

## 末梢神経内血流量の測定に関する研究

著者	野村 進
著者別表示	Nomura Susumu
雑誌名	昭和62(1987)年度 科学研究費補助金 一般研究(B) 研究成果報告書概要
巻	1985 1987
ページ	2p.
発行年	1989-03-29
URL	<a href="http://doi.org/10.24517/00068035">http://doi.org/10.24517/00068035</a>



# 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

**NOMURA Susumu** Kanazawa University, Medical School, Professor, 医学部, 教授 (70019529)

### Co-Investigator(Kenkyū-buntansha)

宮崎 憲太郎 金沢大学, 医学部附属病院, 医員

吉水 典彰 金沢大学, 医学部附属病院, 医員

宇賀治 行雄 金沢大学, 医学部附属病院, 医員

UMEDA Shinichiro Kanazawa University Hospital Lecturer, 医学部附属病院, 講師 (20115215)

YOSHIMIZU Noriaki Kanazawa University Hospital Doctor

MIYAZAKI Kentaro Kanazawa University Hospital Doctor

UGAJI Yukio Kanazawa University Hospital Doctor

### Project Period (FY)

1985 - 1987

### Keywords

blood flow / electrochemically generated hydrogen / 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 hydrogen method. There are, however, some problems in clinical application of this method: one is to determine the diffusion transport value in the absence of blood flow, and the other is the variability of the diffusion transport value among the individual electrodes. 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 of 0.5% agar gel dissolved in physiological saline at  $0^\circ \text{C}(x)$  was obtained :  $y=0.80x+0.494$ . Therefore, it is possible to 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 study was performed to clarify the changes in the intraneural microcirculation by this method. The changes in intraneural blood flow under various stretchings were investigated. A definite reduction of blood flow was observed at an elongation of nerve by 7, in intrafuniculus and 5% in subepineural space. Blood flow in intrafuniculus was kept to more than 50% of normal blood flow below 10% elongation of the nerve; on the other hand, in subepineural space it was reduced below 50% at about 8% elongation. It was concluded that the influence of ischemia by stretching injury of the peripheral nerve was less in intrafunicular 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 Bone Marrow Blood Flow using Electrochemically Generated Hydrogen" J.Jap.Orthop Assoc.61. 943-957 (1987) 

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

URL: [https://kaken.nii.ac.jp/report/KAKENHI-PROJECT-60480336/604803361987kenkyu\\_seika\\_hokoku\\_](https://kaken.nii.ac.jp/report/KAKENHI-PROJECT-60480336/604803361987kenkyu_seika_hokoku_)

Published: 1989-03-29