595

BONE MARROW PROGENITOR CELLS IN ANEMIC AND NON-ANEMIC PATIENTS WITH FANCONI'S ANEMIA. G.Daneshbod, J.Martin, N.T. Shahidi, Univ. of Wis.,Dept. of Ped.,Madison,WI.

Decreased bone marrow progenitor cells have been reported in patients with Fanconi's anemia. It is not known whether such a decrease occurs in forme fruste non-anemic Fanconi patients. Two patients with clinical Fanconi's anemia and their siblings with similar clinical features and chromosomal fragility but without anemia were studied. While one of the siblings had mild thrombocytopenia and slight increase in alkali resistant hemoglobin, the other showed no hematological abnormalities. The two patients with Fanconi's anemia and their non-anemic siblings, all showed marked decrease in myeloid and erythroid colonies:

Patients	Age(years.)	CFU-C/2x10^5 cells	CFU-E/10^5 cells
B.S. (m)	17	1	0
J.S. (m)	15	11	0
M.K. (f)	8	25	3
L.K. (f)	15	10	1
Normal		104±39.4 (N=36)	88±15.6 (N=34)

An unrelated non-Fanconi patient with increased chromosomal fragility showed normal myeloid and erythroid colonies (120/2x 10^5 cells and 51/10^5 cells respectively).

The above findings suggest that in Fanconi's anemia, a deficiency of bone marrow progenitor cells is present despite normal hemogram and this test can be used for early detection of non-anemic patients.

596

FLOW MICROFLUOROMETRIC ANALYSIS OF DNA IN HUMAN NEUROBLASTOMA CELLS. Yehuda L. Danon, Martin B. Epstein, Joseph D Rosenblatt, Amos Norman and Robert C. Seeger. UCLA School of Medicine, Departments of Pediatrics and Radiological Sciences, Los Angeles.

More effective treatment for neuroblastoma is needed, and new therapies are being developed and tested. A rapid method for measuring cell cycle distribution of tumor cells might provide valuable information for selection and timing of therapeutic agents. Therefore, we developed flow microfluorometry (FMF) for measuring DNA content of neuroblastoma cells. Seven established human neuroblastoma cell lines were utilized. Neuroblastoma cells frequently grow in clumps, and these were dispersed with sonication. DNA content was determined after fixation of cells in ethanol, treatment with RNAse, and staining with propidium iodide (PI). The percentage of cells in G_1, S, and G_2+M was determined by computerized curve fitting analysis of the DNA distribution. For example, LA-N-1 cells in the logarhythmic growth phase consisted of 64% G_1, 25.6% S, and 10.4 G_2+M cells. FMF analysis of DNA in tumor cells growing in vivo can be complicated by normal cells present in the tumor. Therefore, we developed a tumor cell identification system using rabbit antiserum against neuroblastoma cell surface antigens and fluoresceinated goat anti-rabbit immunoglobulin. Neuroblastoma cells treated with these reagents, and then ethanol and PI were successfully analyzed for DNA content with FMF. This new method should allow analysis of neuroblastoma cells in primary tumors and various metastatic sites and may provide new information of therapeutic value.

597

IRON (Fe) ABSORPTION IN THALASSEMIA MAJOR (THAL MAJ) AND THE EFFECTS OF TEA AS A CHELATING AGENT. P.A. deAlarcon, M.E. Donovan, G.B. Forbes, S.A. Landaw and J.A. Stockman III. Dept. of Peds., SUNY, Syracuse, N.Y. and U. of Rochester, Rochester, N.Y.

Dietary Fe may represent a significant risk in thalassemia. The optimum hemoglobin (Hb) level to suppress Fe absorption is unclear. Tea has been thought to be a potential chelator of dietary Fe (GUT 16:193, 1975) but has not been evaluated in thal maj. To examine this problem, 5 subjects with thal maj and one with thal intermedia (int) were studied with oral Fe absorption tests utilizing 1 μC ^{59}Fe and the whole body counting method. Subjects were studied every 2 weeks as the Hb was allowed to vary from >13g/dl to 8g/dl. Fe was administered with a standard meal + 8 oz H_2O. The effect of tea was evaluated by substituting tea for the H_2O at lower levels of Hb in 3 subjects with thal maj and 1 with thal int. In each subject as the Hb fell, Fe absorption progressively increased. For subjects with thal maj, Fe absorptions varied from a low of 1.1% to a maximum of 16.5%. The subject with thal int demonstrated Fe absorptions of 10, 24, 28, 33 and 41% at Hb levels of 10.8, 10.4, 10.2, 10.0 and 9.0g/dl respectively. The nucleated RBC count/μl accurately reflected Fe absorption (R=0.82, $p<0.001$). At the lowest levels of Hb, tea inhibited Fe absorption by 76 to 95% in the subjects with thal maj and 71% in the subject with thal int. It appears that Hb levels of >12-13g/dl are necessary to suppress Fe absorption and that tea may be useful in the chelation of dietary Fe.

598

INCREASED MORTALITY, OVER TIME, OF ASPLENIC MICE EXPOSED TO AEROSOLIZED TYPE III S. PNEUMONIAE. Joseph D. Dickerman, James A. Coil & Edwin Boulton (Spon. by R. J. McKay, Jr.). Departments of Pediatrics and Surgery, University of Vermont College of Medicine, Burlington.

Most reported laboratory studies of the effects of splenectomy in experimental animals have shown enhanced mortality after intravenous or intraperitoneal injection of pneumococci. In the present study the respiratory route was chosen because it more closely approximates the probable portal of entry of the infection which causes human pneumococcal disease. Ninety-one male Swiss mice (mean wt. 26 gms.) were divided into 3 groups; control, sham-operated and splenectomized. After 2 weeks they were exposed for 30 min. to an aerosolized atmosphere of 5.9 x 10^9 colony-forming units of Type III S. pneumoniae, using a Tri-R Model A42 Airborne Infection Apparatus (Tri-R Instruments, Inc., Rockville Centre, N.Y.). A statistically significant difference ($P < .01$) in mortality, over time, was observed between the splenectomized group and the pooled sham-operated and control groups. The animal model used in the investigation can be applied to the study of other phenomena such as the increased susceptibility to infection of alloxan diabetic mice (Hebert and Coil, presented at the Association for Academic Surgery, 11th Annual Meeting, Seattle. Nov. 3-5, 1977, p. 39).

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599

PROTECTIVE EFFECT OF PROPHYLACTIC PENICILLIN IN ASPLENIC MICE EXPOSED TO AEROSOLIZED TYPE III S. PNEUMONIAE. Joseph D. Dickerman, James A. Coil and Edwin Boulton, (Spon. by R. J. McKay, Jr.). Departments of Pediatrics and Surgery, Univ. of Vermont College of Medicine, Burlington.

Although prophylactic penicillin has been recommended for use in asplenic patients, no laboratory or clinical data exist to support its effectiveness. There is an increased mortality, over time, in asplenic mice exposed to aerosolized Type III S. pneumoniae (Abstract submitted to the 1978 SPR meeting). Using this same model, 121 male Swiss mice (mean wt. 26 gms.) were divided into 4 groups; splenectomized, sham-operated, splenectomized + penicillin and sham-operated + penicillin. After 2 weeks the 4 groups were exposed for 30 min. to an aerosolized atmosphere of 2.4 x 10^9 colony-forming units of Type III S. pneumoniae using a Tri-R Model A42 Airborne Infection Apparatus (Tri-R Instruments, Inc., Rockville Centre, N.Y.). Penicillin was given in a daily IM dose of 40,000 units of procaine penicillin G beginning 2 days prior to exposure and continuing through the 3rd day after exposure. The splenectomized and sham-operated mice given penicillin showed a significantly lower mortality ($P < .001$) when compared to mice not given penicillin. Seventy-two animals died and all but 6 had a positive lung homogenate culture for pneumococci.

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600

EFFECT OF CRANIAL RADIATION DOSE ON GROWTH HORMONE RESPONSE TO ARGININE AND INSULIN INFUSION. W. Perry Dickinson, D.H. Berry, L. Dickinson, M. Irvin, H. Schedewie, M.J. Elders. Ped. Dept. UAMS, Little Rock, AR

The prolonged survival of children with acute lymphocytic leukemia (ALL) has been accompanied by an increase in the incidence of central nervous system involvement. Radiation to the skull in doses of 2000-2400 rads, in conjunction with intrathecal methotrexate, has been used to prolong systemic remission and to reduce the incidence of central nervous system involvement in children with ALL. Complications of this therapy have included growth retardation associated with alterations in growth hormone (GH) secretion. We have studied the GH response to arginine infusion and to insulin induced hypoglycemia in thirteen oncology patients up to 5 years postradiation treatment of their neoplastic disease and in normal rats following cranial radiation doses from 300 to 1500 rads. Patients receiving intensive cranial radiation >2400 rads or animals receiving 1500 rads had no response to either arginine or insulin. Patients receiving moderate cranial radiation, ≤2400 rads, showed GH response to arginine but not to insulin. Those receiving no cranial radiation responded to both arginine and insulin. Cortisol, thyroxine, thyroid stimulating hormone and gonadotropins were normal. Somatomedin activity was low in GH deficient patients. These data support the hypothesis that GH secretion is more sensitive to cranial radiation than are other pituitary hormones and the response to arginine has a different mechanism from the response to insulin-induced hypoglycemia and the latter appears more vulnerable to cranial radiation therapy.