From these findings it seems, therefore, that some physiological conditions present during pregnancy can influence the proliferation or actual performance of antibody forming cells and of cells involved in contact allergy and possibly in cell-mediated immunity. The resulting modifications of the humoral and cellular immune response can be reasonably explained if we assume the existence of an extralymphatic regulatory mechanism exerting its action on the immune reactivity during pregnancy[4]. Such a control mechanism could be represented by some hormones, which are synthetized in higher amounts during pregnancy, and which are known to exert a depressive action on cell-mediated immunity[11–13]. It is difficult to decide at the present time whether one or more of the pregnancy hormones can be involved in such a situation, and, particularly, in our experimental model. It can be postulated, however, that they should be able to stimulate the humoral immune response, as it has been reported in other experimental models[14], while depressing directly or through the increased production of blocking antibodies cell-mediated immune reactions against the foetus.

Riassunto. Le reazioni allergiche da contatto indotte dal cloridrato di picrile e le risposte anticorpali agli eritrociti di montone sono state quantitativamente valutate in topi femmine nel corso della gravidanza. Mentre le reazioni allergiche sono diminuite nelle femmine gravide rispetto alle vergini, le risposte anticorpali risultano significativamente aumentate. Tali dati fanno supporre l'esistenza nel corso della gravidanza di un controllo ormonale delle risposte immunitarie che potrebbe influenzare positivamente le reazioni meterno-fetali.

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Phagocytosis and Nitroblue Tetrazolium Reduction in Uremia

Polymorphonuclear neutrophil (PMN) mobilization appears to be normal in uremic patients[1,2], but the integrity of further steps in engulfment and killing of bacteria has been questioned[3,4]. We have investigated PMN function in a series of uremic patients, as measured quantitatively by latex phagocytosis and by reduction of a colorless dye, nitroblue tetrazolium (NBT), to black cytoplasmic deposits within the cell. The presence of reduced NBT within the PMN indicates oxidative metabolism has occurred.

Ten hospitalized uremic patients were studied when they were free of infection. Eight had never been dialyzed;

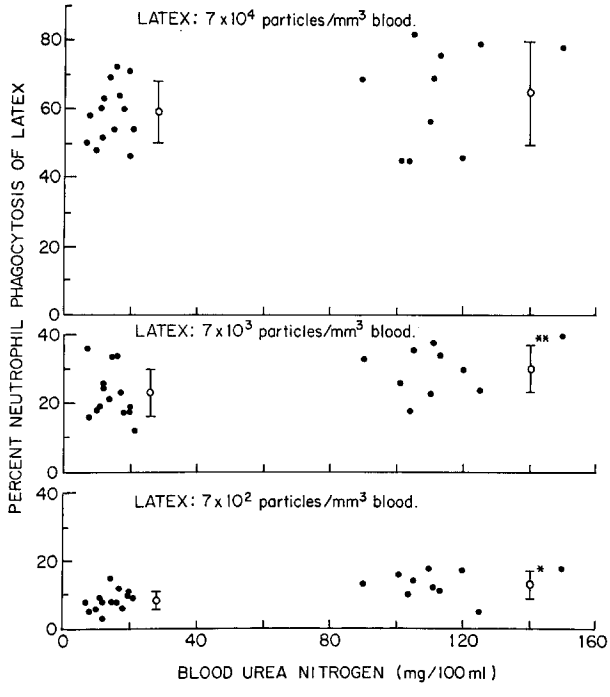

Fig. 1. Latex phagocytosis by neutrophils from uremic and control patients. At each of the 3 latex concentrations tested, brackets enclose the mean and standard deviation of particle uptake for controls on the left and uremic patients on the right. *, $p < 0.01$; **, $p < 0.05$.

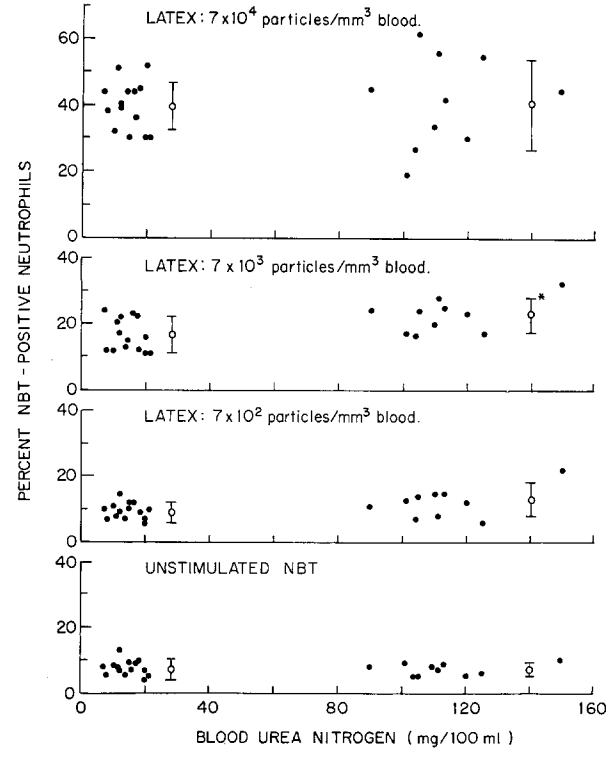

Fig. 2. NBT scores of neutrophils from uremic and control patients. Brackets enclose the mean and standard deviation of the NBT scores for controls on the left and uremic patients on the right. *, $p < 0.01$.

two had had one episode of peritoneal dialysis at least a week before. Mean blood urea nitrogen (BUN) at the time they were studied was 113 mg/100 ml, mean creatinine was 14 mg/100 ml, and mean CO_2 was 17.9 mm/l (normal 22.5–27 mm/l). The mean BUN of fourteen non-uremic controls was 14.5 mg/100 ml.

Four ml of heparinized blood was collected in a plastic syringe from each subject. Then latex particles (Difco, 0.81 μm diameter), suspended in normal saline at 10-fold dilutions, were added to 1 ml aliquots of the blood in 0.05 ml amount. This resulted in a concentration of 7×10^4, 7×10^3, and 7×10^2 latex particles/mm³ blood. An NBT test was done on each of the blood-latex dilutions and on an unstimulated sample of blood by adding 0.1 ml of blood to 0.1 ml of NBT solution (0.2% General Biochemical NBT in physiologic saline, diluted with an equal volume of phosphate-buffered saline, pH 7.35) and incubating at 37 °C for 1 h on an agglutination tray in a moist chamber. Coverslip slides were prepared and counterstained with Wright-Giemsa stain. For each coverslip, the percentage of 100 PMN's which contained latex particles was counted, and the percentage of 100 PMN's which contained black cytoplasmic granules or clumps of reduced NBT was tabulated as the 'NBT score'. An NBT score below 10% is considered normal for uninfected patients[5].

The uremic patients had unstimulated NBT scores similar to the controls. The mean was 7.2% for the uremic group and 7.5% for the control group. After stimulation of the PMN's with increasing concentrations of latex, latex engulfment was higher for the uremic patients than for controls (Figure 1). The stimulated NBT scores for both groups were elevated after phagocytosis, uremic scores being slightly higher (Figure 2). Mild acidosis and initially high or rising values of BUN caused no impairment of the PMN's activity.

Our studies suggest that both latex particle engulfment by the PMN and subsequent NBT reduction are not only unimpaired in patients with an average BUN over 100 mg/100 ml and mild acidosis, but may actually be increased, depending on the number of particles introduced. Since whole heparinized blood was used for these studies, it is apparent that the patient's own uremic serum had no deleterious effect on phagocytic ability or intracellular enzyme activation. From this study, it would appear that untreated uremic patients with varying degrees of mild acidosis have normal phagocytic ability of their PMN's.

Zusammenfassung. Nachweis, dass neutrophile Leukozyten von Urämikern verglichen mit Gesunden eine unveränderte Fähigkeit zu Phagocytose und Reduktion von Nitroblau Tetrazolium besitzen.

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Changes Induced by the Acute Administration of Iodide on Secretion of Iodinated Components by the Rat Thyroid Gland Perfused in situ

Several investigations have shown that administration of large quantities of stable iodide to patients with thyrotoxicosis causes an amelioration of the disease by decreasing thyroid secretion[1–5]. The mechanism of this action is uncertain. There are conflicting data whether large doses of iodide have any inhibitory effect on thyroid secretion in euthyroid individuals with a normal rate of secretion and whether administration of thionamide drugs is necessary to demonstrate an inhibitory effect of iodide[3–13].

Because of the difficulty in obtaining precise quantitative data on changes in the secretion of iodinated components in vivo for reasons previously outlined[14], we felt that the technique of single-pass perfusion with nonradioactive blood in prelabeled rat thyroid glands[14] might provide useful information relative to this problem. We considered that the data would be of value only if positive effects were obtained since the in situ perfused thyroid deteriorates after 1–2 h. Data in man have indicated that it requires 1–2 days of iodide administration before thyroid secretion is inhibited[3]. Similar observations have been made in mice[15]. Methimazole was added to the perfusate in some experiments because thionamides may have some potentiating effect on iodide inhibition of secretion.

Materials and methods. Adult male Sprague-Dawley rats weighing approximately 300 g were fed a low-iodine diet of approximately 30 μg ^{127}I/kg for 1 week. 150 μCi carrier-

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