

THE ROLE OF SLEEP QUALITY ON SPONTANEOUS REGRESSION OF INTERVERTEBRAL DISC HERNIATION

Introduction

Spontaneous regression of herniated disc is a well studied phenomenon that occurs due to innate immunity. Also, an immune system activity is closely related to circadian rhythms as the level of proinflammatory cytokines and immune cells increases at night. Accordingly, sleep quality can play a significant role in the phenomenon of spontaneous regression.

Purpose

The purpose of the study is to determine the sleep quality of patients with spontaneous regression of herniated disc using Pittsburgh Sleep Quality Index (PSQI).

Materials and Methods

The study involved 95 patients diagnosed with herniated disc, confirmed by MRI scans. The patients received standard medication for a period of 90 days. After each 30 days of treatment all patients completed the PSQI questionnaire. MRI scan has been repeated for all patients after 90 days period after which the PSQI and the values of herniated disc reduction in millimeters have been compared.

Results

15 patients were withdrawn from the study due to the need for surgery (microdiscectomy). The remaining 80 patients experienced a reduction of herniated disc confirmed by MRI scans at the end of 90 days period. These patients were classified into three groups:

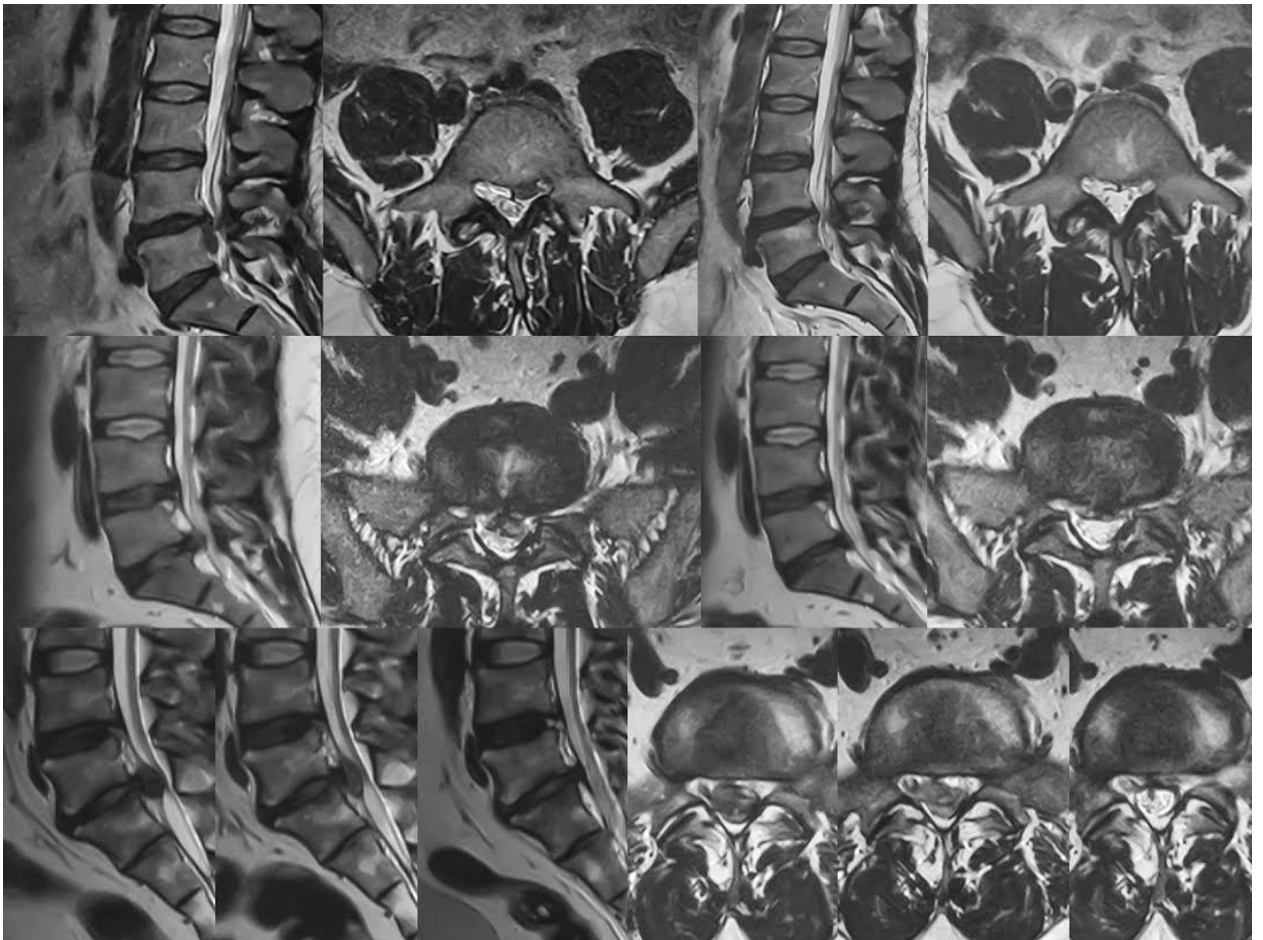
- A) The average reduction is 1.5 mm – 25 patients – PSQI is 8.6 ($p \leq 0,05$)
- B) The average reduction is 2.8 mm – 39 patients – PSQI is 5.0 ($p \leq 0,05$)
- C) The average reduction is 3.5 mm – 16 patients – PSQI is 4.3 ($p \leq 0,05$) (pic.1)

Conclusion

Pittsburgh Sleep Quality Index reliably indicates possibility of spontaneous herniated disc regression. A significant role of sleep quality for patients with herniated disc has been also confirmed. These results call for further research focused on sleep correction for this type of patients.

Discussion

The patients with good sleep quality had a significantly greater regression of herniated disc than the patients with poor sleep quality. Seeing as the function of sleep is to maintain the integrity of the neuro-immuno-endocrine system, loss of sleep induces a disruption of the integrity of this system, causing an inadequate immune response that may damage natural mechanisms of hernia resorption. This work is part of a broader ongoing study. It is believed that research with respect to back pain should include the role of immunobiology. Presently, tissue engineering of vertebrae discs is mainly focused on stem cells. Meanwhile, the knowledge of the immunobiology of the process would allow the to act on acceleration of tissue regeneration and its improvement through the stimulation of such natural mechanisms as inflammatory and immune responses as well as stress factor management, which is one of the most recent developments in this area. The traditional treatment of herniated disc (such as NSAIDs) also needs to be challenged as it slows tissue regeneration. Instead evolutionary medicine should have a priority in future research.



Pic.1

3 cases of herniated disc regression.