CIS CME

Clinics India School of Continuing Medical Education

Quick Case Work-up

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Child with Fever, Cold and Cough

History

A 2-year-old boy (Weight: 11 kg; Length: 81 cm) was brought to the doctor for recent onset of fever. A runny nose and a nonproductive cough that lasted for 2 days accompanied the fever. The child was apparently well prior to fever onset. The patient was treated with paracetamol and the fever subsided for 5-6 hours, during which time the child became active. The next day the patient was brought back to the same doctor because the fever had returned and the child was irritable. On initial physical examination, his temperature was 102 degrees°F, pulse was 120/min, and the respiratory rate was 30 per min. Coryza was positive and accompanied by both nasal and throat congestion. Examination of ears, chest, and other systems were normal. The child coughed especially when lying down. The patient's medical history showed that he had recent contact with an elder sister who had a fever and cold; however, no past history of similar disease was noted.

Physical examination at a glance

Weight	:	11 kg	**Coryza**	:	+
Length	:	81 cms	**Throat**	:	Congested
Temperature	:	102°F	**Ears**	:	Normal
Pulse	:	120/min	**Chest**	:	Clear
Respiratory rate	:	30/min	**Other systems**	:	Normal

What is the best management approach?

Select one or more.

1. Start antibiotic. If so, which one?
2. Order CBC?
3. Antipyretic. If so, which one?
4. Antihistaminic. If so, which one?
5. Cough syrup

CASE DISCUSSION

A provisional diagnosis is absolutely required in order to determine the need for additional tests and to select a treatment plan. Patient history should be analyzed first and then correlated with physical examination findings.

HISTORY ANALYSIS

This child has been apparently well before onset of this illness. It is always good to confirm how well this child was prior to present symptoms. This is because parents may have missed subtle symptoms prior to onset of this disease. Best way to confirm wellness is to ask for level of activity and energy, baseline normal appetite and happy, cheerful behavior. Subtle change in behavior such as unusual lethargy or irritability and change in appetite may suggest presence of prior abnormality. Weight record if any helps to define wellness precisely.

Acute onset of fever commonly suggests infection. Cold and cough denotes respiratory tract involvement. It is important to confirm what cold and cough means to parents. Many parents report noisy breathing as equivalent to cold and cough. This child has runny nose with clear watery discharge, so nose is affected. Clear watery nasal discharge denotes either allergy or viral infection and fever favors infection. Cough increasing on lying down may be due to post-nasal discharge irritating throat or involvement of lower respiratory tract as suggested by rattling of chest. One should have asked for rattling of chest. Thus this child has generalized respiratory infection involving upper and probably lower respiratory tract. Fever has been responding to paracetamol for 5-6 hours and child becomes active during afebrile period. Elder sister has been suffering from similar illness and it is in favor of contagious infection. Most viral infections spread to other members of the family.

Conclusion. The patient is suffering from an acute onset generalized respiratory tract infection most likely due to viral infection.

PHYSICAL EXAMINATION ANALYSIS

An age appropriate weight and height suggests that the child is healthy. Pulse and respiration rate are also age-appropriate and proportional to the degree of fever. Physical examination confirms involvement of the nose and throat while chest examination does not show any signs of abnormality. Early stage of bronchi affection may not present with chest signs. Symptoms are an easy way to know whether bronchi are involved or not; however, signs may be difficult to discern in a crying child.

Conclusion. Involvement of both the nose and throat with or without involvement of the bronchi with acute infective illness in an otherwise healthy child favors the diagnosis of viral infection.

MANAGEMENT ANALYSIS

OPTION 1

Antibiotic—irrational. An acute bacterial infection presents with localized infection. A child with acute tonsillitis does not have a runny nose and a child with pneumonia does not have chest or throat signs. A green, foul smelling nasal discharge may suggest bacterial infection most likely due to rhinosinusitis. Thus, in this patient an acute bacterial infection is ruled out. So, there is no need for antibiotics. Secondary bacterial infection in a viral disease may result in cases of severe immunosuppressive infection such as occurs in measles. However, it is not commonly seen in routine office practice. Thus, antibiotics should not be prescribed in suspected viral infection.

OPTION 2

CBC—not necessary. CBC does not clearly differentiate between an acute viral and acute bacterial infection because neutrophilic leucocytosis may be seen in both types of infections. Although marked neutrophilic leucocytosis may favor bacterial infection, there is no definitive cut-off point for better interpretation. In addition, when significantly high neutrophilic leucocytosis is present in acute bacterial infection, the clinical picture is so classical that it poses no challenge in diagnosis. Since most cases of acute bacterial infections are accompanied by mild neutrophilic leucocytosis, it does not help to differentiate it from acute viral infection. Nevertheless, if CBC is justified, it is best ordered 2-3 days after fever onset, as bone marrow may not respond in the early stages of infection.

OPTION 3

Antipyretic—rational. Treatment with an antipyretic is justified in the case of fever. But it is important to note that an antipyretic is ideally used to relieve the discomfort associated with a fever and not just to suppress the fever. In fact, a fever is the body's way to fight infection and should not be unduly suppressed. Treatment with paracetamol is ideal and this antipyretic should be administered in a dose of 15 mg/kg that may be repeated every 6 hours. To reiterate, paracetamol is used to

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relieve the discomfort associated with a fever. It is not expected to bring the fever down to normal level. Paracetamol is safe and has a large therapeutic window. However, ibuprofen or mefenamic acid may be used as an alternative to paracetamol. Nimesulide is not recommended and has been banned in many countries.

OPTION 4

Antihistaminic—not routinely necessary. Antihistamines are not recommended in the routine management of acute viral respiratory infection. However, a first generation antihistamine may be used as a sedative in a child that is experiencing difficulty sleeping due to a cold or cough. Antihistamines are not suggested for use in infants and should be used on SOS basis in children. Newer generation antihistamines are not recommended, as they do not result in sedation.

Administration of nasal saline is recommended in cases of nasal congestion and other nasal instillation preparations should be avoided.

OPTION 5

Cough syrup—irrational. In general, cough syrups do not suppress cough. Most cough syrups contain multiple drugs in various combinations; therefore, they are irrational to use. As mentioned above, a first generation antihistamine, which consists of a single ingredient, may be used in select cases for relieving discomfort. Placing the child in a propped up position may alleviate discomfort. In addition, frequent sips of warm water may help to relieve the discomfort of a severe cough. A cough usually disappears only after the infection clears. Thus, a cough will disappear a few days after the fever is reduced. It is important to counsel parents on the effectiveness of cough syrups. Cough remedies available across the counter are now banned in some countries as they are useless and may be harmful.

In summary, the patient in this case study is best managed by paracetamol administered on a SOS basis and nasal saline solution. An antihistamine is suggested on a need basis. Non-pharmacological management is as important and useful as pharmacological treatment. ■