IDIOPATHIC SCOLIOSIS
AETIOLOGY AND CLASSIFICATION

C. CHARALAMBIDES
St George’s Hospital
SCOLIOSIS

STRUCTURAL CURVES

NON STRUCTURAL CURVES
AETIOLOGY

UNKNOWN CAUSES (IDIOPATHIC)

KNOWN CAUSES
75 - 80 % of scoliosis is idiopathic
AETIOLOGY

GENETIC DISEASE

MULTIFACTORIAL
CLASSIFICATION

a) INFANTILE (less than 3 yrs old)

b) JUVENILE (between 4 and 10 yrs old)

c) ADOLESCENT (older than 10 yrs)
INFANTILE

PROGRESSIVE

RESOLVING (70 - 90 %)
INFANTILE

Rib Vertebra Angle

(Mehta M)
INFANTILE

ASSOCIATED FACTORS:

- Plagiocephaly 72%
- Mental Retardation 13%
- Inguinal Hernia in boys 7.4%
- Congenital Dislocation of Hip 3.5%
- Congenital Heart Disease 2.5%

(Wynne-Davies)
INFANTILE

(McMaster, MacNicol)
Infantile Idiopathic Scoliosis is preventable infants lying in prone position do not develop curves.

(McMaster and MacNicol)
JUVENILE APPROX 15% OF IDIOPATHIC SCOLIOSIS
JUVENILE

Mainly affects girls after the age of 6 yrs

Thoracic curves occurred mainly in boys and in the majority were right sided

Double curves found mainly in girls

Lumbar curves were left sided in older children

(Tolo and Gillespie)
Right sided thoracic curves were more likely to progress.

(Fiquerito and James)
Curves greater than $10^\circ$ are estimated to occur in 2-3% of children younger than 16 yrs.
<table>
<thead>
<tr>
<th>Cobb angle (degrees)</th>
<th>Female:male</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;10</td>
<td>1.4-2:1</td>
<td>2-3</td>
</tr>
<tr>
<td>&gt;20</td>
<td>5.4:1</td>
<td>0.3-0.5</td>
</tr>
<tr>
<td>&gt;30</td>
<td>10:1</td>
<td>0.1-0.3</td>
</tr>
<tr>
<td>&gt;40</td>
<td></td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>
There is likely to be spontaneous improvement in 3% of curves less than 11°
FACTORS RELATED TO PROGRESSION OF ADOLESCENT IDIOPATHIC SCOLIOSIS

- Girls > boys
- Premenarchal
- Risser sign of 0
- Double curves > single curves
- Thoracic curves > lumbar curves
- More severe curves
ADOLESCENT
ADOLESCENT
Natural history of untreated scoliosis:

1) Back pain
2) Pulmonary function
3) Psychosocial effects
4) Mortality
5) Curve progression
THANK YOU