Evaluation of Patients with Early Onset Scoliosis

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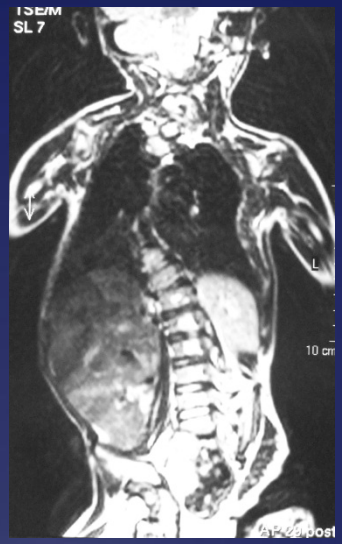
Introduction

- Early Onset Scoliosis (EOS) patients exhibit a high occurrence of associated spinal and organ abnormalities.
- The evaluation of Congenital scoliosis (CS) is different from the evaluation of more common idiopathic (IS) or neuromuscular (NS) and syndromic scoliosis (SS) because maternal influences may play a significant role in related deformities and pathologies.

Syndromic Scoliosis

Introduction

- Careful MRI analysis allows us to better understand spinal and concomitant anomalies.



Method

- 62 EOS patients (26 CS, 21 NS, 10 SS and 5 IS) were examined with a full spine MRI.
- The average age (38 female, 24 male): 4.3 years (3m -11y 10m).
- Intraspinal, extraspinal and additional organ anomalies were evaluated by a radiological specialist.



Congenital Scoliosis

Method

- Deformities in the coronal and sagittal were measured by plain radiography with cobb method.
- Orthopedic pathologies were evaluated clinically and radiologically.
- Other organ anomalies were examined with abdominal ultrasound and echocardiography.
- In comparing data a Fischer test was used for statistical analysis.

Result

- MRI analysis revealed
  - 77.4% patients with instraspinal anomalies,
  - 74.1% with extraspinal anomalies and 14.5% with other organ anomalies.
- The most common anomaly
  - intraspinal anomaly: Syringomyeli (54.8%),
  - exstraspinal anomaly: Hemivertebra (38.7%).
- The most common intraspinal anomaly was seen in NS (55.1%) and extraspinal anomaly was seen in CS (62.3%) .

Result

- The average coronal cobb angles: 46° (10-113°).
- The most common orthopedic pathologies were diagnosed with NS (32.1%).
- 11.2% patients were diagnosed with cardiovascular anomalies,
- 17.7% with urogenital anomalies.

Result

- A significant statistical difference was not found between the frequency of instrapinal pathologies in CS and NS (p=0.059).
- A significant difference was found in the rate of Chiari malformation (NS 38.1%, CS 0%, p=0.001) and extraspinal pathologies (NS 61.9%, CS 100%, p=0.001).
- There was a clear difference in hemivertebra and butterfly vertebra (p=0.000, p=0.017).
- Other organ anomalies revealed with MRI showed a significant difference (NS 28.6%, CS 3.8%) (p=0.035).

Conclusion

- It is difficult to determine the optimum treatment for patients with growing spines.
- Pathologies vary according to the etiology of scoliosis.
- In addition to clinical and radiological evaluations, MRI analysis is highly recommended.

Conclusion

- This study revealed a high occurrence of intraspinal anomalies in both congenital and neuromuscular patients.
- However, a broader study will offer a more accurate and comprehensive evaluation of these intraspinal pathologies.