Managing fever in children with a single antipyretic

In this article...

- How to treat fever in children
- Side-effects of antipyretics
- Common myths about fever in children

Authors
Teresa Banks is specialty trainee in paediatrics (year 2); Siba Prosad Paul is specialty trainee in paediatrics (year 5); Mary Wall is children’s ward manager; all at Great Western Hospital, Swindon.

Abstract

It has become an increasingly common practice to treat fever in children with a combination of antipyretics, despite the lack of evidence of clinical benefit. Promoting this practice can potentially worsen “fever phobia”, which is widespread and puts children at risk from dosing errors.

National guidelines and research evidence recommend treating a child’s fever with one type of antipyretic. This article dispels some of the myths associated with paediatric fevers and reviews best practice for treatment. Armed with knowledge of evidence-based practice, nurses are in a position to influence parents and the wider healthcare community and so achieve safer drug administration.

Fever is a common presentation in children and is one of the most common reasons for parents to seek medical advice (National Institute for Health and Clinical Excellence, 2007); it often causes anxiety both among parents and health professionals.

The use of paracetamol and ibuprofen as antipyretics is widespread in both hospital and community settings, and it has become an increasingly common practice to treat fever in children with a combination of antipyretics, despite the lack of evidence of clinical benefit (American Academy of Paediatrics, 2011). Promoting this practice can potentially worsen “fever phobia”, which is widespread and puts children at risk from dosing errors.

This review has largely been influenced by a clinical audit that was conducted at a large district general hospital to assess the prescribing and administration practices of antipyretics for children admitted with fever. These practices were compared with the National Institute for Health and Clinical Excellence Feverish Illness in Children guideline (NICE, 2007). The clinical audit, which included a total of 53 children aged 0-17 years, showed that 29 (55%) had been prescribed both paracetamol and ibuprofen in their drug chart and 17 (32%) had been given both drugs together. The audit showed how extensive the use of combination medicines was in treating fever in children – a practice that is not recommended in the guideline.

After the audit, we introduced education sessions in our unit to address the need for using a single antipyretic agent in managing febrile children.

Managing fever in children
Fever is a normal physiological mechanism and is considered to be beneficial for fighting infections. It occurs from resetting the hypothalamic set point in response to circulating endogenous and exogenous pyrogens during a febrile episode.

There is no evidence to suggest that reducing fever improves morbidity or mortality in children with febrile illnesses (American Academy of Paediatrics, 2011). The height of the temperature has not been found to be associated with the severity of illness, except in very young children.
(NICE, 2007). However, this is the most common deciding factor for treating fever by parents and health professionals alike (Sarrell et al, 2002).

The aim of using antipyretics is to make children comfortable and this, in turn, should improve their hydration as children are likely to drink better when fever is controlled (NICE, 2007). There is no evidence to suggest that regular use of antipyretics reduces the risk of febrile convulsions, so they should not be used for this purpose (Royal College of Nursing, 2008; NICE, 2007).

The AAP (2011) has reported that combined prescribing is widespread and raised concerns about parents in the community using both these medicines. Using multiple drugs can cause confusion with dosing and may lead to drug errors (Paul et al, 2012). The AAP (2011) emphasises the importance of good education for parents regarding dosages and on not using antipyretics solely for reducing fever.

**How safe are the antipyretics?**

Paracetamol and ibuprofen have both been shown to be better than a placebo at treating fever (Pursell 2011; Hay et al, 2008). Both are generally considered to be relatively safe and are available over the counter in the UK. However, neither drug is without side-effects. In addition, they have different dosing regimens and should not be used in combination at every administration (Paul et al, 2012).

Paracetamol overdose can cause hepatotoxicity and nephrotoxicity; it has also been linked to childhood asthma and other acute manifestations. There is also a possibility that it reduces vaccine efficacy and prolongs chickenpox infection (Paul and Whibley, 2011). Ibuprofen has moderate anti-inflammatory effects. Its side-effects include gastritis with potential for acute gastrointestinal bleeds, and acute renal failure caused by reduced renal perfusion as a consequence of decreased prostaglandin production. This is especially seen in children who are dehydrated during febrile illness-associated gastroenteritis.

**Fever phobia**

High fever is often confused with hyperthermia, which can result in brain damage. Hyperthermia is caused by externally overheating the body (such as being locked in a hot car) rather than the controlled physiological process associated with fever (AAP, 2011).

This misunderstanding can contribute to parental fear that the temperature in their unwell child will continue to rise indefinitely unless it is actively controlled (Croceetti et al, 2001; Schmitt, 1980).

A general fever phobia exists among parents and health professionals. This was well described by Schmitt (1980) and similar reports are still being described (Croceetti et al, 2001). Fever phobia is defined as having unrealistic concerns about fever; it is often displayed by rigorous attempts to treat high temperatures to make a child normo-thermic. Parents and often health professionals display this behaviour due to unfounded fear of febrile convulsion, brain damage and even death (Croceetti et al, 2001; Gunher et al, 2011; Sarrell et al, 2002; Edwards et al, 2001; Schmitt, 1980).

Fear that a child’s fever will lead to a seizure or death is common among parents, and many believe that the fever itself is harmful to their child and it is necessary to treat it (Gunher et al, 2011). This fear often leads to parents waking a child to give antipyretics (Croceetti et al, 2001; Schmitt, 1980). There is also widespread misunderstanding among parents about the best way to measure temperature and how often to do so. They are often unsure about what constitutes a high fever and when and how much antipyretic should be administered.

Many studies have looked at the rationale doctors and nurses use for prescribing and dispensing paracetamol (Edwards et al, 2001; Sarrell et al, 2002). These include:

- Underlying beliefs that fever is harmful and must be treated;
- A belief that the height of fever correlates to the severity of illness;
- Improving the child’s comfort;
- Parental expectation of the active management of fever;
- Prevention of febrile convulsions.

**The way forward**

Paediatric healthcare providers have a unique opportunity to improve parents’ understanding of fever and its role in illness. This is largely dependent on health professionals themselves being educated and feeling confident about the best evidence-based approach to managing febrile children. Health professionals, especially nurses, are well placed to educate parents about best practice and, in turn, this will reduce fever phobia.

Evidence-based prescribing practices, better education and a general reduction in fever phobia could be achieved in a hospital setting providing continuing, up-to-date, education programmes for health professionals caring for children with fever. These programmes have been shown to improve knowledge levels and the quality of information given to parents about fever when their child is discharged home (Considine and Brennan 2006a, 2006b; Walsh et al, 2006).

**Conclusion**

Fever is a common paediatric symptom and one of the commonest reasons why parents seek healthcare advice.

Combined prescribing of paracetamol and ibuprofen may be a product of fever phobia and this has also been demonstrated in a clinical audit in a hospital. This practice exists despite clear NICE guidance stating only one antipyretic should be used in a febrile child.

Educating health professionals about fever and antipyretic prescriptions has the potential to reduce fever phobia, improve the quality of information given to parents and promote the safe use of antipyretics in the community.

**References**


