SURGICAL CORRECTION OF JUVENILE IDIOPATHIC SCOLIOSIS. OUR PATIENTS' PERCEPTION OF THEIR QUALITY OF LIFE

CORREÇÃO CIRÚRGICA DA ESCOLIOSE IDIOPÁTICA JUVENIL - PERCEPÇÃO DE NOSSOS PACIENTES SOBRE SUA QUALIDADE DE VIDA

CORRECCIÓN QUIRÚRGICA DE ESCOLIOSIS IDIOPÁTICA JUVENIL - PERCEPCIÓN DE NUESTROS PACIENTES SOBRE SU CALIDAD DE VIDA

DITTMAR-JOHNSON HERMAN MICHAEL[1] (iD), CRUZ-LÓPEZ FRANCISCO[1] (iD), GONZÁLEZ-CAMACHO EDUARDO[1,2] (iD), CHAVARRETI-GUTIÉRREZ OSCAR MIKHAIL[1,2] (iD),

TEJERA-MORETT ALEJANDRO[1] (iD), SÁNCHEZ-GARCÍA FRANCISCO JAVIER[1] (iD), DE HARO-ESTRADA JORGE[1] (iD), LIRA-HERNÁNDEZ ERICK ALEJANDRO[1,2] (iD)

1. Reespalda A.C. Medical Group, Centro Médico Puerta de Hierro. Zapopan, Jalisco, Mexico.
2. Universidad Autónoma de Guadalajara, Jalisco, Mexico.

ABSTRACT

Objective: To report the results of our patients who underwent scoliosis correction surgery in relation to their quality of life. Introduction: Juvenile idiopathic scoliosis affects between 1 and 3% of the population during puberty. Treatment will be conservative in most cases. The goal of surgical treatment is to improve coronal and sagittal alignment. The SRS 22 questionnaire is a useful tool for assessing quality of life in these patients. Methods: A retrospective study of 22 patients submitted to corrective surgery for juvenile idiopathic scoliosis between October 2017 and January 2020 was conducted. All of them had curves greater than 45 degrees managed through instrumentation and arthrodesis. Post-surgical quality of life was assessed using the SRS 22 questionnaire. Results: The average age of our patients at the time of the intervention was 15.5 years with a predominance of female patients. The application of the SRS 22 questionnaire generated the following mean scores: pain 4.6, function 4.3, self-image 4.41, mental health 4.89, and satisfaction 5.0. Conclusions: The development of surgical techniques has allowed good results to be achieved in the treatment of scoliosis. The evaluation of our patients using the SRS 22 questionnaire reflects a good quality of life in the 5 parameters evaluated. The main limitations of this study were the small sample size and its retrospective nature. ***Level of Evidence III; Retrospective, longitudinal, descriptive, observational study.***

Keywords: Scoliosis; Juvenile Idiopathic Scoliosis; Quality of Life; SRS-22.

RESUMO

*Objetivo: Relatar os resultados de nossos pacientes operados para correção de escoliose com relação à sua qualidade de vida. Introdução: A escoliose idiopática juvenil afeta entre 1% e 3% da população durante a puberdade. O tratamento será conservador na maioria dos casos. O tratamento cirúrgico terá como objetivo melhorar o alinhamento coronal e sagital. O questionário SRS 22 é uma ferramenta útil para avaliar a qualidade de vida desses pacientes. Métodos: Foi realizado um estudo retrospectivo de 22 pacientes operados entre outubro de 2017 e janeiro de 2020 devido à escoliose idiopática juvenil. Todos tinham curvas superiores a 45 graus tratadas com instrumentação e artrodese. A qualidade de vida pós-operatória foi avaliada por meio do questionário SRS-22. Resultados: A média de idade dos nossos pacientes no momento da intervenção foi 15,5 anos, com predominância do sexo feminino. A aplicação do questionário SRS-22 gerou os seguintes escores médios: dor 4,6; função 4,3; autoimagem 4,41; saúde mental 4,89 e satisfação 5,0. Conclusões: O desenvolvimento das técnicas cirúrgicas permitiu obter bons resultados no tratamento da escoliose. A avaliação de nossos pacientes por intermédio do questionário SRS 22 reflete boa qualidade de vida nos cinco parâmetros avaliados. As principais limitações deste estudo foram o pequeno tamanho da amostra e seu caráter retrospectivo.**Nível de Evidência III; Estudo retrospectivo, longitudinal, descritivo, observacional.***

Descritores: *Escoliose; Escoliose Idiopática Juvenil; Qualidade de Vida; SRS-22.*

RESUMEN

Objetivo: Reportar los resultados de nuestros pacientes operados para corrección de escoliosis en relación a su calidad de vida. Introducción: La escoliosis idiopática juvenil afecta entre el 1% y 3% de la población durante la pubertad. El tratamiento será, en la mayoría, de los casos conservador. El tratamiento quirúrgico tendrá como objetivo mejorar la alineación coronal y sagital. El cuestionario SRS 22 es una herramienta útil para la valoración de la calidad de vida en estos pacientes. Métodos: Se realizó un estudio retrospectivo de 22 pacientes intervenidos entre octubre de 2017 y enero de 2020 debido a la escoliosis idiopática juvenil. Todos tenían curvas mayores de 45 grados manejadas mediante instrumentación y artrodesis. Se realizó la evaluación de la calidad de vida posquirúrgica mediante el cuestionario SRS-22. Resultados: La edad promedio de nuestros pacientes en el momento de la intervención fue de 15,5 años con predominio de pacientes del sexo femenino. La aplicación del cuestionario SRS-22 generó las siguientes puntuaciones

*medias: dolor 4,6; función 4,3; autoimagen 4,41; salud mental 4,89 y satisfacción 5,0. Conclusiones: El desarrollo de las técnicas quirúrgicas ha permitido obtener buenos resultados en el tratamiento de la escoliosis. La evaluación de nuestros pacientes mediante el cuestionario SRS 22 refleja una buena calidad de vida en los 5 parámetros evaluados. Las limitaciones principales de este estudio han sido el pequeño tamaño de la muestra y su carácter retrospectivo. **Nivel de Evidencia III; Estudio retrospectivo, longitudinal, descriptivo, observacional.***

Descriptores: *Escoliosis; Escoliosis Idiopática Juvenil; Calidad de Vida; SRS-22.*

INTRODUCTION

Juvenile idiopathic scoliosis (JIS) affects between 1 and 3% of the population during puberty (10 to 16 years of age).[1] The etiology is unknown, although it is often observed in multiple members of the same family, which suggests a genetic component.[2] In most cases the treatment is conservative, focused on preventing progression of the curve.[3] The goal of surgical treatment is to improve and maintain coronal and sagittal alignment. The SRS 22 questionnaire is a useful tool for assessing the quality of life in these patients. It measures 5 domains: pain, activity, appearance, mental health, and satisfaction, each scored on a scale of 0 (worst) to 5 (best).[4] This questionnaire has proven to be dependable, valid, and responsive to change in the patient. The objective of this study is to report the results of our patients who underwent scoliosis correction in terms of their perception of the procedure as measured by the SRS 22 questionnaire.

METHODS

A retrospective descriptive study was conducted with 22 patients who underwent surgery for juvenile idiopathic scoliosis between October 2017 and January 2020, all of them with curves greater than 45 degrees managed via instrumentation with transpedicular screws and arthrodesis (Figure 1). All operated patients between 10 and 18 years of age who had complete medical records, including informed consent, a minimum of 12 months of postoperative follow-up, and who answered the SRS 22 questionnaire were included. Those patients with previous spine surgery, who were outside the age range, or had incomplete medical records were excluded. The postoperative quality of life evaluation was determined with the SRS 22 questionnaire administered 12 months after surgery. Demographic variables and additional clinical information such as age, sex, Lenke scoliosis classification, and the preoperative Cobb angle of the main curve were obtained from the medical records and reported.

RESULTS

Regarding the demographic characteristics of our population, the mean patient age at the time of intervention was 15.5 years with a predominance of female patients (16 vs. 6), corresponding to 72.7% of the total number of patients in the sample. The measurement of the Cobb angle of the main curve ranged from 51° to 83°.
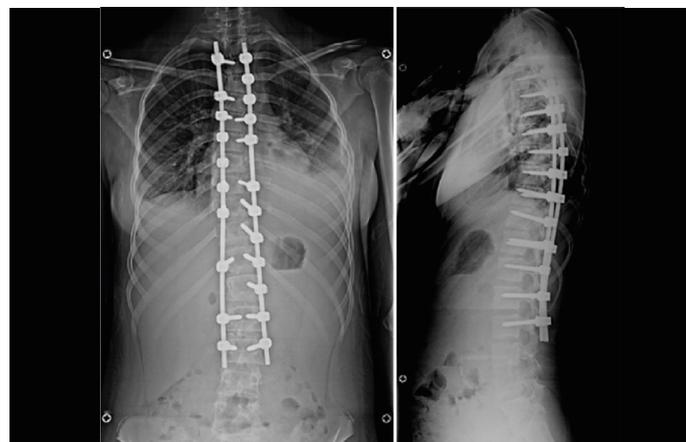
The scoliosis characteristics were also described according to the Lenke classification (Table 1). The mean scores resulting from the application of the SRS 22 questionnaire were pain 4.60 (minimum of 4.09 and maximum of 5.00), function 4.3 (minimum of 3.63 and maximum of 5.0), self-image 4.41 (minimum of 4.18 and maximum of 4.72), mental health 4.89 (minimum of 4.45 and maximum of 5.0) and satisfaction 5.0 (Table 2, Figure 2).

Table 1. Demographic characteristics.

Patient	Age	Sex	Cobb angle	Classification
1	18	Male	70°	3B
2	15	Female	60°	6C
3	16	Female	67°	2A
4	18	Female	57°	3B
5	14	Female	51°	1B
6	17	Female	55°	3B
7	13	Female	60°	3C
8	14	Female	54°	1C
9	13	Female	73°	5C
10	12	Female	75°	3B
11	17	Female	63°	3A
12	18	Female	59°	5C
13	16	Male	64°	3B
14	15	Male	57°	1A
15	14	Female	55°	3B
16	18	Female	64°	3B
17	15	Female	54°	1C
18	18	Male	55°	5C
19	15	Female	56°	1A
20	13	Male	83°	3C
21	17	Female	63°	3B
22	15	Male	79°	3C
Mean	15.5			

Table 2. Results of our patients in the SRS 22 questionnaire.

SRS 22	Mean	Minimum	Maximum
Pain	4.60	4.09	5.00
Function	4.30	3.63	5.00
Self-image	4.41	4.18	4.72
Mental health	4.89	4.45	5.00
Satisfaction	5.00	5.0	5.0

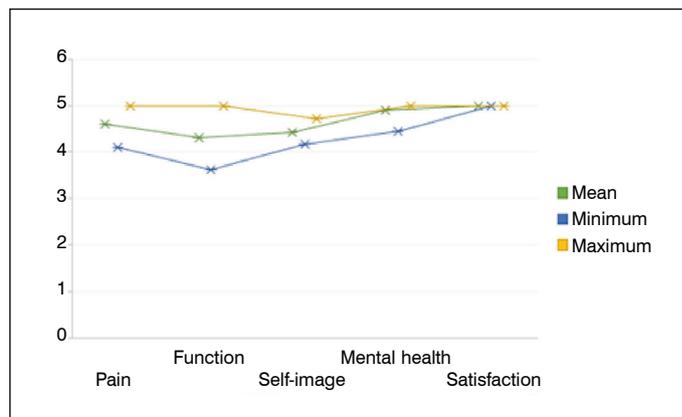**Figure 1.** Radiographs following scoliosis correction.

Figure 2. SRS 22 scores.

DISCUSSION

The outcome of surgical treatment for idiopathic scoliosis is generally assessed using the change in the radiographic magnitude of the curve. However, it is now accepted that it should also include the patient's perspective, which can be obtained by using patient-reported measurements of the results, allowing the physician to gain insight into the patient's perception of their health and the impact of treatment on their quality of life.[5] The Scoliosis Research Society SRS 22 questionnaire was expressly designed as an instrument to evaluate the results of idiopathic scoliosis treatment.[6,7] It was validated for Spanish in 2005 by Climent et al.,[8] and since then has become a useful tool in the evaluation of postoperative results.

The demographic characteristics of our population seem to coincide with the literature in terms of the predominance of females. Wu et al. consider that this characteristic could be dependent on polymorphism of the estrogen receptor gene.[9]

The mean age of our patients was 15.5 years, which seems to be important in relation to the results obtained in the self-image and mental health domains, as most of our patients are in mid-adolescence, a stage characterized by the importance of self-image and the opinions of others, and sometimes by social isolation.[10] In patients with scoliosis managed by orthosis, it has been observed that the older the patient, the greater the psychological stress and dissatisfaction with respect to treatment.[11] In our study, our patients' mean self-image and health scores were 4.41 and 4.89, respectively, regardless of age.

Regarding the perception of postoperative function, authors such as Andersen et al.,[12] reported that surgically fused patients are less able to perform activities of daily life than normal adolescents. On the other hand, there are studies that report no decrease in the ability to perform activities or pain in surgically managed patients.[13] In our study, the mean patient score obtained in the function domain was 4.3, indicating a minimal ability to perform sports and tasks they consider to be light. The mean pain score was 4.60, considered to be excellent.

Finally, patient satisfaction was absolute with a score of 5.0, both in terms of the procedure performed and the possibility of undergoing the surgery again if needed.

The present study let us understand the demographic characteristics of our patients and their degree of satisfaction with the procedure after 12 months of follow-up. However, the sample size and the retrospective methodology of the study present limitations. We think that the evaluation of patients with JIS should be conducted using both radiographic studies and questionnaires that allow us to understand how the patient perceives the treatment.

CONCLUSIONS

The development of surgical techniques has made it possible to obtain good results in the treatment of scoliosis. Assessment using the SRS 22 questionnaire is a useful tool for understanding the patient perception of the procedure performed. According to the 5 parameters evaluated by the SRS 22, surgical management of JIS seems to afford both a good quality of life and satisfaction. The main limitations of this study are the sample size and the retrospective design.

All authors declare no potential conflict of interest related to this article.

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