

THE MICROBIOME COMPOSITION IN PEOPLE WITH SPINAL CORD INJURY AND NEUROPATHIC GUT

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Objective: Spinal cord injury (SCI) is a devastating which significantly changes function and quality of life. People with SCI are more exposed to infections and the rate of general morbidity in the SCI population is also relatively high. Reviews from recent years have found that the microbiome affects many of the known risk factors of spinal cord injuries. The study of the changes that occur in the microbiome in SCI can contribute to a deeper and broader understanding of the risk factors that exist in SCI, and this understanding may influence clinical decisions in the future. The purpose of the study is to investigate the composition of the intestinal bacteria in spinal cord injuries during the initial rehabilitation process phase (sub-acute phase) and during the chronic phase of the injury.

Methods: Stool samples were taken from 64 participants from the Sheba health center, 13 participants who are the spinal cord injury group in the subacute phase, 19 chronic spinal cord injury group and 32 participants without spinal cord injury or chronic diseases. After decoding the samples, a comparison of the microbiome compositions was made using standard bioinformatic tools. In addition, food questionnaire, blood tests, clinical indices were taken and medical instructions for antibiotics were recorded.

Results: When comparing the microbiome samples of the subacute and chronic SCI group with the control group, significant differences were seen. The chronic group has a lower diversity than the subacute. Significant differences in the phylum catagory were also observed, the level of Firmucutes decreases and Verrucomicrobia increases and the Firmicutes/Bacteroidetes ratio increases, similar to what happens in inflammatory bowel diseases.

Conclusions: It seems that the microbiome of people with spinal cord injury is in a state of imbalance. It is possible that the findings of this study could help understand the severity levels of risk factors and diseases after spinal cord injury. The improvement and restoration of the microbiome could help the spinal cord injured in addition to the treatments offered today, and in the future could be an integral part of the patient's rehabilitation and their well-being.