patients are Medicaid eligible. 44% are of Puerto Rican or other Latin American origin. 5% could be termed "hippies". 45% are boys. A review of records of 523 patients registered in a 16 month period shows that 31% are known to be seriously involved with drugs other than marijuana. These are patients not referred to our service for a drug problem, but, for various medical conditions or routine examinations. 19% of our patients use heroin; 9% use barbiturates and other depressants; 7% use amphetamine and other stimulant pills ("ups"); 6% use LSD or mescaline; 5% use methedrine by injection ("speed"). Mixed use is common. 37% of these drug abusers are 16 years of age or younger. 60% are boys. 36% of the drug users are of Puerto Rican or other Latin American origin. 13% are "hippies". The majority live at home and attend school. Information concerning patterns of use, means of acquiring drugs, attitudes and knowledge of effects, based on in-depth interviews with about 40 drug users, will be discussed.

IMMUNOLOGY

HL-A phenotypes in leukemias: A family study. SUSIE W. FONG, ROBERT LUNDAK, and SHARON BRITT (Intr. by Thos. L. Nelson). *Univ. of Calif., Irvine, Calif.*

The acceptance or rejection of leukemic cells by the host may be related to transplantation immunology. Viral infections of cells are known to alter the antigenic composition of cell membranes and lead to the development of new antigens, deletions with replacement by fetal forms, and/or partial development of specific antigens. Search for aberrant HL-A antigens in leukemias may lead to the discovery of tumor-specific antigens. HL-A phenotypes were determined by microcytotoxicity and absorption methods in 20 patients with acute lymphocytic leukemia (ALL) and 50 family members; 10 patients with chronic granulocytic leukemia; 20 patients with other lympho- and myelo-proliferative disorders and tumors. Seven of 16 ALL patients possessed one or two HL-A antigens not expected from family analysis. The aberrant HL-A specificities differed from patient to patient. Five of 16 ALL patients demonstrated three HL-A alleles per segregant group not found in family members. The gene frequency of HL-A7 in the ALL group was lower than expected ($p < 0.01$). There also appears to be a paucity of HL-A specificities at the locus of the second segregant group (5, 7, 8, 12) in ALL ($p < 0.01$). No relationship was found between certain HL-A genotypes and ALL. Malignant transformation of cells did lead to aberrant HL-A patterns. The discovery of HL-A specificities unique to the ALL patient through family analyses may form a basis for the development of immunotherapy.

The immunosuppressive effects of maternal plasma. SANFORD LEIKIN. *Children's Hosp. of D.C., and Geo. Washington Univ. Sch. of Med., Washington, D.C.*

Although the anatomical barrier which exists between the pregnant female and her fetus appears to be important, a modification of the immune response to histocompatibility differences may also play a role in the symbiosis of pregnancy. The one-way mixed lymphocyte reaction (MLC) expresses the reactivity of one population of cells against the histocompatibility antigens of another population. Therefore, the MLC was used to test the reactivity of newborns' and maternal lymphocytes to each other. It was found that, although maternal lymphocytes reacted to stimulation by cord blood cells, maternal plasma suppressed this response. It was also found that cord blood lymphocytes were hyporesponsive to stimulation by maternal cells as compared to adolescent-mother controls. This hyporeactivity was intensified in the presence of maternal plasma.

Further in vitro studies revealed that vaccinia to which the subjects had been previously immunized and suboptimal doses of phytohemagglutinin (PHA) stimulated pregnant females' lymphocytes significantly less well than adult males' cells, and that similarly stimulated cultures prepared with plasma from these females inhibited transformation of their own and male donors' lymphocytes. It appears, therefore, that maternal plasma contains factor(s) which inhibit(s) the MLC reaction, antigenic and PHA in vitro lymphocyte stimulation. This inhibitory effect of maternal plasma may be important in modifying the reactivity of maternal cells to fetal tissue. The inhibition of fetal lymphoid cells in the maternal circulation may also afford protection to the mother in a fetal graft-maternal host reaction.

Hormonal basis for sex differences in immunity. JEAN F. KENNY and JANET A. GRAY (Intr. by Richard H. Michaels). *Children's Hosp. of Pittsburgh, Pittsburgh, Pa.*

To investigate the greater susceptibility of the male to severe infections we have studied antibody production by individual spleen cells in immature and adult Swiss mice. Previous studies using the Jerne agar-plaque technique have shown: 1) following enteric colonization with *E. coli* or injection of small numbers of heat-killed *E. coli* (HKE) significantly more cells produce specific antibody in weanling and adult females than males; 2) after injection of small numbers of HKE (3×10^5) sexually mature females respond with significantly greater numbers of antibody producing cells (APC) than weanling females, but responses of adult males are only slightly better than those of male weanlings; 3) mean amounts of antibody produced by male and female cells are the same.

Responses of prepubertal ovariectomized females (OF) were compared to those of equal numbers of their sham-operated male (SM) and female (SF) littermates. Three weeks postoperatively, 4 days after intraperitoneal injection of 3×10^5 HKE, total APC/spleen ranged from 0–600. When individual totals of APC were ranked, responses of OF and SM were alike and those of SF were significantly better ($p < .001$). $1\frac{1}{28}$ SF vs. $\frac{6}{28}$ OF and $\frac{7}{30}$ SM were in the top third of the rank order. In a similar study total APC for castrated males and SM were the same. Estradiol-17β (500 ng) was given to 50 weanling males the week of challenge (5×10^5 HKE). In responses ranging from 0–1550 APC/spleen, the estradiol-treated males ranked higher than 53 saline-injected littermate controls ($p < .05$).

Findings show that the significantly better immunologic responsiveness of the female is dependent on ovarian function; small amounts of estradiol appear to enhance the proliferation of immunocompetent cells.

Further definition of two distinct types of congenital defects in plasma cell differentiation resulting in agammaglobulinemia. ALEXANDER R. LAWTON, DALE E. BOCKMAN, and MAX D. COOPER. *Univ. of Ala., Birmingham, Ala., and The Med. Coll. of Ohio at Toledo, Toledo, Ohio.*

Functional and morphologic evaluation of the immune system was carried out on 2 females with sporadic agammaglobulinemia (SA) dating from infancy and a male with X-linked agammaglobulinemia (XLA). All 3 patients had profound hypogammaglobulinemia, lacked isoagglutinins, and failed to synthesize antibodies to Salmonella H and O antigens following immunization.