

ABSTRACT

Introduction

Spinal cord injury is associated with negative changes in body composition, glucose and lipid metabolism. This fact is responsible for a higher risk of metabolic complications in patients with a transverse spinal cord lesion (TML). Individuals tend to achieve a positive energy balance, which leads to an increase in adipose tissue, the development of overweight and obesity and other diseases, and last but not least, to the deterioration of self-sufficiency. Setting optimal energy intake is main key to maintain the patient's health and quality of life.

Target

The aim of this bachelor's thesis is to determine resting energy rate (RMR) in people after a transverse spinal cord injury. The subject of interest is also the comparison of the results with the prediction equation of Harris-Benedict with the indirect calorimetry (NK) method, to determine the body composition and determine the real energy intake of the diet. A control set of healthy individuals without the handicap of a transverse spinal cord lesion was chosen for the comparison of the obtained data.

Methodology

The research group consists of adults after a transverse spinal cord lesion. There were 26 people included, 11 women and 15 men, clients of the non-profit organization Centrum Paraple, o.p.s. The average age is 40.3 years and the average BMI is 25.3 kg/m². Probanda from the research group underwent measurement of resting energy rate (RMR) by the indirect calorimetry method using the Cortex MetaLyzer 3B device and body composition measurement using the InBody S10 tetrapolar bioimpedance device. Energy intake data were obtained from a three-day detailed food record. The control set is composed of 28 healthy individuals without spinal cord injury who underwent the same examinations as the research set.

The results

The average value of RMR obtained by the method of indirect calorimetry in individuals with TML was, as we expected, lower than the control group. The average RMR of women with TML was 1362 kcal/day and of men with TML 1730 kcal/day. The results between tetraplegic and paraplegic subjects did not reach significant differences. Different values were shown when comparing the NK with the HB equation, where the average deviation was 283 kcal/day in favor of the HB equation. Individuals with TML had an average of 12 kg less muscle mass and an average of 6 kg more fat tissue. In the research group of men, energy intake was on average 1706 kcal/day. For the research group of women, this energy intake was on average 1641 kcal/day.

Conclusion

The research made it possible to obtain data thanks to which we can state that individuals with a transverse spinal cord lesion have a significantly lower resting energy expenditure than a control group of healthy individuals. The lower RMR is primarily a consequence of less ATH compared to individuals without TML. Individuals with TML have lower energy intake in average numbers compared to the healthy population. Nevertheless, people with TML are prone

to achieving a positive energy balance, which corresponds to the average BMI, which is above the norm for most of them.