Increased susceptibility to infections is thought to be one of the common problems in hereditary hemolytic anemias. The phagocytic capacity of the reticuloendothelial system (RES) is the first system of defense against infections [1]. The clearance of micro-aggregated human serum albumin labeled with radioactive iodine is a way to explore in vivo the RES phagocytosis [2, 3], and we use it in β-thalassemia and sickleemia, both homozygous and heterozygous. The microaggregated iodinated human serum albumin was prepared, using a tracter amount of albumin radioiodinated with radioactive iodine-125 and used at a dose of 5.0 mg/kg [4]. It has a molecular weight of 670,000 daltons. The removal of colloid from plasma by the RES was plotted semilogarithmically with the time and the second exponential component that forms a straight line from the 6th to the 15th min was used to calculate the half-time of clearance by the RES cells. 44 adult patients were compared to 30 adult normal subjects: 14 with homozygous β-thalassemia (TT), 19 with β-thalassemia trait (tt), 12 with sickleemia (SS) and 9 with sickle-cell trait (AS). None of these patients have been splenectomized, and at the time of the study they all were in good health and without blood transfusions. The data are shown in table I and figure 1. The clearance of iodinated human serum albumin is normal in TT subjects and diminished in tt, SS and AS subjects. Such results are expected in SS subjects, where RES impairment can be explained by several factors: functional asplenia [7], chronic hemolysis [8], increased susceptibility of cirrhosis which reflects impaired Kupffer cell function [9,10] and opsonin deficiency [11]. A normal clearance of ISA is more surprising in TT subjects. Because factors such as chronic tissue ischemia [5], chronic hemolysis [6] and increased storage of iron in the tissue [7] exist in β-thalassemia we should expect a diminished phagocytosis. Probably, since autopsy studies [8,9] had shown an obvious hyperplasia of the RES in this condition, the above factors are balanced by hepatosplenomegaly. Finally, the decreased clearance of iodinated human serum albumin in tt and AS

Table I. RES clearances (values are mean half-lives ± SD)
Cases RES  p  t
n  clearance values 
min
Controls  30  13.8± 1.9
ß-Thalassemia
(TT)  14  15.1± 3.7 > O.1  1.55
ß-Thalassemia
trait (tt)  19  17.9± 3.4 < O.OOl  5.0
Sickle cell
anemia (SS)  12  20.0± 3.4 < O.OOl  7.2
Sickle cell trait
(AS)  9  17.9± 2.3 < O.OOl  4.9
subjects needs further studies to elucidate its significance.

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References
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Fig. 1. Distribution of RES clearances. Horizontal lines indicate means.


