900 NEUTROPHIL AGGREGATION IN VITRO BY AMPHOTERICIN-B. Thomas A. Olson, Bruce A. Cook, Doris P. Burgess, and Frederick B. Ruymann (Spon. by Gerald W. Fischer) Departments of Pediatrics, Walter Reed Army Medical Center, Washington, D.C. and Uniformed Services University, Bethesda, MD.

Increased respiratory complications have been reported in patients treated simultaneously with amphotericin-B (AB) and granulocyte (PMN) transfusions. Aggregation and sequestration of PMN's in the microvasculature of the lung has been postulated as a mechanism. This study was designed to see if AB could aggregate PMN's in vitro when the cells were not exposed to nylon wool fibers (NWF). Blood was obtained from 30 adults and PMN's were concentrated (10^{-7}/ml) with Ficoll-Hypaque centrifugation and hypotonic erythrocyte lysis. Dose response curves were obtained in buffered saline (PBS). Aggregation did not occur with AB alone in the serum level range of 1-4 µg/ml, but was seen at AB concentrations greater than 12 µg/ml (change in light transmission over 1 min (ΔT) of greater than 2%). PMN's were then incubated with AB (2-4 µg/ml) in PBS or 2% albumin. Zymogen activated serum or FMLP were added when no aggregation occurred after 5 min. In PBS irreversible aggregation was seen, while in albumin normal aggregation-deaggregation pattern was seen (mean ΔT = 11%). The latter observations suggested that in vitro studies using PBS may not be comparable to the normal physiologic state with albumin and other serum proteins present. PMN's not exposed to NWF are aggregated in vitro by AB but only at higher concentrations than seen in vivo. Damage of PMN's during collection may be an important factor in enhanced PMN aggregation in lungs when amphotericin is used in conjunction with PMN transfusions.

901 CHELATION THERAPY IN OLDER PATIENTS WITH THALASSEMIA MAJOR. Nancy Olivieri, Lawrence C. Wolfe, Darlene Sallan, Philip Layin, Richard D. Propper, Melvin H. Freedman and David G. Nathan (Spon. by Samuel E. Lux). Hospital for Sick Children, Toronto, Canada and Children's Hospital, Boston, MA.

To determine the utility of chronic subcutaneous Desferal (SCDF) therapy (Rx) in the prevention of cardiac disease in patients with thalassemia major who began treatment after the age of 10, we evaluated 36 patients; all of whom were started on SCDF when they were 10 years of age or older and had no pre-existing cardiac disease (defined as clinical congestive heart failure or abnormal left ventricular function). There were 17 compliant patients (mean age 12.3 years at onset of Rx) who used SCDF at least 5 days a week; 8-12 hours each day. Nineteen patients were noncompliant (mean age 16.6 years), they used SCDF periodically. In the group of compliant patients, the mean number of years on Desferal Rx was 4.8 years, in the noncompliant group, 4.0 years. All patients have been on a hypertransfusion regimen (maintaining a hemoglobin of 11%), at least since they began SCDF. Only one patient in the compliant group developed cardiac disease (at age 11) and she died of congestive heart failure at age 18. In contrast, 12 in the noncompliant group developed cardiac disease. Two of these patients have died. The mean age of development of cardiac disease in the noncompliant patients was 20.3 years ± 4.2 years. Therefore, the lack of cardiac complications in the compliant group suggests that compliance with SCDF Rx may reduce the risk of cardiac disease in older patients.

† **902** THE EFFECT OF NIGHTLY SUBCUTANEOUS DESFERAL ON GROWTH AND SEXUAL MATURATION IN CHILDREN WITH THALASSEMIA MAJOR: Nancy F. Olivieri, F.John Holland, Melvin H. Freedman. Univ of Toronto, Hosp for Sick Children, Divs of Hematology & Endocrinology, Toronto, Canada.

We reviewed the growth and endocrine status of 13 pts (8F, 5M) with TM on a hypertransfusion program (Hb>11g%), receiving Desferal (DF) > 6 days/wk since age 10.5 ± 0.9 yr (mean ± SEM) for a period of 5 ± 1.2 yr. With treatment, serum ferritin fell from a mean of 4900 to 2100ng/ml (p<.001) while SGOT resolved to normal in 11/13 pts. Despite these changes, growth failure and delayed sexual maturation was observed in 7/8 females and 4/5 males. Significant reduction in bone age (BA) was noted, in parallel with Tanner pubertal stage. At age 14 yr. growth velocity was 0.7 cm/yr. in F (BA 11.5 ± 1.5 yr.) and 1.8 cm/yr. in M (BA 11 ± 2.0 yr.), compared with 5.8 cm/yr and 6.5 cm/yr at age 6-8 yrs. In 6 pts studied (age 12-16 yrs.), T4 and TSH levels were normal, but sex steroids were low for chronological age. Failure of LH release after LH-RH in all pts. indicated hypothalamic dysfunction. Cortisol and GH responses to insulin-hypoglycemia, and the TSH response to TRH were normal. The growth pattern observed was similar to that in 10 pts in whom chelation was suboptimal judged by compliance and serum ferritin.

We conclude that DF, while achieving net negative iron balance, does not significantly influence growth/maturation in TM if begun after age 10 yrs. Such failure may be secondary to central hypogonadism, although abnormalities in somatomedin generation, perhaps secondary to liver damage, may also be important.

† **903** CT SCANNING OF LIVER IRON DENSITY IN THALASSEMIA MAJOR: VALUABLE PREDICTOR OF CARDIAC DYSFUNCTION. Nancy F. Olivieri, A. Daneman, Melvin H. Freedman. Univ of Toronto, Hosp for Sick Children, Divs of Hematology & Radiology. Toronto, Canada.

Since computed tomography (CT) scanning of liver can detect increases in hepatic iron, we performed serial CT scans in 30 transfusion dependent chelated pts with Thalassemia Major (TM) to measure efficacy of deferioxamine. Serum ferritin correlated closely with CT scan values measured in Houndsfield units (r=.68, p<.001). In 18 pts in whom mean serum ferritin declined from 3800 to 1700ng/ml (p<.001) over 30 months of observation, mean CT scan values similarly fell from 93 to 76 H.U. (p<.001). In 12 others, ferritin was unchanged or declined, but CT values did not decrease. To define whether changes in CT scanning of hepatic iron had relevance to iron-related cardiac dysfunction, the clinical course of the 2 groups was examined. Of the 1st group of 18 pts, only 1 developed cardiac dysfunction. In the other group, 5/12 developed decline in ejection fraction, ventricular arrythmias, or cardiac failure. These findings indicate that decreased hepatic iron relates to preservation of cardiac function, suggesting symmetrical reduction of iron from both sites. The CT scan is thus a valuable predictive parameter of cardiac dysfunction in TM.

904 ERADICATION OF IRON DEFICIENCY ANEMIA IN AN INNER CITY CHILDHOOD POPULATION: AN ENDANGERED TRIUMPH OF PROPHYLAXIS. Howard A. Pearson and Robert D. Windom, Yale Univ. Sch. of Med. and Hill Health Center, New Haven, CT

Iron deficiency has a high prevalence in poor children. In addition to its hematologic effects, Fe def. adversely affects neurological function and behavior. In 1972, we reported the prevalence of anemia in children from an inner city clinic serving a predominantly black and hispanic indigent neighborhood. Anemia was frequent. The mean Hb in children between 9 and 36 months was 11.1 gm/dl, and 17.5% had Hb less than 9.8 gm/dl. In 1983, we studied a comparable group from the same clinic. None had Hb less than 10.1 gm/dl. The mean Hb was 11.98 gm/dl, a value comparable to that reported in groups of black children in whom iron deficiency had been excluded. The children in the 1983 group all had been participants in the W.I.C. program which provides iron-fortified formulas for the first 12 months of life. Over the past decade, Fe def. anemia has virtually disappeared in this population. Improved nutrition and especially the provision of iron-fortified formulas have been crucial in this improvement.

The government is considering discontinuation of iron-fortified formula by the W.I.C. after 6 months of age. This action has been justified by projected cost savings and also a recent communication by the AAP Committee on Nutrition. It would be tragic if a signal nutritional accomplishment, namely the virtual eradication of Fe def. anemia, was undone by short-sighted and relatively trivial financial considerations. American pediatricians should oppose this action strenuously.

† **905** ACUTE CHEST SYNDROME (ACS) IN SICKLE CELL PATIENTS IS OFTEN DUE TO MYCOPLASMA PNEUMONIAE. Mortimer Poncz, Ellen Kane, and Frances M. Gill (Spon. by Elias Schwartz). U. of Pennsylvania School of Medicine and The Children's Hospital of Philadelphia, Dept. of Ped., Philadelphia.

ACS in sickle cell disease (SCD) includes the often indistinguishable processes of pneumonia and pulmonary infarction. 47 episodes of radiologically positive ACS in 18 months were studied prospectively to determine etiology and clinical consequences. None was associated with a positive blood culture or CIE test. 10 episodes (21%) were associated with positive viral cultures: 3 adenovirus, 2 CMV, and 1 each of RSV, herpes simplex, enterovirus, parainfluenza, and influenza B. 10 (21%) of the patients had ACS due to Mycoplasma pneumoniae (Mp) as documented by 4-fold or greater changes in specific antibody titer. When compared to other cases, ACS due to Mp was more severe with a lower hemoglobin on hospital admission (7.1±1.5 vs 8.0±1.5 g/dl, p=0.05) and a greater fall from the patients' usual level (1.5±1.3 vs 0.8±1.2 g/dl, p=0.05). 2/10 Mp patients and 1/37 other patients required red cell transfusions. Patients infected with Mp had prolonged fever (5.5±4.1 vs 3.2±2.0 days, p=0.009) and longer hospitalizations (8.0±3.7 vs 5.7±2.0 days, p=0.006). Cold aggultinin titers were ≥ 1:16 in 5/6 Mp episodes and in 1/22 other episodes (p=0.0007). In this study Mp caused ACS in many patients and was associated with significant morbidity. Early detection using cold agglutinin titers is usually possible. SCD patients with ACS should be screened with a cold agglutinin titers as a prognostic factor. Those with a high titer may benefit from early treatment with erythromycin.