Katarzyna Walicka-Cupryś et al., J Nov Physiother 2017, 7:5(Suppl)
DOI: 10.4172/2165-7025-C1-018

Shape of sagittal plane spinal curvatures in prematurely born children at the start of school education

Katarzyna Walicka-Cupryś, Paweł Piwoński, Maciej Rachwał, Perenc Lidka, Justyna Drzał-Grabiec and **Katarzyna Zajkiewicz**
University of Rzeszow, Poland

Statement of the Problem: Uterine cavity is an ideal place for proper fetal development, therefore reduced duration of growth in this perfect environment leads to certain developmental disparities between preterm and full-term children. Most characteristically, children born prematurely present with poor muscle tone, and greater muscle tone in extensors than in flexors, contrary to normal physiological tonus observed in children born full-term. These factors may promote altered body posture, in particular, linked with the vertebral column, and they may contribute to incorrect development of anteroposterior spinal curvatures at a later time. Purpose of the study is assessment of anteroposterior spinal curvatures in children born prematurely.

Materials & Methods: The study was carried out in a group of 101 children, aged 6-7 years, with mean age of 6.63. The group of preterm children consisted of 50 subjects: 26 boys (52%), and 24 girls (48%). The 51 controls: 22 boys (41%) and 29 girls (59%), were randomly selected from a group of 200 full-term children, and matched for age and sex with the children in the study group. Criteria for inclusion in the study: guardians' and children's consent for participation in the study, lack of neurologic and orthopaedic disorders affecting body posture. The study group was birth before gestational age of 32 weeks; the control group was birth after 37 weeks of gestation. Basic anthropometric measurements were performed to assess body mass and height. Spinal curvatures were examined with mechanical inclinometer, in accordance with the method developed by Walicka-Cupryś and Drużbicki (Figure 1). Validity of the observed relationships was verified with adequate statistical tests: Student's t-test/ Mann-Whitney U test, and Pearson's chi-squared test.

Results: The findings show no statistically significant differences in the inclination of the sacral bone, in thoracolumbar transition, and in the size of lumbar lordosis and thoracic kyphosis. Considerably smaller angles were observed in the inclination of the upper (p=0.001) and central (p=0.000) part of the thoracic spine in the preterm children.

Conclusions: Preterm birth does not affect the shape of anteroposterior spinal curvatures and does not correlate with the frequency of defects in the sagittal plane. However the factor is related to significantly smaller inclination of the upper and central part of the thoracic spine in comparison to full-term children.

Biography

Katarzyna Walicka-Cupryś has completed two university courses, and acquired MA degree in Physical Education and in Physiotherapy. She also completed Post-graduate courses in Management, i.e. HR Management, Management of Research and Development Projects as well as Executive Master of Business Administration. In her research, she focuses on problems connected with body posture and balance, and on consequences of spinal disorders and pelvic floor dysfunctions. So far she has authored or co-authored 53 publications in Polish and foreign periodicals; these include 18 chapters in reviewed monographs. She took active part in over 50 scientific conferences, where she received seven awards and distinctions for her presentations. Taking advantage of her management related competences, in 2012-2013 she held the position of the Deputy Director of Teaching Operations, at the Institute of Physiotherapy, and the Chair Person of the Podkarpackie Branch of Polish Physiotherapy Association. During 2009-2015, she coordinated two EU projects implemented at the University of Rzeszów, each amounting to millions of Polish zloty. Active in her profession since 2001, she has been sharing her knowledge and practical skills with Physiotherapy students, at the University of Rzeszów Institute of Physiotherapy, and she has been using her expertise in practice, during her work with patients suffering from spinal and pelvic floor problems.

kwcuprys@univ.rzeszow.pl

Notes: