



Bulletin No. 10

May 15, 2002

## Three Reported Cases of Rheumatic Fever-Spring, 2002

### Background

Rheumatic fever is a reportable disease in Alaska. Since 1990, eighteen cases have been reported to the Section of Epidemiology. The purpose of this bulletin is to inform health care providers of the clinical presentations of three recent cases and to provide information and recommendations regarding this relatively uncommon illness.

**Case 1.** On April 16, Dr. Bruce Chandler, Anchorage Department of Health and Human Services, reported a case of acute rheumatic fever in a 26-year-old female Anchorage resident who was born and raised overseas. The woman presented to Providence Alaska Medical Center with a two-week history of shortness of breath, dyspnea on exertion, cough, fever, chills, and arthralgias. On exam, she had a II/VI holosystolic murmur, postural instability, and Sydenham's chorea. She had an elevated erythrocyte sedimentation rate (ESR), antistreptolysin O antibodies (ASO), and streptozyme antibody titer. Pharyngeal culture was negative for Group A streptococci (GAS). An electrocardiogram was unremarkable.

**Case 2.** On April 30, Dr. Bill Mayer, Providence Alaska Medical Center, reported a case of probable recurrent rheumatic fever in a 16-year-old female Anchorage resident who was born and raised overseas. The girl presented to her primary care provider with a two-day history of a dry cough, pleuritic chest pain, shortness of breath, and orthopnea. Her past medical history was significant for a "heart problem" diagnosed overseas when she was 13 for which she received a monthly injection. She had been in the United States for the past two years with no apparent follow-up. She was afebrile with borderline tachycardia. She had a II/VI ejection murmur, rhonchi, and bilateral pitting edema. She had elevations in her white blood cell count, ESR, and ASO titer. No culture was done. There was no evidence of heart block on electrocardiogram. An echocardiogram demonstrated diffuse chamber enlargement and severe multi-valvular disease.

**Case 3.** On May 1, Dr. Scott Wellman, Providence Alaska Medical Center, reported a case of acute rheumatic fever in a 14-year-old male from western Alaska. The patient originally presented to his primary provider on March 26 complaining of polyarticular joint pains and a mild cough with no sore throat or fever. He had an elevated ESR, an elevated ASO, a negative rapid streptococcal test, and a negative pharyngeal culture. The patient returned for follow-up on April 18 and had a new II/VI diastolic regurgitant murmur. There was no evidence of heart block on electrocardiogram. An echocardiogram demonstrated moderate aortic insufficiency.

### Discussion

Rheumatic fever is a systemic autoimmune process that is a sequela of pharyngeal infections caused by certain serotypes of GAS. GAS serotypes associated with rheumatic fever include types 1, 3, 5, 6, 14, 18, 19 and 24. (1)

Rheumatic fever occurs worldwide, with highest incidence in the developing world. The peak season is during the late winter and early spring. Persons between the ages of 3 and 15 years are most commonly affected. Transmission is usually through large respiratory droplets.

The incubation period for GAS pharyngitis is usually two to four days, and signs of rheumatic fever usually begin about two-three weeks after acute GAS infection. The Jones criteria for diagnosis of acute rheumatic fever were updated in 1992. The presence of two major criteria or one major and two minor criteria (Table 1) indicates a high probability of acute rheumatic fever. (1) Laboratory tests used to help diagnose GAS infection are summarized in Table 2. (2,3) Prompt treatment of GAS can reduce rheumatic fever incidence by 90%. (4)

Table 1. Jones Criteria

Major Criteria	Minor Criteria
1. Carditis	1. Clinical findings - Fever, arthralgia
2. Polyarthritis	2. Laboratory findings - PR interval prolongation, elevated acute phase reactants, ESR, or CRP
3. Sydenham's chorea	3. Supporting evidence of antecedent GAS infection - Positive culture, rapid streptococcal test, or ASO
4. Erythema marginatum	
5. Subcutaneous nodules	

Table 2. Laboratory tests used to diagnose Group A streptococcal infection

Test	Comments
Rapid streptococcal antigen test	80% sensitivity and 98% specificity
Throat culture	Used to confirm a negative rapid streptococcal antigen test
ASO titer	Increases within one week and peaks two to four weeks after infection in 85% of cases
DNase-B antibody test	Fourfold increase in titer over two weeks is confirmatory
Streptozyme antibody test	Detects antibodies to GAS extracellular antigens

### Recommendations

1. Treat GAS pharyngitis infections promptly with penicillin G IM x 1, penicillin V po x 10d, or erythromycin po x 10d (in penicillin allergic patients) to prevent rheumatic fever.
2. Health care providers are required to report cases of rheumatic fever to the Section of Epidemiology (7 AAC 27.00.5).
3. Send GAS isolates from patients with rheumatic fever to the State Public Health Laboratory in Anchorage for serotype determination.
4. Following an episode of acute rheumatic fever, administer monthly injections of long acting benzathine penicillin G (or daily oral penicillin) for at least five years to prevent recurrence of streptococcal pharyngitis and rheumatic fever. Substitute oral sulfisoxazole for penicillin-allergic patients.

### References

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Reported by Joe McLaughlin, MD, MPH, EIS Officer, CDC. Special thanks to the following providers for reporting cases of rheumatic fever: Dr. Bruce Chandler from the Anchorage Department of Health and Human Services, Dr. Bill Mayer from Providence Alaska Medical Center, Dr. Scott Wellman from Providence Alaska Medical Center, and Dr. Jennifer Woelker from the Yukon-Kuskokwim Health Corporation.)