

Readers' Forum

Q1. In "Consensus statement on management of urinary tract infections" the definition of recurrent UTI is 'second episode of UTI irrespective of age'(1). What should be the interval between these two episodes of UTI to be included in this definition?

A1. The response to antibiotic therapy for a urinary tract infection (UTI) is assessed clinically (remission of fever and urinary tract symptoms). A urinalysis or culture is usually not required for defining response, or at the end of treatment. The exception is in a patient who does not show reduction in fever or systemic toxicity, despite 48-72 hr of antibiotic treatment, where a repeat culture is useful for documenting whether bacteriuria has cleared.

Recurrent UTI is the recurrence of symptoms and significant bacteriuria in a patient who has previously recovered clinically with appropriate treatment. Thirty-70% girls and 10-20% boys show recurrent UTI. The second episode (recurrence) may be early (relapse; within 2 weeks) or late (reinfection). However, the distinction between relapse and reinfection is cumbersome (requiring serotyping that is not possible, except in specialized laboratories) and not necessary.

Each new episode of UTI is treated similarly and followed by evaluation as outlined in the Consensus Statement. It is emphasized that asymptomatic bacteriuria in a patient previously treated for UTI is not a recurrent UTI and does not require treatment. Surveillance urine

cultures are therefore not necessary in absence of symptoms of UTI.

REFERENCE

1. Consensus statement on management of urinary tract infection. Indian Pediatric Nephrology Group, Indian Academy of Pediatrics. Indian Pediatrics. 2001; 38: 1106-1115.

Q2. The 'Consensus statement of management of nephrotic syndrome' recommends treatment with levamisole along with tapering doses of steroids on alternate days for patients with frequent relapses. The Nelson Text Book does not mention this drug, however.

A2. Levamisole has been successfully used for patients with steroid sensitive nephrotic syndrome for over two decades. The theoretical basis for the use of levamisole is sound, through augmenting Th1 and downregulating Th2 cytokines(1). Evidence from randomized controlled trials and case series (summarized in references 2,3) suggests the following:

- (i) Levamisole is effective in reducing relapse rates in patients with frequent relapsing and steroid dependent nephrotic syndrome.
- (ii) Treatment with this agent also has a modest steroid sparing effect, allowing reduction and occasionally complete cessation of concomitant corticosteroid therapy.
- (iii) Patients with frequent relapses fare better than those with steroid dependence.

- (iv) While patients must be monitored carefully for side effects (leukopenia, skin rash and seizures), these are uncommon.
- (v) The optimum duration of treatment is not known, but is usually prolonged. Patients have received levamisole for 2-3 years with satisfactory results, but relapse promptly on its discontinuation!

Treatment with levamisole has been recommended by the British Association of Pediatric Nephrology(4) and the Indian Pediatric Nephrology Group(5). While levamisole is not commercially available in North America and some parts of Europe, it is marketed in Britain, France, Eastern Europe and most Asian countries. The views expressed in the Nelson Textbook of Pediatrics are based on perception and experience of those authors(6).

We believe that in view of its clinical benefits, lack of significant side effects and low cost, the policy to use levamisole is appropriate before considering treatment with toxic and/or considerably expensive medications.

REFERENCES

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2. Davin JC, Merkas MP. Levamisole in steroid-sensitive nephrotic syndrome of childhood: The

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3. Bagga A, Mantan M. Nephrotic syndrome in children. *Indian J Med Res* 2005; 122: 13-28.
4. British Association of Pediatric Nephrology. Levamisole for corticosteroid-dependent nephrotic syndrome in childhood. *Lancet* 1991; 337: 1555-1557.
5. Indian Pediatric Nephrology Group. Consensus statement on management of steroid sensitive nephrotic syndrome. *Indian Pediatr* 2001; 9, 975-986.
6. Vogt BA, Avner ED. Nephrotic Syndrome. In: Nelson Textbook of Pediatrics, 17th edn. Eds. Behrman RE, Kliegman RM, Jenson HB. Saunders, Philadelphia, 2004; pp 1753-1757.

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