Module 6: Deformity

Case presentation: *Adolescent idiopathic scoliosis*

Participants should discuss the incidence, family history, clinical assessment, and treatment principles regarding the management of AIS. They need to be able to identify features indicative of progression and describe the indications for surgical intervention.

Participants should have an understanding of the commonly used classification system (Lenke), the treatment options, and the risks and common complications of both operative and nonoperative (brace) treatment of this condition. They need to understand the need for a detailed clinical and neurological evaluation in order to identify red flags such as tumors, neural tube abnormalities, connective tissue and muscular disease, and their association with spinal deformity.

Conclude the discussion with a brief summary of key points and take-home messages.

Learning outcomes

- Perform a screening clinical examination in patients with AIS
- Request and interpret appropriate radiographic investigations
- Describe the main classification system (Lenke) for AIS
- Outline the treatment principles in the management of AIS
- Identify significant associated pathology

Case presentation: *Adolescent idiopathic scoliosis*

Present details of treatment strategy and outcome.

Case presentation: *Congenital scoliosis*

Participants should discuss the etiology, incidence, classification, and association with other congenital anomalies. The clinical assessment and treatment principles regarding the management of congenital scoliosis should be addressed, but the focus should be on identifying factors indicating progression or a risk to neurological structures.

As many patients with this congenital spinal deformity are diagnosed incidentally on a chest or abdominal film performed for other reasons or an intrauterine ultrasound, the indicators for progression and the need to educate parents and monitor progression through growth should be emphasized.

Conclude the discussion with a brief summary of key points and take-home messages.

Learning outcomes

- Identify and classify congenital abnormalities of the spine
- Discuss the treatment principles and options

- Recognize associated anomalies and common complications of treatment
- Describe the natural history to enable discussion with parents regarding natural history, need to monitor, and likelihood of surgery

Case presentation: *Degenerative scoliosis*

Participants should discuss the incidence, etiology (AIS or de novo due to degenerative disease), natural history, clinical and radiographic assessment, and treatment principles.

As patients are often elderly the association with other comorbidities (diabetes, osteoporosis, cardiac and respiratory disease, as well as degeneration of the hip, knee, shoulder, and SI joints) that add to the risks of surgery need to be considered and patients need to have realistic expectations of the outcome.

The indications for surgery and the need to define the surgical goals (spinal balance, neural decompression, and the avoidance of complications such as junctional breakdown, nonunion, and implant failure) should be emphasized. However, since participants are unlikely to undertake the assessment of these patients or plan treatment independently, the focus should be on the principles of treatment and evidence-based indications for intervention.

Nonoperative treatment strategies and evaluation of the risks vs benefits should also be discussed.

Conclude the discussion with a brief summary of key points and take-home messages.

Learning outcomes

- Outline the treatment principles and options in relation to adult or degenerative spinal deformity
- Recognize associated comorbidities and their influence on the outcome of surgery
- Outline the principles in relation to restoration and maintenance of spinal balance
- Perform assessment in relation to restoration and maintenance of spinal balance