Management of Fever in Young Infants: Evidence Versus Common Practice

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The management of fever in young infants aged <2 months has been a subject of interest for many years. In the mid-1980s and early 1990s, investigators at university medical centers located in Rochester, Philadelphia, and Boston independently conducted large, rigorous investigations of the reliability of risk stratification parameters and safety of outpatient management of fever in selected low-risk febrile infants, with or without empiric antibiotic administration.1–3 Although these assessment protocols used many of the same parameters, they differed from each other in small but important ways. In particular, the Rochester criteria included infants <1 month old and did not mandate a lumbar puncture. All criteria have been shown to be highly reliable with a sensitivity of identifying infants who had serious bacterial illness of 92% to 99% and negative predictive values close to 100%. Thus, these strategies provided a fairly reliable means of identifying febrile infants who could be safely managed as outpatients.

The results of these prospectively performed studies were published in reputable scientific journals and widely distributed among practitioners. Although these studies changed the practice of medicine, especially at academic centers, with the latter advocating for a comprehensive evaluation including examination of urine, blood, and spinal fluid samples? Are office practitioners superior clinicians or do they just see fewer febrile infants and therefore miss less serious illness? To be sure, many private practices are not equipped or staffed to accommodate this testing. Infants requiring such tests would need referral to properly resourced medical facilities. These referrals are inconvenient and expensive. Furthermore, the collection of data on these infants is not feasible.

Why the potential disconnect in the management of these infants between office practices and academic centers, with the latter advocating for a comprehensive evaluation including examination of urine, blood, and spinal fluid samples? Are office practitioners superior clinicians or do they just see fewer febrile infants and therefore miss less serious illness? To be sure, many private practices are not equipped or staffed to accommodate this testing. Infants requiring such tests would need referral to properly resourced medical facilities. These referrals are inconvenient and expensive. Furthermore, the collection of data on these infants is not feasible.

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of samples for laboratory analysis is expensive, inconvenient, and objectionable to many parents and practitioners. In addition, numerous studies published during the past 25 years have shown that the rates of bacteremia (∼1%)1–3,6,7 and bacterial meningitis (∼0.4%)7 in young infants with fever are very low. Thus, it is conceivable that any given practitioner of pediatrics might not encounter even 1 well-appearing febrile infant with bacterial meningitis during his or her career.

A disconcerting reality of common practice of medicine is what seems to be a dismissal by many practitioners of established scientific evidence. In the current publication of Kaiser Permanente Northern California data, among the reasons cited for not obtaining cultures in febrile infants are “other diagnosis of otitis,” “upper respiratory symptoms or bronchilitis,” “sick contacts appeared well,” and “did not believe thermometer.”5 All of these parameters have been investigated previously and have been shown to not excuse or eliminate the need for further investigation of cause of fever in young infants. Numerous publications of prospectively collected data have repeatedly found a 6% to 7% concurrence of bacterial infection in febrile infants with demonstrated viral infection.8,9 Several studies of prospectively collected data have also shown that clinical impressions of experienced practitioners are not entirely reliable and that well-appearing febrile infants judged to be at low risk by those senior practitioners can have serious bacterial infections.2,3,10–12

It is good that the occurrence of serious bacterial illness in young febrile infants is low, and that clinical indicators of serious illness often help guide proper management of those with treatable infections. In these clinical scenarios, when assessing the risks and benefits of various management strategies, the very low incidence of bacteremia and bacterial meningitis can skew that perception of risk, especially in office practices that may see a febrile infant only every few months (in contrast to every few days in a larger tertiary care center). Often, our management practices are affected by commonalities of practice, which might be influenced by patient conveniences, personal habits, or other experiential biases. To that end, we must always make the effort to use sound scientific evidence as a basis for our standard practice of medicine.

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