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Systemic Infections in Normal and Immunocompromised Hosts

Generalized infectious diseases have been discussed in reference to the predominantly involved organ, e.g., endocarditis, meningitis, and pneumonia. Other infections manifest predominantly as fever without a specific source, or may present with only fever and lymphadenopathy (e.g., toxoplasmosis), hepatosplenomegaly (Chapter 6), or fulminant sepsis. Lymphadenopathy is an important clue to the cause of persistent fever. Biopsy should be considered in patients with supraclavicular adenopathy, weight loss, prolonged fever, or in those with lymph nodes adherent to the overlying skin.

Systemic Infections Presenting as Fever

Fever

Fever is a sign, not an illness, and needs to be considered as a clue to the presence of inflammatory conditions, including infectious diseases. The molecular basis of fever production, associated with endogenous pyrogen released from mononuclear phagocytes, and its effect on the thermoregulatory center of the hypothalamus, are reviewed elsewhere. There are several other exogenous and endogenous sources of pyrogen, such as endotoxins, pyrogenic substances in blood products, and substances in the environment, that may contribute to disturbances in temperature regulation. Moreover, thermoregulatory center immaturity is particularly important in newborns, and dysfunction in patients with central nervous system pathology. Fever affects not only the well-being of the host, but several host defense mechanisms as well, including enhancement of leukocyte mobility, lymphocyte transformation, and interferon production. Some of these effects are benign and may augment...
the patient's immune competence, as well as antibiotic and serum bactericidal activities.\textsuperscript{197}

Temperature elevations need to be determined carefully. Hence, caution is urged in using chemical indicators applied to the surface of the skin (e.g., paper strip thermometers) to quantitate temperature elevations.\textsuperscript{272} Although the fever pattern is seldom useful,\textsuperscript{230} the duration and height of fever, and the age of the patient, may help diagnostic evaluation. In infants under 3 months of age, for example, temperatures of 40°C or greater are likely due to a serious infection.\textsuperscript{215} Temperatures below 40°C may often be due to self-limited infections or to noninfectious causes.\textsuperscript{320}

The treatment of fever includes use of light clothing, exposure to normal room temperature, and adequate hydration. Sponging small portions of the body with tepid water may also help. Salicylates and acetaminophen are effective antipyretics. Although their use in combination has been suggested, this carries a risk of enhanced toxicities of both drugs.\textsuperscript{60} Response to these treatments should not detract from the accurate diagnosis of cause. Aspirin should be avoided during influenza outbreaks and in patients with varicella, in view of the possible association of this drug and these diseases with the development of Reye syndrome.

Acute Fever

Fever is one of the commonest manifestations of infection in individuals of all ages; however, infected newborns may not have a febrile response and hypothermia may be seen with brain injury, and in severe septic states with shock. The infant with fever requires special consideration because of the difficulty of localizing signs and symptoms in the first 2 years of life, the fulminant nature of many infections at this age, and the marked predisposition of infants to pneumococcal and Haemophilus infections. After the age of 2 years, the patient is more often able to help the clinician by describing specific symptoms and the clinical course of many illnesses is characteristic.

Upper respiratory infections, systemic viral syndromes, gastroenteritis, and otitis media are among the most frequent causes of acute fever in infants (Table 12–1). Septicemia, meningitis and pneumonitis are not uncommon and represent the most serious causes. Epidemiologic history is the key to the diagnosis of epidemic febrile illnesses, such as yellow fever, Marburg disease, Lassa fever and dengue\textsuperscript{205} as well as other arbovirus hemorrhagic fevers, malaria, or schistosomiasis. Hepatitis with jaundice may suggest yellow fever in South America and Africa, but many hemorrhagic fevers may produce similar findings. Fever, erythematous rash on extremities, and arthralgia have occurred after ingestion of milk contaminated with \textit{Streptobacillus moniliformis}, also called Haverhill fever.\textsuperscript{295} Another rare cause of acute fever is hyperpyrexia, induced by anesthetics (malignant hyperthermia).\textsuperscript{165}