Adult spinal deformity epidemiology

Adult spinal deformity (ASD) surgery is increasing in the spinal neurosurgeon's practice. It is typically seen in the lumbar spine.

The purpose of a overview from the Scoliosis Research Society (SRS) Adult Deformity Committee is to provide current information on the epidemiology and impact of adult deformity [1].

The prevalence of adult spinal deformity and scoliosis is not well established, with estimates ranging from 2.5% to 25% of the population [2] [3] [4] [5] [6] [7].

ASD is more prevalent in patients age > 60 years, however true prevalenceis not well defined. More than 50 % of adults hospitalized with spinal deformity are > 65 years [8]. Incidence of asymptomatic scoliosis ranges from 1.4 %- 32 % and up to 68 % in patients > 60 [9].

They are typically seen in males and females over the age of eighteen. The age range of patients seeking treatment for adult scoliosis and other deformities varies widely, however. It is not unusual for patients who are well into their sixties, seventies or even eighties present with symptoms of pain and functional limitations. With increasing life expectancy along with more active lifestyles, the number of older adults requiring treatment has also gone up. Unlike the younger or adolescent patient with a spinal deformity, the older adult presents with a completely different set of problems and challenges to the treating physician.

The elderly population (age > 60 years) is the fastest-growing age group in the US. Spinal deformity is a major problem affecting the elderly and, therefore, the demand for surgery for spinal deformity is becoming increasingly prevalent in elderly patients. Much of the literature on surgery for adult deformity focuses on patients who are younger than 60 years, and therefore there is limited information about the complications and outcomes of surgery in the elderly population. In this study, the authors undertook a review of the literature on spinal deformity surgery in patients older than 60 years. The authors discuss their analysis with a focus on outcomes, complications, discrepancies between individual studies, and strategies for complication avoidance.

A systematic review of the MEDLINE and PubMed databases was performed to identify articles published from 1950 to the present using the following key words: “adult scoliosis surgery” and “adult spine deformity surgery.” Exclusion criteria included patient age younger than 60 years. Data on major Oswestry Disability Index (ODI) scores, visual analog scale (VAS) scores, patient-reported outcomes, and complications were recorded.

The mean age was 74.2 years, and the mean follow-up period was 3 years.

Twenty-two articles were obtained and are included in this review [10].

A prospective self-assessment analysis and evaluation of nutritional and radiographic parameters in a consecutive series of healthy adult volunteers older than 60 years.

OBJECTIVES: To ascertain the prevalence of adult scoliosis, assess radiographic parameters, and

determine if there is a correlation with functional self-assessment in an aged volunteer population.

SUMMARY OF BACKGROUND DATA: There exists little data studying the prevalence of scoliosis in a volunteer aged population, and correlation between deformity and self-assessment parameters.

METHODS: There were 75 subjects in the study. Inclusion criteria were: age > or =60 years, no known history of scoliosis, and no prior spine surgery. Each subject answered a RAND 36-Item Health Survey questionnaire, a full-length anteroposterior standing radiographic assessment of the spine was obtained, and nutritional parameters were analyzed from blood samples. For each subject, radiographic, laboratory, and clinical data were evaluated. The study population was divided into 3 groups based on frontal plane Cobb angulation of the spine. Comparison of the RAND 36-Item Health Surveys data among groups of the volunteer population and with United States population benchmark data (age 65-74 years) was undertaken using an unpaired t test. Any correlation between radiographic, laboratory, and self-assessment data were also investigated.

RESULTS: The mean age of the patients in this study was 70.5 years (range 60-90). Mean Cobb angle was 17 degrees in the frontal plane. In the study group, 68% of subjects met the definition of scoliosis (Cobb angle >10 degrees). No significant correlation was noted among radiographic parameters and visual analog scale scores, albumin, lymphocytes, or transferrin levels in the study group as a whole. Prevalence of scoliosis was not significantly different between males and females ($P > 0.03$). The scoliosis prevalence rate of 68% found in this study reveals a rate significantly higher than reported in other studies. These findings most likely reflect the targeted selection of an elderly group. Although many patients with adult scoliosis have pain and dysfunction, there appears to be a large group (such as the volunteers in this study) that has no marked physical or social impairment.

Previous reports note a prevalence of adult scoliosis up to 32%. In this study, results indicate a scoliosis rate of 68% in a healthy adult population, with an average age of 70.5 years. This study found no significant correlations between adult scoliosis and visual analog scale scores or nutritional status in healthy, elderly volunteers [11].

1)
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