Atoms

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The promise of new diagnostic tests

New diagnostic tests can dramatically change clinical care. Two tests quickly come to mind—blood tests for coeliac disease and polymerase chain reaction for Herpes. Both have improved care. The new diagnostic tests for tuberculosis – interferon-α—release assays (IGRA)—which are essentially an antibody-antigen test with T cells serving as the antibody, have been less successful. In another report of their accuracy, Bamford and colleagues report the results from six large UK TB paediatric centres. Forty-nine of 333 children fulfilled the criteria of definite TB. Tuberculin skin test (TST) had a sensitivity of 78% and the two IGRA tests 78% and 66%. Combining the results of the TST and IGRA tests increased the sensitivity to over 90%. The authors' conclusion: "A negative IGRA does not exclude active TB disease, but a combination of TST and IGRA increases the sensitivity for identifying children with active TB. ***See page 180***

The search for UTI

Although there is continued debate about the appropriate radiologic evaluation of children with UTIs, there is general agreement that we should identify children with the problem. In many regards, because of the decline in the number of children with bacterial meningitis, the search for children with UTI has intensified over the past decade. In a study from Nottingham, investigators compared the accuracy of automated microscopy with urine dipstick to identify children with a UTI. All of the children had known urological disease. As is often the case, the sensitivity of one test, automated microscopy, was poorer than urine dipstick (89% vs 95%), but the specificity was better (85% vs 72%). ***See page 193***

The search for serious bacterial infection

In 1975 a group of house officers, with the help of a faculty member, Professor Jerome O. Klein, obtained 600 consecutive blood cultures from febrile children under two years of age. They identified younger age, height of temperature, and degree of white blood cell count as major risk factors for bacteraemia/sepsis. For the past 25 years I have had the privilege to work with the authors of the report, including Professor Stephen Pelton. The paper has led us on a 35 year odyssey—the search for serious bacterial infection in young febrile children. Early in the journey, we focused on obtaining white blood cell counts, blood cultures, and prophylaxis with oral antibiotics in high risk children. This was followed by the addition of urine cultures to our laboratory assessment. With the availability of ceftriaxone, many more of these children were managed as outpatients. Following the introduction of new vaccines, the incidence of bacteraemia in young children has plummeted, but we have become far more aggressive at obtaining urine cultures. More recently, procalcitonin and C-reactive protein have been added to our diagnostic armamentarium. In a study from Israel, investigators identified extreme leucocytosis as a major risk factor for SBI – 39% of children with WBCs >25000/mm^3 had a SBI. These data are consistent with what every good clinician knows – the higher the temperature, WBC count, procalcitonin or C-reactive protein levels, or erythrocyte sedimentation rate, the more likely a child has a SBI. ***See page 209***

The continuing saga of healthcare reform in the U.S.

In a remarkable turn of events, the election of a republican senator from my state of Massachusetts, generally considered a "blue" state, the Democratic Party has lost the ability to end debate on any bill in the U.S. senate. Despite a healthy majority of Democratic senators (59 of 100), 60 votes are necessary to end a filibuster. Where does this leave healthcare reform? It appears as though the Democratic Party will not force a debate or vote on the floor of the Senate, much to my dismay, and managed chaos will reign. With 250 million Americans generally satisfied with their health care system, and unwilling to be either taxed or surrender any so-called "freedom of choice," I predict that major reform will die a slow death. Only when healthcare costs become prohibitive will we debate the critical issues of coverage for all citizens, cost, and quality.

This month in *FNN*

- A group from California suggests that a significant percentage of women who donate human milk—3.3% of 1091—have a positive serology for syphilis, hepatitis, HIV, and HTLV. Perhaps every human milk bank needs to ascertain the prevalence of positive serology.
- In a study from Australia, Roberts and colleagues describe changing rates of disability in children born in the 1990s with gestational ages between 22 and 27 weeks. Although survival has increased, so has disability. The rates of moderate to severe disability were similar in the 1991 and 1997 cohorts (19%). Unfortunately, the rates of mild impairment have almost doubled, from 24% to 40%. I believe we are approaching the limit of survivability with respect to gestational age unless there is a technical break through, such as an artificial umbilicus.
- Two reviews make for an interesting read. Caroline Wright and her colleagues from Manchester describe the role of MRI in the fetus. Professor Abraham Rudolph, a legendary figure in American paediatrics, describe congenital cardiovascular malformations and fetal circulation.

REFERENCES

1. **Teele DW**, Pelton SI, Grant MJA, Herskowitz J, Rosen D J,Allen CE, Wimmer RS, and Klein JO: Bacteremia in febrilechildren under 2 years of age: Results of cultures of blood of600 consecutive febrile children seen in a "walk-in" clinic. *Journal of Pediatrics* 1975;**87**:227–303