HISTORY AND PHYSICAL EXAMINATION

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HISTORY

Introduction

History taking in paediatrics differs from history taking in adult medicine in many ways. Additional information required includes antenatal and birth history, immunisations, nutrition, growth and developmental milestones.

Preparation

Whom am I talking to?

In children, history is usually taken from one of the parents or the main care-provider. However, some older children may have a good command of their own health, which may be different to that of their parents. It is also important to establish who is the primary care-provider of the child, as it may not be one of the parents.

Observation

Be opportunistic. Observe the patient while his history is being taken. A 3-year-old child with recurrent abdominal pain who is running around the consultation room may have chronic constipation. Another child of similar age with acute abdominal pain who is unwell, lying flat may have peritonitis.

Components of paediatric history (Table 1.1)

Table 1.1: Components of paediatric history

- Patient identification: name, age, gender, date of birth
- Presenting complaint(s)
- History of presenting illness
- Systemic review
- Past medical / surgical history
- Antenatal and birth history*
- Developmental history*
- Drugs and medication history
- Feeding and dietary history*
- Immunisation*
- Family history
- Social history

* unique in paediatric history taking

Clinical scenario 1: A three-month-old male infant was brought to see a general practitioner. His mother noticed that he has been breathing more rapidly than usual over the last few days. It was preceded by a running nose. There was a non-productive cough, but no fever or vomiting. On day 3, the infant was feeding less than usual. He was able to finish 120 ml of milk every 3-4 hours, but has reduced to 30 ml each feed.

Note: This piece of history contains the chief complaints (rapid breathing), history of presenting illness (preceded by running nose, cough, and vomiting) and feeding history (reduced feeding).

Presenting Symptoms

The presenting complaint(s) is a symptom or a sign (or a collection of symptoms or signs) which has prompted the parents to bring their child for medical attention. It is also useful to ask what the parents think the main problem is. In the example above, the chief complaints were rapid breathing for three days and poor feeding for one day.

History of Presenting Illness

- Take a focused and problem-based history.
- Explore each symptom: time-frame (when started, acute or gradual onset, duration, progression, relation to specific circumstances and response to medication) and symptom-specific or associated questions.

Clinical scenario 2: A three-year-old boy was admitted for an episode of seizure.

History should include a description on the semiology of seizures. Often a student just describes the event as a generalised tonic-clonic movement. A more detailed seizure history should also include presence of initial focal onset prior to secondary generalisation, such as head version or turning or abnormal unilateral movement. This information is useful as it has a lateralising significance.

Systemic Review

Systemic review is helpful especially when taking history from a child with chronic and complex problems. It will help the clinician not to miss important elements of the history.

- Check for general health;
- Skin: rashes, eczema, onset, distribution;
- Ear, nose, throat: runny nose, allergy, cough, earache, ear discharge, recurrent sore throat (tonsillitis), noisy breathing (stridor), snoring;
- Cardiovascular: cyanosis, effort tolerance, faints;
- Respiratory: cough, wheeze, breathing difficulties;
- Gastrointestinal: regurgitation, vomiting, bowel habits, constipation, diarrhoea, abdominal pain;
- Genitourinary: frequency, dysuria, bed-wetting;
- CNS: vision, hearing, seizures, headaches, abnormal movements, abnormal behaviour;
- Musculoskeletal: aches and pains, swelling, gait; and
- Bladder and bowel control.

Past Medical & Surgical History

Ask about previous illness, hospital admissions or surgery.

Antenatal and Birth History (See also Chapter 20)

Antenatal history

- Whether the pregnancy was planned or unplanned;
- Natural conception or in vitro fertilization;
- Antenatal follow up, including antenatal ultrasound and foetal movement;
- Maternal health and illness before and during pregnancy;
- Medications used during pregnancy; and
- Mother's blood group

Birth history

- Gestation at delivery (in weeks);
- Mode of delivery, e.g. spontaneous, induced, instrumental or Caesarean section;
- If Caesarean section; the indication;
- Complications during delivery;
- Any admission to the neonatal intensive care unit (NICU); and
- Medical treatment needed after delivery.

Occasionally, a more detailed antenatal and birth history is important, particularly in an infant who was born prematurely or needed NICU care:

- Duration of rupture of membrane;
- Pyrexia in labour;
• Meconium staining of the amniotic fluid;
• Conditions at birth, including resuscitation (if given);
• Apgar score (most parents are not aware of the Apgar score of their newborn); and
• Passage of urine and meconium at birth.

Development history
• Ask parents about concerns about development, vision, hearing;
• Enquire about major milestones achieved; and
• Any delay or regression in milestones, interventions.

Drugs & medications
• All the drugs currently taking; including indications and dosages;
• Parents may not be familiar with the dosage of the drugs prescribed. Useful to ask the parents to bring all the medications taken;
• Previous drug history;
• Allergic or adverse reaction to drug; and
• Traditional and complementary medications. Traditional medications are commonly prescribed locally, especially among children who have chronic illness.

Feeding & dietary history
• Breastfeeding: duration, exclusive or mixed, frequency and quality of each feed;
• Complementary feeding: age at introduction, type of milk;
• Solids: age at introduction, types of food.

Behaviour and education
• Ask the child's temperament, behaviour;
• Sleeping problems; and
• Concerns and progress at nursery and school.

Immunisations (see Chapter 4)
• Ideally the immunisation record of the child should be referred to as many parents may not have an accurate recollection of the vaccines given;
• To include vaccines given at birth (BCG and hepatitis B vaccine);
• Some vaccines (rotavirus, pneumococcal, varicella and hepatitis A vaccines) are optional and are not included in the national immunisation schedule in Malaysia. This should be noted; and
• Take note of any vaccines missed or delayed. Ask for any reasons.

Family history
• Ask about any major illnesses in the family;
• Also ask about any recurrent abortions on the mother (may be suggestive of poor maternal health or certain maternal conditions affecting the foetus, such as systemic lupus erythematosus); and
• It is useful to draw a three-generation family tree (see Chapter 74), particularly if a genetic disease is suspected. This will allow to trace the heritability.

Social history
• Information about family: parental occupation / unemployment, economic status, parental relationship, marital status;
• Parental smoking, alcohol consumption, drug abuse;
• Housing: number of household members, number of rooms, pets, environment;
• What is the impact of the illness to the child and family;
• What are the parents/child's concerns, beliefs and hopes;
• Any social benefits received and
• Parental mental problems.

Summary of history taking
Make a summary. Ask the parent if there is anything that has been missed. Give the parent an opportunity to ask direct questions.

PHYSICAL EXAMINATION

Introduction
Physical examination is a clinical process of gathering findings from a patient. Generally, it involves the following steps: inspection, palpation, percussion, and auscultation. Although there are obvious exceptions, the results gathered are known as "signs" and must be integrated with the history to make an appropriate diagnosis. However, interpreting and integrating clinical signs can be challenging, due to different levels of cooperation, physiological rate, respiratory rate etc.) and developmental stage.

Physical examination should begin at the same age as the history is being taken by observing the child.

Preparation
Before examining a child, ideally there should be:
• A clean and child-friendly environment;
• Toys and games should be readily available for the young ones to distract them;
• A helper, e.g. a nurse or a parent; and
• Patience and flexibility.

Be opportunistic; avoid a rigid sequence of exam. Physical examination is carefully performed, for a 10 – 20% yield in the diagnosis and management of the symptoms, but the taking alone contributes about 50 – 70% while another 10 – 20%.

Note: It is important NOT to perform any intimate examination on a female child such as the genitalia or breasts examination in a single-handed examination. The presence of a parent alone is inadequate; the same applies when examining a boy.

General Approach
• Hand washing and self-introduction should precede the examination;
• Observing from a distance in an unhurried manner and then look at the appearance, position, interaction etc. of the child; and
• Observe for other bedside clues: oxygen mask, nebulizer, saturation monitor, etc. This will allow the examiner to have a quick idea about the child's clinical status;
• Build rapport with the child; communicate in a way that is consistent with the child's understanding or distract the child with a story at the child's level as much as possible;
• Order of examination: begin from the least distressing to the most distressing;
• Gathering vital signs is part of the examination; norms of vital signs in different paediatric ages can definitely be helpful in the subsequent interpretation;
• Examine from the right side of the patient. However, there is no rigid rule when examining a young child including the sequence of the examination. Inspection, palpation, percussion and auscultation ease and comfort of the child is vital.
Vital signs (Table 1.2)

Respiratory rate: Count the respiratory rate for 30 seconds and double it. It should be done first before disturbing the child by observing the chest movement. Once the child cries, it may be difficult to count the respiratory rate accurately.

Heart rate: In young infants, feel the pulse at the brachial artery located medially to the antecubital fossa; in older children, feel at the radial artery at the wrist. Count the rate for 15 to 30 seconds and multiply accordingly. The volume, rate and rhythm should be noted.

Blood pressure: an appropriate cuff size (2/3 width of upper arm) and the measuring site are important during the recording.

Temperature: reading from various methods e.g. tympanic, oral or axillary or rectal approach

Table 1.2: Warning signs in children according to age

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse (beats/min)</th>
<th>Systolic blood pressure (mmHg)</th>
<th>Respiratory rate (breaths/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate</td>
<td>&gt; 160</td>
<td>&lt; 60</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>1-3 months</td>
<td>&gt; 150</td>
<td>&gt; 70</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>3-12 months</td>
<td>&gt; 140</td>
<td>&lt; 80</td>
<td>&gt; 50</td>
</tr>
<tr>
<td>1-5 years</td>
<td>&gt; 120</td>
<td>&lt; 85</td>
<td>&gt; 40</td>
</tr>
<tr>
<td>5-10 years</td>
<td>&gt; 110</td>
<td>&lt; 90</td>
<td>&gt; 30</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>&gt; 100</td>
<td>&lt; 90</td>
<td>&gt; 25</td>
</tr>
</tbody>
</table>

* These may vary slightly among various references. These numbers should be interpreted in an appropriate clinical context.

Growth parameters: These include weight, height/length and occipital frontal circumference. It must be gathered during assessment and plotted on the appropriate growth curves. Occipito-frontal circumference is measured from the most prominent part on the occiput to just above the eyebrows (supraorbital ridges).

Clinical pearl: A child who threw a tantrum and refused to stay on the parent's lap and runs around may indicate a more stable child while a child who was lethargic and refused to move around may reflect a sicker child.

Respiratory System

Respiratory examination in children is always a challenge for clinicians as the signs may change with different position of the children. For instance, lung crepitation heard in a sitting position may disappear when examining in a lying position or after coughing.

Exposure: Formal inspection is performed in an appropriately exposed and positioned manner according to the child's age and mood.

- For infants, it is ideally to examine them while lying on their back and undress them;
- For toddlers, it is best to examine on a parent's lap and let the parent to undress them. If this causes upset, inspection should first be carried out with their clothes still on; and
- For older children and adolescents, it should be examined as an adult, sitting up at an angle of 45-60° on a bed. Ideally the exposure should be up to the waist. Modesty should always be taken into consideration especially when undressing an adolescent.

General examination

- Look at the general appearance whether the child is sitting up and playing happily; or drawing deep breaths and looking tired;
- Bedside clues such as saturation monitor, inhalers, spacers or nebuliser; and
- Count the respiratory rate and heart rate. Observe for signs of respiratory distress as below (Table 1.3).

Table 1.3: Clinical signs of respiratory distress

<table>
<thead>
<tr>
<th>Tachypnea</th>
<th>Nasal flaring</th>
<th>Head bobbing</th>
<th>Tracheal tug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tachycardia</td>
<td>Pallor</td>
<td>Cyanosis</td>
<td>Hypotension</td>
</tr>
<tr>
<td>Decreased level of consciousness</td>
<td>Chest recessions (subcostal, intercostal and supraclavicular)</td>
<td>Abdominal paradoxical movement</td>
<td></td>
</tr>
</tbody>
</table>

- Listen for any audible sounds: stridor, stertor or wheezes;
- Hands: look for clubbing (Figures 1.1 & 1.2), palmar erythema, pallor, peripheral cyanosis;
- BCG scar; and
- Face: look at the conjunctiva for pallor, tongue for central cyanosis (Figure 1.3).

Note: Cyanosis appears when more than 50 g/L of deoxygenated haemoglobin is present in the capillary blood. Cyanosis does not appear in a child with anaemia when the total haemoglobin concentration is low.

Figure 1.1: Gross finger clubbing in a child with cyanotic heart disease

Figure 1.2: Gross clubbing of the toes in the same child