

Research of Pathological Changes in Synovium Knee Joint Immobility in Rats

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2001 Fiscal Year Final Research Report Summary

Research of Pathological Changes in Synovium Knee Joint Immobility in Rats

Research Project

Project/Area Number

12832015

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Institution

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Project Period (FY)

2000 – 2001

Keywords

Rat / Knee / contracture / synovium

Research Abstract

Objective : To clarify the histopathological findings of the contracture mechanism and effect of range of motion exercise (ROME), we conducted experiments to observe the histopathological changes in the synovium after knee joint immobility in rats.
Methods : Sixteen adult male Wistar rats of nine weeks old (body weight is 260g to 285g) were used to this study. Four rats of the control group were breed normally two weeks. Twelve rats had their right knee joints immobilized with a casting fixator for two weeks. Four rats of the contracture group were mercy killed immediately after they were made contracture. Four rats of the treatment group were operated ROME of immobilized knee for two weeks. Four rats of the non-treatment group were not operated ROME of immobilized knee for two weeks. ROME was consist of the five cycles of fifty seconds stretching and ten seconds rest. Rats of the treatment group were fixed the trunk and stretched the ankle in there caudad direction. The excised knee joints were fixed in formalin, decalcified and embedded in paraffin. They were stained with hematoxylin and eosin, and the synovium was examined with a light microscope.
Results : Atrophy of synoviocytes, fibrosis of the layer underlying the synovium, dilatation, proliferation of the synovium at the cartilage-synovium migration area and

congestion of the microvasculature were observed in the contracture group. The treatment group was almost normalized. But the non-treatment was not as normally as the treatment group.

Conclusion : Changes in the synovium of joint contracture observed in this study was considered as a secondary disorder caused by the cast fixation. This suggests that the concept of disuse atrophy would be applicable to the synovium of articular structures. And the ROME will be invaluable to the contracture joint.

Research Products (10 results)

AllOther

AllPublications

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[Publications] Takemura K., Yoshikubo H., Hosono M., Inoue S., Kanemori Y., Tachino K.: "Histopathological Changes in Synovium of the Knee Joint After Two Weeks Hindlimb Suspension in Rats"PHYSIOTHERAPY SINGAPORE. 4(2). 124-124 (2001) ▼

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