



Group A streptococcal carriage: Can the troll be tamed?

David P Speert MD FRCPC

Division of Infectious and Immunological Diseases, Department of Pediatrics, University of British Columbia and British Columbia's Children's and Women's Hospital, and the Centre for Microbial Diseases and Host Defence Research, Vancouver, British Columbia

The dilemma of determining optimal care for the child with repeatedly positive throat cultures for group A beta hemolytic streptococcus (group A strep) has bedevilled paediatricians, family practitioners and generalists for decades. Unfortunately, the state of the art has not changed substantially over the past 20 years, as attested to by the dearth of publications and the similarity of the definitive recommendations spanning that period (1,2). The purpose of this column is to review briefly the state of knowledge about chronic streptococcal carriage and to suggest a rational approach to treating children who present with this problem.

The challenge of evaluating a child with a positive throat culture for group A strep results from the inability to distinguish between the carrier (one who harbours the organism without a host response) and the child who is acutely infected (one who has evidence of inflammation and host response). Carriers are often identified when they continue to harbour the organism in the throat asymptotically after an appropriate 10-day course of penicillin or alternative agent (3). There is a high rate of carriage in the general population (approximately 5% to 15% of school-aged children are colonized but not infected with group A strep at any time), and there is no foolproof way to differentiate a priori between carriers and those who are acutely infected. Therefore, many children are diagnosed with streptococcal pharyngitis who are chronic carriers and who are probably acutely infected with another organism (such as a respiratory virus). In this era of evolving antibiotic resistance and a desire to limit unne-

cessary use of antimicrobial agents, a logical strategy for avoiding therapy of chronic carriers is required.

Chronic carriers of group A strep probably do not pose a threat to themselves or to others. There is no evidence that these children or their contacts become infected with the strains that these children carry. Therefore, they do not require antibiotic therapy to prevent suppurative or nonsuppurative (acute rheumatic fever, acute poststreptococcal glomerulonephritis) complications. So why do doctors need to worry? The simple answer is that physicians are unable to differentiate at presentation between the child who is acutely infected and the one who is a chronic carrier presenting with acute nonstreptococcal pharyngitis. The methods for making that discrimination (testing for serological response and strain typing) require time and the aid of reference or research laboratories.

What can the medical practitioner do when confronted with a child who repeatedly returns to the office or clinic for evaluation of or therapy for acute respiratory illnesses in which group A strep is recovered from the throat? If it could be determined a priori whether that child is a streptococcal carrier, antibiotic therapy could be avoided. A child is likely a carrier if he or she has symptoms most consistent with a viral upper respiratory infection and has consistently harboured group A strep in the past. However, the discriminatory power of clinical evaluation of such patients is notoriously unreliable.

Perhaps the most expedient strategy is to attempt eradication of the carrier state. If successful, ie, the child has a negative culture after completion of therapy, one might assume that if the child presents again with pharyngitis and a throat culture positive for group A strep, this is evidence of bone fide acute streptococcal infection. Eradication of carriage should probably be reserved for children who remain culture-positive after a full and appropriate course of antibiotic therapy, and who have had at least three symptomatic episodes of pharyngitis with

Correspondence: Dr DP Speert, Division of Infectious and Immunological Diseases, Department of Pediatrics, University of British Columbia, Room 377, Research Centre, 950 West 28th Avenue, Vancouver, British Columbia V5Z 4H4. Telephone 604-875-2438, fax 604-875-2226, e-mail speert@unixg.ubc.ca

positive cultures for group A strep in the previous six months. Therapies capable of eradicating group A strep from the throat of apparent carriers are rifampin (20 mg/kg) once a day for the final four days of a 10-day course of penicillin (4) and clindamycin (20 mg/kg/day in three doses) for 10 days (5). Repeat throat culture should be considered after completion of this form of therapy to document eradication of group A strep, but should not be obtained routinely after therapy of acute streptococcal pharyngitis. If these strategies fail, one should seek consultation from an expert in infectious diseases. For a recent review of the diagnosis and management of streptococcal pharyngitis, see Bisno et al (6).

REFERENCES

1. Gerber MA. Treatment failures and carriers: perception or problems? *Pediatr Infect Dis J* 1994;13:576-9.
2. Kaplan EL. The group A streptococcal upper respiratory tract carrier state: an enigma. *J Pediatr* 1980;97:337-45.
3. Speert DP for Infectious Diseases and Immunization Committee, Canadian Paediatric Society. Treatment of group A streptococcal pharyngitis. *Can J Infect Dis* 1997;8:17-18.
4. Tanz RR, Shulman ST, Barthel MJ, Willert C, Yogev R. Penicillin plus rifampin eradicates pharyngeal carriage of group A streptococci. *J Pediatr* 1985;106:876-80.
5. Tanz RR, Poncher JR, Corydon KE, Kabat K, Yogev R, Shulman ST. Clindamycin treatment of chronic pharyngeal carriage of group A streptococci. *J Pediatr* 1991;119:123-8.
6. Bisno AL, Gerber MA, Gwaltney JM Jr, Kaplan EL, Schwartz RH. Diagnosis and management of group A streptococcal pharyngitis: a practice guideline. *Infectious Diseases Society of America. Clin Infect Dis* 1997;25:574-83.

Reviewed by the Canadian Paediatric Society Board of Directors