heme, arginase, and other danger-associated molecular patterns (DAMPs) into the blood. This scavenges nitric oxide (NO), activates platelets and endothelium, reduces antioxidant activity, causes vasoconstriction, and is proinflammatory.

■ DIAGNOSIS

Although sickle cell disease can appear in any ethnic group, most often it is present in people of African, Middle Eastern, Mediterranean, and Indian descent. The chief presenting symptom is pain that might be an arthritis-like hand-foot syndrome in young children or the typical acute painful episode in older children and adults. In HbSC disease and HbS-β^+ thalassemia, acute vasoocclusive episodes occur less often and complications develop later in life; rarely, patients with these genotypes are asymptomatic. The key elements of laboratory diagnosis are outlined in Table 98-2 showing typical hematologic findings and hemoglobin fractions. **Figure 98-4** displays HPLC profiles and blood films in typical patients with sickle cell trait, sickle cell anemia, and HbSC disease. Clinical and basic laboratory diagnosis is sufficient for general management and counseling; genetic counseling and family planning usually require DNA-based diagnosis.