Fever and Antipyretic Use in Children

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OVERVIEW

- Fever
- Antipyresis
- Therapeutic goals
- Safety
- Summary
FEVER

- One of most common clinical symptoms managed by pediatricians and other HCPs
  - Unscheduled physician visits
  - Telephone calls
- Causes heightened anxiety in parents and caregivers
- Pediatricians and nurses are the primary resource for information on fever management for parents and caregivers
FEVER

- Fever: rectal temperature > 38.3°C (101°F)
  - Infants < 3 months of age: 38°C (100.4°F)
- Normal physiologic response
  - Results in an increase in the hypothalamic “set point”
    - Response to endogenous and exogenous pyrogens
- Most fevers are of short duration and are benign
Benefits of fever

- Protective role in the immune system
  - Inhibition of growth and replication of microorganisms
  - Aids in body’s acute phase reaction
  - Enhanced immunologic function of wbc’s
    - ↑ lymphocyte response to mitogens
    - ↑ bactericidal activity of neutrophils
    - ↑ production of interferon
  - Promotion of monocyte maturation into macrophages
  - Promotion of lymphocyte activation and antibody production
  - Decreased availability of free iron for bacterial replication
FEVER AND ILLNESS

- Antipyretics may prolong course of illness
  - Adults with rhinovirus shed the virus longer
  - Children with varicella have delayed time for lesions to crust (about 1 day)
  - Children with malaria take longer to clear parasites (75 vs 59 hours)
“FEVER PHOBIA”

- Term coined in early 1980’s by BD Schmitt, M.D.
- Primary fears
  - Brain damage
  - Coma
  - Seizures
  - Blindness
  - Death
- Other contributors
  - Technology
  - Pharmaceuticals
ANTIPYRESIS

- Many parents aim for “normal” temperature
  - Daycare, school & work can drive this
- Antipyresis therapy **DOES NOT**
  - Reduce morbidity or mortality from a febrile illness
  - Decrease the recurrence of febrile seizures
- Antipyresis **DOES**
  - Relieve discomfort
  - Decrease insensible fluid loss
ARGUMENTS AGAINST ANTIPYRESIS

- Fever is not an illness
- Most fevers are short-lived and benign
- Fever may protect the host
- Degree of fever does not correlate with severity of illness
- ↓ fever may obscure diagnostic or prognostic signs
- No evidence that children with fever are at ↑ risk of adverse outcomes such as brain damage
- Adverse effects of antipyretics outweigh benefits
TREATMENT GOALS

- Determine therapeutic endpoints
  - Child’s comfort
  - Early identification of signs of need for intervention or serious illness
    - Altered mental status
    - Changes in activity level
    - Skin rash
    - Signs of dehydration
    - Specific pain (ear, abdomen, neck, etc.)

- Exception: child with acute or chronic illness that will not tolerate increased metabolic demands
THERAPEUTIC INTERVENTION

- Single or combination therapy
  - Acetaminophen
  - Ibuprofen
  - Single regimens (of either acetaminophen or ibuprofen) should be adequate for discomforts due to fever

- Remember therapeutic endpoint!
  - Most studies have evaluated antipyretic efficacy
  - Very limited data related to discomfort
SAFETY

- Drugs
  - Formulations
  - Dosage
    - Amount
    - Frequency
  - Accurate measuring device
  - Specific regimens
    - Risks of combination therapy
  - Storage of products
  - Avoid cough/cold combination products
- Provide written instructions
- Educate at well-child visits
SUMMARY

- Fever is a normal physiologic response
- Most fevers are of short duration and benign
- Treat discomfort NOT fever
- Monitor for signs/symptoms that require an intervention or suggest a more serious illness
- Provide education at well-child visits
  - Drug safety
“Fever is nature’s engine which she brings into the field to remove her enemy”

Thomas Sydenham
English Physician
1624 - 1689
For more information....

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