Children are not small adults

The important clinical review by Sheldon Tobe and colleagues[1] reinforces the value of random testing of urine specimens in determining the albumin–creatinine ratio for the diagnosis of diabetic nephropathy, as recommended by the 1998 Canadian clinical practice guidelines for diabetes.[2] However, the authors did not mention the challenge of applying these recommendations to adolescents and young adults.

The new diabetes care guidelines being developed for publication in 2003 contain a separate section regarding children and adolescents because of the unique aspects of diagnosis, care and surveillance in youth. One major challenge is the interpretation of microalbuminuria in adolescents.

Approximately 5% of healthy adolescents and 70% to 80% of all children and adolescents investigated for proteinuria have benign orthostatic proteinuria,[3] excreting up to 1.5 g protein per day without hematuria or edema. Thus, adolescents with diabetes will have false-positive results for microalbuminuria according to the definition of greater than 30 mg/d in a timed collection or greater than 2.0 mg/mmol in males and greater than 2.8 mg/mmol in females in random urine samples for albumin–creatinine ratio.

Routine surveillance of renal function in youth with type 1 diabetes at 15 years of age requires a first morning urine sample for determination of albumin–creatinine ratio or a timed overnight urine collection to calculate albumin excretion rate. It is vital that adolescents void before going to bed so that the first morning urine sample represents urine produced in the recumbent position. Microalbuminuria is confirmed when results are abnormal in 2 of 3 first morning urine samples on consecutive days.[4] Even with careful sample collection, the natural history of microalbuminuria in adolescents with type 1 diabetes is variable: approximately one-third of cases of microalbuminuria resolve spontaneously, one-third of cases involve stable but persistent microalbuminuria with no progression to macroalbuminuria, and one-third of cases progress to macroalbuminuria and overt diabetic nephropathy.[5]

A second problem is the greater prevalence of primary renal disease in populations at risk for type 2 diabetes mellitus. The risk of congenital and acquired renal disease is 4.5-fold and 6.1-fold greater respectively in First Nations children than in the general pediatric population in Manitoba.[6] Specifically, the prevalence of IgA nephropathy is 10-fold greater in First Nations children in Manitoba.[7] IgA nephropathy is also greater in Aboriginal people in Australia and the United States.[8] Therefore, it is critical to look for evidence of concomitant glomerular disease at the time of diagnosis of type 2 diabetes in adolescents and to actively pursue investigations, including renal biopsy in selected cases of microalbuminuria or macroalbuminuria at presentation, as it is more likely that the underlying diagnosis is nondiabetic nephropathy. The high morbidity associated with end-stage renal disease in young adults with type 2 diabetes diagnosed in childhood demands our careful attention.[9]

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[One of the authors responds:]

We thank Heather Dean and associates for their thoughtful and thorough addition to the topic of microalbuminuria as it relates to children and adolescents with diabetes. As they have pointed out, our article[1] refers to the care of adults only.

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Décès suite à un implant cochléaire : pas un type b

Le décès de la personne de 12 ans dont il est question dans cet article est survenu dans notre région sociosanitaire[1]. Il ne s'agissait pas d'un type b, mais plutôt d'un type f, ceci ayant été confirmé par le Laboratoire de santé publique du Québec. Cette distinction mérite d'être faite dans le contexte où l'on suggère la vaccination contre *Haemophilus influenzae* de toutes les personnes recevant un implant cochléaire, puisque les vaccins actuellement disponibles sont spécifiquement conçus pour protéger contre le type b, mais non contre le type f.

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Référénce

1. Wooltorton E. Cochlear implant recipients at risk for meningitis. *CMAJ* 2002;167(6):670.

Meningitis and cochlear implantation

Having read Eric Wooltorton's health alert about the possible association between cochlear implantation in children and meningitis,[1] I feel obliged — rather reluctantly — to strip off my robe, step over the turnbuckle and enter the fray.

When the situation described in the health alert came to light, most surgeons and implant companies studied the cases carefully and took responsible action. Every effort was made to avoid a circus atmosphere and instead to focus on eliminating the risks and continuing to offer safe implantation. Strong recommendations were made to vaccinate children, especially those at high risk, against *Streptococcus pneumoniae*. This is the real issue.

In coming to terms with the relation between cochlear implants and meningitis, we should not lose sight of the benefits of this technology. For many children, the cochlear implant is a marvel that has allowed them to attain or regain hearing and speech. The growing numbers of candidates for cochlear implants, at least in Canadian centres, reflects a conservative application of this technology based on the responsible evaluation of outcomes.

Let's look at the facts. The known risk of children acquiring meningitis is about 2.4 per 100 000,[2] but this risk is significantly greater among children with underlying anomalies of the temporal bone.[3] Similarly, in children with abnormal cochleae and in those who had meningitis before implantation, the risk of meningitis after the implantation procedure is greater. Worldwide, 3 companies manufacture implants, but only one product was associated with a risk of meningitis significantly higher than the normal range in children with normal cochleae. This device requires a larger cochleostomy (the hole drilled into the cochlea for insertion of the electrode) than the others, and its design also requires a Silastic positioner to improve the physical contact between the electrode and the auditory nerve. The company quickly and responsibly stopped shipping the device in question, although it has now resumed shipping the product without the positioner.

When there were not enough implants available to treat all candidates, otolaryngologists, on behalf of their patients, made a case to government for additional funding. On the basis of the data presented, funding envelopes were expanded. Surely there is now enough evidence to justify universal coverage for pneumococcal vaccination. Several provinces (although not my own) already cover full courses of vaccination for all children. Elsewhere, the battle for universal vaccination should be waged aggressively by pediatricians, infectious disease experts and microbiologists, using the available data and without undue attention to the unfortunate turn of events described by Wooltorton.[1]

Since I'm in the ring already, let me take a shot in a slightly different direction. In our own program, 28 children (9% of those treated to date) required implants specifically because they lost their hearing after a bout of meningitis. With all due respect to any child who has suffered this calamitous complication, postimplantation cases of meningites are extremely rare. But just think how many children would be spared the need for cochlear implants to treat deafness caused by meningitis, and indeed how many children, with or without implants, would be spared the ordeal of meningitis itself (not to mention the expenses that society would avoid in