The sick child

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James talks to Dr Arjun Rao about the management of the sick child presenting in the Emergency Department.

Dr Arjun Rao is a Staff Specialist in Paediatric Emergency at Sydney Children's Hospital, Randwick anda Conjoint Lecturer in Medicine at The University of NSW. He is a member of Advanced Paediatric Life Support, Australasia and regularly instructs on both provider and instructor courses. Arjun is involved in Simulation training at Sydney Children's Hospital, Randwick and completed the Harvard Institute for Medical Simulation "Simulation as a Teaching Tool" course at the Australian Institute of Medical Simulation in 2012. He also has an interest in on-line learning and been involved in a number of on-line education projects. Arjun completed his medical degree at the University of Sydney and FRACP in Paediatrics and Paediatric Emergency at Royal Australian College of physicians.

The sick child

With Dr Arj Rao, Emergency Paediatrician, Sydney Children's Hospital

Introduction

Most junior doctors will assess sick children in the emergency department. In this podcast we discuss some general principles in the approach and management of the sick child

Case

You are working in the emergency department when a 2 year old boy is brought in by his parents who report decreased oral intake and listlessness.

1. Are sick children just small sick adults?

- No ... and yes... They are different for a number of reasons:
- They are physically smaller
    - This is important to consider when assessing a child after an accident that may present with a different distribution of injury

- They are physiologically different
    - An example of this is the way that children are able to maintain a normal blood pressure better than adults, by increasing their heart rate until they are pre-arrest
- They are psychologically different
    - Children may not always understand what is going on around them
- They also present with a different spectrum of disease
- But don't forget that for all the differences between children and adults, there are also many similarities!

2. Outline your initial assessment by the bedside

- **Eyeball the patient** – do they look well or unwell? Quickly assess airway, breathing and circulation
    - Airway – is it patent? Is there risk of obstruction?
    - Breathing – assess for signs of respiratory distress including tachypnoea, intercostal recession, tripoding
    - Circulation – heart rate, central capillary refill, peripheral and central pulses
- **Administer a topical anaesthetic** (e.g. EMLA) to the dorsum of the child's hands early, in case you need to do investigations later on
- **History of presenting complaint**
    - Initially let the parents talk without interrupting
    - Why did they present *now*?
    - Ask the parents to clarify what they mean when they use words such as 'listless', 'diarrhoea', 'vomit' or 'irritable'
    - What is the duration of the illness?
    - How has it progressed? Is it worsening or staying the same?
    - Infectious contacts? Ask specifically about cold sores.
    - Progression of symptoms is important. A history that suggests a progression of symptoms is generally more worrying than symptoms that worsen and then improve to normal
    - Other concerning features of history include difficulty breathing, apnoeaor choking episodes
- **Past medical history**
    - Immunisation status (ask to see Blue Book if available)
    - Perinatal history including gestational age at birth, prolonged rupture of membranes, type of delivery, maternal fever, APGARs, need for resuscitation, neonatal ICU or special care nursery
    - Antenatal history including pre-eclampsia, gestational diabetes mellitus, UTI, group B strep, active infection with herpes simplex virus
- **Social history and family history**

    - Similar to that of an adult
    - Tailor to the age of the child
    - Who lives at home? Does anyone at home moke?
    - Does the child attend child care/school?

- **Examination**
    - Objectivity (vital signs)
        - Heart rate, this is an acute indicator of severity of illness
        - Respiratory rate
        - Central capillary return
    - Observation
        - Spend a few minutes observing the child in their environment
    - Opportunistic examination
        - Examine the child as they are
        - Avoid moving the child until you have to
        - You can auscultate the chest posteriorly whilst the child is in their parent's arms
        - Leave the most noxious elements of examination (e.g. otoscopy) until the end
    - Be thorough in your examination, gleaning as much information as possible
    - Examine all systems, not just those directly related to the presenting complaint
    - Distract the child with bubbles and talk to them in an age-appropriate way
    - Look for objective facial signs when assessing pain

3. Investigations

- Often investigations are not necessary
- Investigations should be guided by the clinical differential diagnosis
- Similarly, normal blood tests should not dissuade concern about a clinically sick child
- If the child is sick or "lethargic" don't forget to do a blood sugar
- If the child is deemed to be at risk of a serious bacterial infection or sepsis, refer to the NSW Health Pediatric Sepsis Pathway
    - Urinalysis and blood culture before commencing antibiotics if possible to help guide duration of treatment but don't delay antibiotics in very unwell children

4. Management

- Recognise the sick child
- If you feel out of your comfort zone, call for help early!
- Place sick children in a high acuity area of the emergency department where they can be regularly reviewed by senior staff
- Always consider pain relief in a child with injury or abdominal pain
- Don't forget the child's parents! Take time to talk to them and explain what is going on

5. When to escalate care

- If you feel out of your comfort zone
- If the child deteriorates clinically
- If the child does not improve despite treatment
- If the child has persistent tachycardia
- If the parents seem very anxious and tell you that something is wrong

6. What are the common errors that junior doctors make when managing the sick child?

- Failure to recognise the sick child – regularly review objective evidence of deterioration
- Fixation errors (e.g. fixation on IV access after multiple failures when an intraosseousshould be considered in the acutely deteriorating child)
- Forgetting to communicate with parents at each stage of assessment, investigation, management and likely disposition

Take home messages

- Don't be afraid to assess children presenting to the emergency department
- Work with parents
- Use all the resources available to you (e.g. fellow staff in the emergency department, paediatrician on call Children's Hospital guidelines, drug dosing handbooks)
- Don't be afraid to escalate care early!

References

- The Sydney Children's Hospital Network – Clinical Policies
- The Royal Children's Hospital Melbourne – Clinical Practice Guidelines
- Sepsis pathway
- Between The Flags

Related Blogs

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