

tions. Tranquilizers and antibiotics of various sorts are a case in point. The clinical pharmacology and, indeed, methods for measuring blood levels are not available in every instance. The second trend deals with improved methods of drug removal, particularly by hemodialysis.

Maher and Schreiner have recently reviewed some of these methods in the *Transactions of the American Society for Artificial Internal Organs* for 1967. Several drug removal rates are given, using the well-established figures for hemodialysis into an aqueous bath as the basis of comparison. For example, in the case of lipid soluble poisons, e.g., glutethimide (Doriden®), it is possible to greatly accelerate removal by hemodialysis against a lipid (soybean oil) bath and this has been successfully used clinically. A newer development is hemoperfusion through an activated charcoal column which appears to be superior even to lipid dialysis in removing glutethimide from experimentally poisoned animals. Peritoneal dialysis with various modifications of the dialyzing fluid is appropriate for certain barbiturate poisonings. Further, there may be a significant increase in the rate of drug removal in the patient's own urine by alkalization and forced diuresis.

Drugs of the same class, e.g., barbiturates, differ from one another in response to these therapeutic measures and the clinician must acquaint himself with their individual characteristics. Calcium can be removed by hemodialysis but if the stimulus to hypercalcemia is strong enough, e.g., hyperparathyroidism, there may be no change in blood level. The phenothiazines and chlordiazepoxide (Librium®) illustrate two types of nondialyzable poisons for which no removal procedure is yet available. Information on drug removal is slowly accumulating and will continue to be important as long as chemical or physiologic methods of treating a poisoned patient remain unavailable.

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ACROSS THE MEDICAL EDITOR'S DESK

ANOTHER LOOK AT IMMUNIZATIONS

Mass immunization programs have become a way of life in this country within the past few years. When the oral poliovirus vaccine first became widely available, many communities instituted programs for administering the vaccine to any citizen desiring it. In a number of localities, the development of a successful vaccine against measles was the signal for another mass immunization program for school-age children. The pattern may be expected to continue. New vaccines are appearing on the scene almost yearly—this year, mumps vaccine; next year, rubella vaccine, and so on.

Operation Head Start provides a further example of how long-standing immunization programs (DPT) are coming in for their share of popularity. Particularly in this socioeconomic group, parental recollection of past immunizations is often hazy. In any socioeconomic group, many families which frequently change residence do not take records with them.

Whether speaking of mass immunizing programs or those directed toward patients seen in private practice, the proved efficacy of most vaccines and the relatively low incidence of adverse reactions often have led private and public medical resources into some rather slipshod practices. Is it too much to inquire whether the child has had measles before administering the vaccine? Should we not have immediate prior evidence of a negative tuberculin test?

Recent examples from the medical literature further highlights the problem: Children who have received *inactivated* measles vaccine, when subsequently exposed to measles, may develop a severe illness characterized by high fever, prostration and a maculovesicular rash beginning on the lower extremities and progressing cephalad. Other children who have received inactivated vaccine, when subsequently given live attenuated vaccine, may develop severe local reactions at the site of injection (Nader et al., *Journal of Pediatrics*, January 1968, p. 22).

In this country, morbidity from smallpox vaccination now exceeds that from the naturally occurring disease. In one survey of reports from more than 4,000 physicians in four states, generalized vaccinia and eczema vaccination occurred at a frequency of 238 and 80 per million primary vaccinations respectively (Neff et al., *Pediatrics*, June 1967, p. 916). Complications occurred disproportionately during the first year of life, suggesting that vaccination should be deferred beyond this period.