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Rawalpindi Medical College
Short Stature
Short Stature

Definition:

Subnormal height relative to other children of same sex, age, family & ethnic background

Height more than 3 standard deviation below the mean for a given age & sex
Growth Phases:

**Fetal phase:**

- 30%
  Nutrition & Placenta

**Infantile Phase:**

- 15%
  Nutrition
  Good Health & happiness
Children Phase:

40%

Growth hormone
Thyroid hormone
Good health & happiness

Pubertal Phase:

15%

Growth hormone
Testosterone / estrogens
Normal Height Gain:

- Birth 50cm
- 1 year 75cm
- 3 years 90cm
- 4 years 100cm (double birth height)

- Average annual height increase:
  6cm between 4 yrs & puberty
## Normal Upper Segment/ Lower Segment Ratio

<table>
<thead>
<tr>
<th>Age</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>1.7</td>
</tr>
<tr>
<td>3 yr</td>
<td>1.3</td>
</tr>
<tr>
<td>8 yrs or more</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Height:

- > 2 yrs  Standing height
- < 2 yrs  Length (horizontal)
- 1.25cm decrease in height measurement in standing

Upper / Lower Segment
Arm Span:
Centile Charts:
Height velocity:

- Two accurate measurements at least 6 months apart allow calculation of height velocity in cm/yr
- Normal growth 25\textsuperscript{th} - 75\textsuperscript{th} centile
Mid –Parental Height:

Average height of parents

6.5cm added to male patient

6.5cm subtracted from female patient

Expected adults height +/- 8cm

If below 5th percentile, its pathological
Growth Charts: United States

Stature-for-age percentiles:
Girls, 2 to 19 years
Short Stature with Obesity

- Hypothyroidism
- Growth hormone deficiency
- Steroid excess
  
  Iatrogenic
  
  Cushing’s syndrome
Short Stature with Normal or decreased Weight

- Familial
- Constitutional
- Normal / chronic illness
Chromosomal Disorder Associated with Short Stature:

- Down Syndrome
- Turner syndrome
- Laurence Moon Biedl Syndrome
- Noonan syndrome
- Russell silver syndrome
- Prader-willi syndrome
Disproportionate Short Stature:

Disproportion between upper & lower segment measurement

- Skeletal dysplasias
- Achondroplasia
- Mucopolysaccharidosis
- Hypothyroidism
- Severe Scoliosis
- All Skeletal Dysplasia are disproportionate except Osteogenesis Imperfecta

- All endocrine causes have proportionate Short Stature except hypothyroidism
Short Stature with Delayed Bone Age

- Hypothyroidism
- Growth hormone deficiency
- Nutritional / Chronic illness
- Steroid excess
  - Iatrogenic
  - Cushing syndrome
- Constitutional delay of growth & puberty
Investigations

- X-ray wrist and hand
- Full blood count
- Creatinine & electrolytes
- TSH
- Karyotype
- Tissue transglutaminase, Endomysial & gliadin antibodies
- C reactive proteins
- Growth hormone provocation test
- MRI scan
Growth Hormone

Indications

- Growth Hormone Deficiency
- End stage renal disease
- Intrauterine Growth Retardation
- Turner Syndrome
- Prader-Willi Syndrome
- Silver –Russell Syndrome
- Idiopathic short stature
Dose

0.18-0.3 mg/kg/wk  S/C  Six or seven divided doses

How Long to Give

- When near final height is achieved
- Growth rate less than 2 cm per year
- Bone age of greater than 14 yr in girls and greater than 16 yr in boys
Complications (Growth Hormone)

Psudotumor cerebri
Slipped capital femoral epiphysis
Gynecomastia
Worsening of scoliosis
Diabetes Mellitus
Hypothyroidism
Adrenal Insufficiency
Decision:

- Is the child really short in relation to parents and community

- How severe is growth retardation

- Are there any dysmorphic feature suggestive of a syndrome

- Is the growth failure due to a treatable cause? (Growth hormone deficiency & hypothyroidism)
Thank You
OSPE

Objectively

Structured

Performance

Evaluation
* OSPE Total Marks 70

* Total Stations 15
  (03 Rest Stations)

* 5 Minutes of each Stations
Static Stations 08

(05 marks of each stations)

1- Neonatology (Compulsory)
2- Respiratory (Compulsory)
3- GIT (Compulsory)
4- Nutrition (Compulsory)
5- CVS/Hematology (either one or both in combination)

6- Nephrology / Endocrinology
   (either one or both in combination)

7- CNS/Musculoskeletal / Genetics

8- Preventive / Infectious Disease
   (either one or both in combination)
The 08 Static Stations will further be divided as:

1- Lab data \times 2

2- Radiographs \times 2

3- Pictures \times 2

4- Instruments / Procedures \times 2
Interactive / Observed Stations (04)

* 02 stations on clinical skills

  08 Marks at each Station

* 02 stations on viva based on clinical cases

  07 Marks at each stations
Conduct of OSPE

* OSPE shall replace Table Viva from Annual 2008

* Batches – 30 Students/ Unit

* Same batch will be examine in clinical competence on the same day

* Candidates waiting for OSPE- Briefed about OSPE process & layout of the hall
* Mobiles are not allowed

* OSPE will start at 9 am

* The coordinator / Organizer appointed by internal & external examiner

* Minimized Traffic during the examination

* OSPE questions sent by department of examinations UHS
* In case of any ambiguity or problem to any question internal & external examiner will make necessary amendments

* There will be 04 interactive / observed stations on each day of examination

* The candidates are to record their responses on the practical answer books which will be collected at the end of the OSPE session
* Internal & External Examiners will evaluate the responses of each candidate & transfer the award on to the practical award list & submit it the same day to the department of examination.

* Any Student found having mobile phone or any other electronic medium should be remove from the OSPE examination centre & unfair means case registered against him/her.

* Each candidate before leaving the OSPE hall will fill in a mandatory feedback proforma which will be deposited by candidates in sealed confidential boxes provided by the UHS & shall be return examination department the same day together with the award list & the OSPE response sheets.
University of Health Sciences, Lahore  
MBBS Final Professional  
Annual / Supplementary Examination, 200____  
Award List for Paediatrics

| College: ____________________________ | Centre: ____________________________ |

<table>
<thead>
<tr>
<th>Roll No.</th>
<th>OSPE (Max Marks 70)</th>
<th>Long Case (Max Marks 20)</th>
<th>Grand Total (Max Marks 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11 12</td>
<td>Total</td>
<td>Figures</td>
</tr>
</tbody>
</table>

Examiner: ____________________________
Q1.

- Identify 3 physical signs in these pictures? [3]
- What is the diagnosis? [2]

Key

- Signs [3]
  - Epicanthic folds
  - Low set ears
  - Simian crease
  - Increased distance between 1st and 2nd toe
- Down syndrome [2]
Q2.

- Give 3 radiological findings? [3]
- What is the diagnosis? [2]

Key

- Radiological findings [3]
  - Cupping
  - Fraying
  - Flaring
  - Osteopenia
- Rickets [2]
Q3

- Identify 2 radiological abnormalities. [2]
- What is the diagnosis? [1]
- Give 2 causes. [2]

Key

- 2 abnormalities [2]
  - Bilateral opacities
  - Obliteration of costophrenic angles
- Bilateral pleural effusion [1]
- Causes [2]
  - Nephrotic syndrome
  - CLD
  - Connective tissue disorders
  - CCF
  - Tuberculosis
Q4

This 5 year old boy presented with easy fatigability for the last 2 years.

• Identify the physical sign. [3]
• What is the likely diagnosis? [2]

Key

• Bilateral ptosis [3]
• Myasthenia gravis [2]
Q5

- What is the diagnosis? [2]
- Give 3 complications. [3]

Key

- Meningomyelocele [2]
- Complications [3]
  - Infections / meningitis
  - Hydrocephalus
  - Paralysis of lower limbs
  - Bowel and bladder dysfunction
  - Hip dislocation, foot deformities
Q 6

- Name the physical sign shown in these pictures? [3]
- What is the most likely diagnosis? [2]

Key

- Gower's sign [3]
- Duchene muscular dystrophy [2]
A 4 year old girl presents with a 4 day history of increasing puffiness around the eye. Investigations are as follows:
- Hb 12.6 g/dl
- WBC 10,290/cumm
- Na 136 mmol/l
- K 4.7 mmol/l
- S/albumin 2.6 g%
- Urine
  - pH 6.5

Key
- Nephrotic syndrome [2]
- Investigations [3]
  - 24 hr urinary proteins
  - Urinary protein creatinine ratio
  - Serum cholestrol
  - Serum C3 level
  - Urea and creatinine
Q8

A previously well child with one week history of febrile illness, treated with injectable ampicillin, presents with mild neck stiffness and hemiplegia. CSF results are as follows:

- Proteins 80 mg/dl
- Sugar 40 mg/dl
- WBCs 300/cumm, lymphocyte 68%
- Gram staining and culture – ve

• What is the diagnosis? [2]
• Give 3 other complications. [3]

Key

• Partially treated bacterial meningitis [2]
• Complications: [3]
  - Subdural effusion
  - Brain abscess
  - Cranial nerve palsies
  - Seizures
  - SIADH
Thank You