Juvenile Systemic Sclerosis Diagnosis Hinges on Skin Signs

By Diana Mahoney, New England Bureau

Evidence of proximal cutaneous sclerosis and at least 2 of 20 predefined minor criteria are required for a diagnosis of juvenile systemic sclerosis, according to new provisional classification criteria. Using clinical data from real patients in combination with a consensus-based methodology, Dr. Francesco Zulian of the University of Padua (Italy) and colleagues on the Ad Hoc Committee on Classification Criteria for Juvenile Systemic Sclerosis—a combined effort of the Pediatric Rheumatology European Society, the American College of Rheumatology, and the European League Against Rheumatism—developed the new classification criteria to help standardize the conduct of clinical, epidemiologic, and outcome research for this rare pediatric disease and may alter patient care by enabling earlier, more definitive diagnoses (Arthritis Rheum. 2007;57:203-12).

The lack of standard classification criteria until now “has posed a barrier to the initiation of trials,” according to Dr. Thomas J.A. Lehman of Cornell University, New York, who served on the classification committee. “Early defined criteria are important for directing physicians who don’t have much experience with the disease.”

The much-needed juvenile criteria, which will be at the core of any classification criteria that have been used until now, "will help ensure that everyone included in a study has systemic sclerosis and not another condition or an overlap that may have a different long-term outcome," Dr. Lehman said in an interview. "For patient management, the criteria will help in convincing physicians that a patient does, in fact, have systemic sclerosis.”

The criteria were developed in three phases, the first of which included the retrospective collection of information on demographic, clinical, and laboratory features of patients diagnosed with systemic sclerosis before age 16 from pediatric rheumatology centers worldwide. Investigators from the participating centers completed standardized case report forms to define organ involvement at the time of diagnosis. Forty-eight signs and symptoms, organized into nine categories were reviewed for the underlying cause of symptoms, including presence of fibrosing alveolitis, pulmonary hypertension, or cardiac causes.

Provisional Classification Criteria

Major criterion (Required)
- Proximal skin sclerosis/induration of the skin

Minor criteria (At least two are required)
- Cutaneous
  - Sclerodactyly
- Respiratory
  - Pulmonary fibrosis (high-resolution computed tomography/radiography)
  - Decreased diffusing capacity for carbon monoxide
- Pulmonary arterial hypertension
- Neurologic
  - Neuropathy
  - Carpal tunnel syndrome
- Musculoskeletal
  - Tendon friction rubs
  - Arthritis
  - Myositis
  - Sclerotic
  - Antinuclear antibodies
  - Systemic sclerosis-selective auto-antibodies

Source: Arthritis Rheum. 2007;57:203-12

The key symptom in patients with definite juvenile systemic sclerosis is Raynaud’s phenomenon. Dr. Francesco Zulian of the University of Padua (Italy) and colleagues, in a consensus conference, using the clinical profiles of 160 actual patients with a variety of diagnoses, including 100 from patients with definite juvenile systemic sclerosis collected in phase 1. A consensus of at least 80% of the experts was achieved for 127 of 160 patients. 70 of whom were judged as having the disease (all from the phase I group) and 57 as not having it. The 127 patients were then used as the accepted standard for rating the provisional classification criteria with the best statistical performance and highest face validity. Of 86 different provisional classification criteria tested on the case profiles of the 127 patients, the criteria with the highest ranking was that which required the presence of proximal skin sclerosis/induration and at least 2 minor criteria, which is more restrictive than the adult classification criteria, according to the authors.

Conversely, the minor criteria in the proposed classification are more numerous than those used for adults. Although validated with actual patient data, the new classification criteria must still undergo validation in external prospective trials, they noted.