



UMEÅ UNIVERSITET

Umeå University Medical Dissertations, New Series No. 2014

Low Back Pain in Adolescent Athletes

Claes Göran Sundell

Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för
avläggande av filosofie/medicine doktorsexamen framläggs till
offentligt försvar i Aulan, Vårdvetarhuset, Umeå Universitet
Fredagen den 22 februari, kl. 09:00.
Avhandlingen kommer att försvaras på svenska.

Fakultetsopponent: Docent/Bitr. Professor Adad Baranto,

Avd. för ortopedi vid Institutionen för kliniska vetenskaper,
Göteborg, Sverige.

Department of Community Medicine and Rehabilitation

Organization
Umeå University,
Department of Community
Medicine and Rehabilitation

Document type
Doctoral thesis

Date of publication
01 February 2019

Author Claes Göran Sundell

Title Low Back Pain in Adolescent Athletes.

Abstract

Background:

Globally Low back pain (LBP) is one of five leading causes of years lived with disability (YLD), and LBP is a common complaint among adults as well as adolescents and adolescence athletes. During adolescents, the LBP often is considered as non- specific without structural findings and thus not needed to be further diagnosed or treated specifically. However, LBP that begins in adolescence often continue through adulthood, and since adolescent athletes with high physical activity seems to have more LBP than less physically active adolescents, high physical loading during adolescence, might be a risk factor for LBP later in life.

Studies: Epidemiology: The Standardized Nordic Questionnaire adjusted for adolescence was used to investigate the prevalence of LBP during adolescence (16-19 years old individuals). Retrospective study: A ten-year follow-up on symptomatic low back spondylolysis patients identified on MRI or CT. Sixteen out of nineteen identified patients agreed to answer a questionnaire and to have their case-history reviewed. Case-control study: Twenty-five patients (13-19-year-old boys and girls) with LBP and 13 pain free individuals (controls, 14-19-year-old boys and girls) were investigated with physical examination and MRI. If the patients had findings on MRI a CT investigation was performed. Clinical study: Twelve of 14 patients (a subgroup from the case-control study) with Spondylolysis on MRI and CT were evaluated with a modified Hollenberg classification (six levels). These patients were re-evaluated with MRI and CT after 3 months of treatment with complete rest from sports activity. Differential diagnosis: Five adolescent patients with on-going LBP/thigh pain previously treated in other clinics, were reevaluated for a "second opinion".

Results: Epidemiology study: The prevalence of LBP among adolescents was 46% (N= 2522) with an annual incidence of 42 %. Girls reported more LBP than boys (52 % versus 40 %). Individuals who were active in sports > 6 h/w had significantly more LBP compared with less physically active individuals. Retrospective study: Thirteen out of 16 individuals had a second MRI/CT investigation and thus 52 out of the initial 64 pars interarticularis where investigated a second time (mean 3 months after the first investigation). These patients had had different treatments, most commonly rest for 3 months. In total, 7 out of 16 individuals healed (44%). Case control study: In 22/25 patients (88%) there were clinical findings and MRI findings such as spondylolysis, disc herniated discs, disc degeneration and injuries to the vertebral body. In 13/25 patients (52%) spondylolysis of different stages were found. No clinical test alone, or in combination, could reliably diagnose spondylolysis, and could thus not be used as a selection test for patients who need further diagnostics with MRI and CT. Clinical study: Using a combination of MRI and CT examination the early signs of skeletal injury (oedema, incomplete fracture) to the pars interarticularis were detected. Patients diagnosed with these early stages healed significantly better than if diagnosed in later stages (complete fracture and pseudoarthrosis). Differential diagnosis: The second opinion with careful physical examination and MRI examination diagnosed stress reactions in the pelvic ischial tuberosity in the patient seeking help for pain in the lower back/thigh. After guided rehabilitation, all these patients returned to previous sport activities.

Conclusions: LBP is common during adolescence, more common in girls and in highly active individuals. LBP must be taken seriously, especially in adolescent athletes who not seldom have fractures in pars interarticularis (Spondylolysis). If diagnosed early, there seems to be good potentials to heal the fracture with 3 months of rest from loading (sport activity). Differential diagnoses such as stress reactions in the pelvic ischial tuberosity should be taken into consideration.

Language	ISBN	ISSN	Number of pages
English	978-91-7855-024-1	0346-6612	59 + 5 papers