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Biomechanical aetiology of the so-called idiopathic scoliosis [adolescent idiopathic scoliosis – AIS (1984/1995–2007)] role of "standing 'at ease' on the right leg" and "gait" in development of deformity

Introduction: The biomechanical aetiology of the so-called idiopathic scoliosis [adolescent idiopathic scoliosis (AIS)] was the subject of research from 1984 (scholarship in Invalid Foundation Hospital in Helsinki) and next intensive in Poland from 1995 to 2007/2017 (T. Karski). The results of research were presented from 1995 in many Congresses and Symposia in Poland and abroad. First lecture was presented in Orthopaedic Congress in Hungary (T. Karski, Szeged, 1995). First publication was in Germany in 1996 – in Orthopädische Praxis.

Material: In 2016 the whole material gathered 2250 cases. Patients were two to 60 years old. Control group 360 persons.

Explanation of Biomechanical Aetiology: The development of scoliosis in points: A/ Asymmetry of hips movements – smaller adduction in straight position of right hip joints as one of symptoms of "Syndrome of Contracture" according to Prof. Hans Mau, B/ Permanent standing 'at ease' on the right leg and influence appearing during gait, C/ The asymmetry "of time of standing right/left leg" and asymmetry of movement of hips and pelvis – during gait - makes asymmetry in development of spine – in result scoliosis. There are three groups and four types of scoliosis connected with special "model of hips movement" (2006). Every type of scoliosis starts to develop in 2nd–3rd year of life of children. New classification–three groups and four types - as important information for physiotherapy for causal prophylaxis and for therapy: "S" I etiopathological (epg) scoliosis double curves. Gibbous of the right side is influenced by the gait and the permanent standing at ease on the right leg stiff spine. 3D. progression "C" II/A epg scoliosis influenced by the permanent standing at ease on the right leg. One curve flexible spine and 1D no or slight progression "S" II/B epg scoliosis. Influenced by the permanent standing at ease on the right leg, plus- laxity of joints or/and incorrect exercises in previous treatment. Flexible spine 2D or mix moderate progression "I" III epg scoliosis influenced by the "gait" only. Stiff spine no curves or small. No progression. No included till now to scoliosis.

Physiotherapy: All previous extensions, its mean muscles strengthening exercises were incorrect and harmful, caused only bigger curves, bigger rib hump and made the spine more stiff. All stretching exercises for spine and hips are proper for treatment and for prophylaxis. The prophylactic exercises should be introduced in small children in age 3–5 years. Very important in therapy are: karate, taekwondo, aikido and standing 'at ease' on the left leg.

Conclusions: The aetiology of the so-called idiopathic scoliosis is strict biomechanical. There are three groups and four types of scoliosis – connection with "standing" and with "gait". In therapy and in causal prophylaxis are important the new conception of therapy - the stretching exercises introduced very early, when we state the first symptoms of scoliosis.

Biography

Tomasz Karski studied at Medical University in Lublin and received medical doctor certificate in 1961. During the studies he was active for three years in Students Scientific Orthopaedic Association and later after graduation he was the Assistant Teacher for young student generation. In 1967 and next in 1971 he passed specializations degrees - first and second degree in Orthopaedic Surgery and Traumatology of movement apparatus. In 1972 he received the doctor degree and in 1982 after habilitation (colloquium before Medical University Council) he passed consecutive degrees to receive PhD degree and later became Assistant Professor. In 1993 he was awarded by full professor degree and title by President of Poland. Since 1st October 1995 to 2009 he was the Head of Chair and Department of Paediatric Orthopaedics and Rehabilitation of Medical University in Lublin/Poland, in the biggest Paediatric Hospital in Eastern Poland Region.

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