Atoms

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Identifying children with serious bacterial infection including meningitis

I remain fascinated by our continual interest in developing models to predict which children have serious bacterial infection. This saga began over 40 years ago following the publication by Teele, Pelton, and Klein that infants and young children with temperatures greater than 38°C and a white blood cell count above 15,000 have an ~ 8-10% chance of having bacteraemia.[1] Over the subsequent four decades, we have added urinary tract infection to our list of diseases of concern. During the same time period, because of the remarkable success of conjugate vaccines, bacterial meningitis has virtually disappeared. Although the "needle" in the haystack has become larger – UTIs are much more common than bacterial meningitis ever was – clearly the consequences of missing a child with a UTI pale in comparison to missing one with bacterial meningitis. Galetto-Lacour and colleagues from Italy tell us about the predictive validity of a combination of labs, C reactive protein, procalcitonin, and urinary dipstick. They pronounce the lab-score valid. However, and as is always the case, the sensitivity and specificity are not nearly perfect. In a second study, Dubos and colleagues compare the test characteristics of two previously derived clinical decisions rules, the Bacterial Meningitis Score (BMS) and the Meningitest. In a study involving 198 patients from six centres in five European countries that included 96 children with bacterial meningitis, they found that both decision rules had 100% sensitivity, but that compared to the Meningitest, the BMS had a significantly higher specificity (52% vs 36%). Despite the introduction of new lab tests, and the declining incidence of bacterial meningitis, the question remains the same – what level of uncertainty are we willing to tolerate when we evaluate a young febrile infant? ***See pages 957 and 968***.

Adolescents with asthma

We are often asked why we don't publish more qualitative studies. First, they often quantify the obvious, which in the words of one of my most cherished mentors, Alvan Feinstein, is sometimes worth doing once, but never twice. Second, they are only hypothesis generating, based upon a very unique and small sample, thus limiting generalisability. Third, the papers are quite long, often running to 4000-5000 words. Very few of us want to read papers that lengthy. For authors submitting qualitative papers I implore that they following the COREQ requirements for reporting qualitative studies (available at http://www.equator-network.org/, accessed October 29, 2010). Edgecombe *et al* report the results of in depth semi-structured interviews of 22 adolescents with asthma. Non-adherence with the spacer remains a common problem. These results are not surprising, but given the prevalence of asthma and its contribution to healthcare costs, they are an important reminder that the key to asthma control for most patients is adherence. The results also remind us that adolescents with asthma are caught in a difficult transition, from dependence to independence. This later issue – the transition of children with chronic disease from a very patient focused and supportive health care system to an adult system that requires and demands more autonomy – is becoming increasingly recognised as a critical issue as more children with chronic disease, such as cystic fibrosis, inflammatory bowel disease, complex congenital heart disease, and type 1 diabetes, live longer. ***See page 985***.

Lyme disease – no longer a disease found just in Connecticut

Lyme Disease, discovered in 1975 after an outbreak of juvenile rheumatoid arthritis and named after a small New England town where the epidemic was centred, is caused by the spirochaete Borrelia burgdoferi sensu lato. Initially confined to a few US states, it is now recognised that Lyme Disease occurs in many places around the world. In a study from Sweden, the population-based seroprevalence of Borrelia IgG antibody was 3.2% in a group of 2000 healthy 5-year old children. If you have never diagnosed a child with Lyme Disease I suspect you are not considering the diagnosis enough. ***See page 1013***.

Support Save the Children

Archives of Disease in Childhood has joined forces with the *BMJ* to support its chosen 2010 Christmas charity Save the Children. The aim is to raise at least £30,000; the money will support child survival projects in countries such as Sudan, Sierra Leone, and India. Many of us are familiar with the most recent data, approximately 7-8 million deaths of children less than 5 years of age each year.

- Save the Children's programmes in India reach 600,000 people directly and a further 4m through collaboration with the government. In Delhi, 7% of urban poor children die before they reach 5 years old.
- Sudan's child mortality rate is 135 deaths per 1000 live births. 1 in 7 children will die before their 5th birthday. There is a critical shortage of trained health workers.
- The charity calculates that if healthcare became free across Africa, as it did in Sierra Leone in April 2010, the lives of 800 children could be saved each day.

UK readers can donate £5 by texting GIVE to 70555. You can also donate by visiting www.savethechildren.org.uk/bmjappeal

End of the year reflections

- As difficult as the world wide recession has been in many places, its impact on children living in low and middle resource countries is profound.
- We must urge our governments to honour and expand their pledges to the various international agencies that bring resources to children around the world.
- There were no "landmark" paediatric articles published this year. However, the recent paper about the automated molecular test for *Mycobacterium tuberculosis* (MTB) and rifampin resistance is likely to revolutionise the treatment of TB in certain parts of the world.[2]
- I again wish you and your family a happy and healthy New Year.

REFERENCES

1. **Teele DW**, Pelton SI, Grant MJ, *et al*. Bacteremia in febrile children under 2 years of age: results of cultures of blood of 600 consecutive febrile children seen in a "walk-in" clinic. *J Pediat* 1975;**87**:227–230.
2. **Boehme CC**, Nabeta P, Hillemann D, *et al*. Rapid molecular detection of tuberculosis and rifampin resistance. *N Engl J Med* 2010;**363**:1005–15.