffusion transport value in the absence of blood flow,and the other is the variabliability of the diffusion transport value among the individual eelectrodes. We studied these problems in vivo and in vitro experiments. Significant correlation between the diffusion

transport value of tissue without blood flow (y) and that od 0.5% agar gel dissolved in physiological saline at 0° C(x) was obtained :y=0.80x+0.494. Therefore,it is possible ro determine the diffusion transport value of tissue in vivo from that in vitro. Then,we measured the blood flow of bone marrow by this method experimentally and clinically;in the blood flow of femoral head after fracture-dislocation of the hip. Next,an experimental stuby was performed to clarify the changes in the intraneural microcirculation by the this method. The changes in intraneural blood flow under various stretchings were investigated. Adefinite reduction of blood flow was observed at an clongation of nerve by 7, in intrafuniculus and 5% in subepinural space. Blood flow in intrafuniculus was kept to more than 50% of normal blood flow below 10% elongation of the nerve; on the other hans,in subepineural space it was reduced below 50% at sboout 8% elongation. It was concluded that the influence od iscemia by stretching injury the peripheral nerve was less in initrafunicular blood flow than in subepineural blood flow.

## Research Products (4 results)

All | Other

All | Publications (4 results)

[Publications] 吉本典彰: 日本整形外科学会雑誌. 61. 943-957 (1987)

[Publications] 宇賀治行雄: 金沢大学十全医学会雑誌. 96. 599-612 (1987)

[Publications] Noriaki Yoshimizu: "Experimental Study on the Measurement of Boxe Marrow Blood Flow using Electrochemically Generated Hydrogen" J.Jap.Orthop Assoc.61. 943-957 (1987)

[Publications] Yukio Ugaji: "Experimental Studies on the Interal Circulatory Change of Peripheral Nerve sfter Traction Injury." J.Juzen,Med ,Soc. 96. 599-612 (1987)

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