

O63**ApiFix treatment for adolescent idiopathic scoliosis (AIS): the importance of Schroth method exercises after the minimal invasive operation**

Nikos Karavidas

Scoliosis Spine Laser Centre, Athens, Greece

Scoliosis and Spinal Disorders 2017, **12(Suppl 1)**:O63**Introduction**

ApiFix is an innovative system to treat AIS, which combines a short peri-apical fixation with Scoliosis Specific Exercises. A ratchet-type implant is attached to the apex and gradually elongates through exercises.

Objectives

The purpose of the study is to present the short-term results of the ApiFix treatment and to evaluate the effectiveness of Schroth method after surgery.

Methods

Prospective case-series study (Level of Evidence IV). 6 females (mean age 15.6 years, Risser 3.7, Cobb angle 41.8°, 2 Lenke Type I and 4 Lenke Type V curvatures) were treated with ApiFix system in Greece. All patients followed a Scoliosis Specific Exercises program for 6 months after operation, under the supervision of a Schroth Certified Physiotherapist. The outcome parameters analyzed were Cobb angle, Angle of Trunk Rotation (ATR), Aesthetics (measured by TAPS questionnaire and TRACE scale) and Pain (measured by Visual Analogue Scale). The average follow-up for the patients was 17.5 months. Unpaired student t-test was used for statistical analysis.

Results and discussion

A significant Cobb angle correction of 35.9% (from 41.8° to 26.8°, $p = 0.031$) was achieved for the whole group. Some of the patients did not have absolute indications for ApiFix treatment and this might have restricted the final correction. One patient had a complication and underwent a revision surgery, due to a backup of the ratchet mechanism that was corrected by locking the mechanism. Another patient had no chance for elongation of the implant and further correction, due to improper length of the mechanism. A further analysis of the pre/post exercises result in the other 4 patients showed that Schroth method reduced the Cobb angle by 3.3° (from 26.3° to 23°, $p = 0.603$), the ATR by 2.3° (from 10.5° to 8.2°, $p = 0.252$), the TAPS score by 0.7 (from 3.2 to 3.9, $p = 0.113$), the TRACE score by 2 (from 3.75 to 1.75, $p = 0.001$) and the VAS score by 1.3 (from 2 to 0.7, $p = 0.04$). Moreover, the Schroth exercises stabilized the secondary curvatures, normalized the sagittal plane in some cases and educated the patients to unload their spine and avoid mechanical forces by a specific training of Activities of Daily Living (ADL).

Conclusions and significance

ApiFix system, with the assistance of Schroth method, can significantly decrease Cobb angle (35.9%, $p = 0.031$) and treat AIS without spinal fusion. Schroth method significantly improved ATR, aesthetics and pain after operation, and a satisfied, but not significant (3.3°, $p = 0.603$) correction was achieved for Cobb angle. Schroth exercises, designed only by a Certified Physiotherapist, must be implemented after ApiFix operation in order to enhance the final treatment result. The proper choice of the most suitable patients with clear indications is of paramount importance, while better quality studies, larger samples and long-term results are needed in future research.

O64**Exercise versus surgical intervention for pain and disability in adults with lumbar spondylolisthesis**

Despoina Dritsa, Josette Bettany-Saltikov, Nigel Hanchard

Teesside University, Middlesbrough, United Kingdom

Correspondence: Despoina Dritsa*Scoliosis and Spinal Disorders* 2017, **12(Suppl 1)**:O64**Introduction**

Spondylolisthesis (SPD) is a condition that directly affects the vertebra and is most commonly seen in the lumbar spine (Earl, 2002). It is a movement or translation of one vertebral body over the other. Slippage may be forward, backward, or sideways, but usually an anterolisthesis

(forward movement) is implied by this term (Haun and Kettner, 2005). The most common types of SPD found in the adult population are isthmic and degenerative (Earl, 2002). Even though there are important differences in these two types of SPD, the treatment approach to this condition remains the same. The main management approaches for lumbar spondylolisthesis are conservative treatment, and surgery (Vibert et al., 2006). Both interventions have been proven to work independently but the question still remains as to which route is the most beneficial for a satisfactory clinical outcome both in the short and long-term.

Objectives

To determine whether exercise or surgery is more effective for the treatment of lumbar spondylolisthesis in adults.

Methods

A systematic search was conducted in MEDLINE, CINAHL, AMED, EMBASE, SPORTDISCUS, and EBMR for articles published through November 2015. PICO was used to design the selection criteria for relevant studies. Quality assessment was evaluated using the 'Physiotherapy Evidence Database' (PEDro). A narrative synthesis was conducted in order to analyse the relationships within and between the studies. Mean numerical values were presented as a mean difference (MD) and the findings were compared to determine potential heterogeneity of treatment effect.

Results and discussion

Three RCT's fulfilled all the inclusion criteria. Only one study showed substantially better results in pain and disability for surgery over exercise in the medium and long term (Moller and Hedlund, 2000). However, the evidence relating to efficacy is of low-moderate quality. Two studies reported that the benefits of surgery are likely to outweigh the possible harms (Moller and Hedlund, 2000; Weinstein et al., 2007). Sample size, differences in inclusion criteria, age groups, cultural backgrounds, types of exercise, surgery approaches, and outcome measures makes the effects of the studies included in this review difficult to assess for generalisability and applicability.

Conclusion and significance

Following a rigorous search strategy, 3 studies were identified and included in the final review. Internal and external validity was assessed and found to be low to moderate. The results found no significant differences between the two treatment strategies. Only Moller and Hedlund (2000) found posterolateral fusion to be more effective than exercise in the long term. Yet, methodological quality of this paper was low-moderate, thus the results should be used with caution. No clear conclusions were drawn for the best treatment strategy. Further research is very likely to influence the estimated effect of the studies.

O65**A retrospective study on effect of treatment for adult scoliosis with chronic lower back pain using K-HYU method**Donghyun Kim¹, Junlae Kim¹

Seoul Hyun Rehabilitation Hospital, Seoul, Korea

Correspondence: Donghyun Kim*Scoliosis and Spinal Disorders* 2017, **12(Suppl 1)**:O65**Introduction**

One of common complications found in Adult Scoliosis(AS) is chronic lower back pain(CLBP). AS patients with scoliosis are often treated with general physical therapy, simple exercise, injection, and surgical procedure to simply ease the pain.

However, additional treatment is needed considering the fact that compared to normal people patients with scoliosis require different strategy to maintain proper alignment of the spine, pelvis, and the lower extremities, and to have the right posture control. K-HYU method is a 3D approach on spine and peripheral musculoskeletal structure correction, a functional approach on achieving gradual anti-gravity state and correction in daily life, and a cognitive behavioral training for self-correction, which would be considered as an effective treatment for AS with CLBP.

Objectives

To compare the effect of conventional treatment (CT) - focused on pain relief, with treatment using K-HYU Method- a structural and