

## Intrathecal Detergents

SURFACE active compounds, used for cleansing apparatus, sterilizing ampules, or for preparing skin, accidentally injected into the subarachnoid space as contaminants of spinal anesthetic agents have been mentioned as a possible etiologic factor in the production of untoward neurologic sequelae of spinal anesthesia.

Elsewhere in this issue, Drs. Smith and Conner report an experimental study on the effect of intrathecal injection in dogs of three commercial detergents used in hospitals for cleansing needles and syringes and for preparation of skin prior to induction of spinal anesthesia. Although the observations in this study are comparatively few, the length of time over which they were made (up to one year) is unusual.

The authors very succinctly summarize their conclusions in the final paragraph of the paper: "It is concluded that in dogs, detergents, as chemical irritants, can evoke responses in tissues of both mesodermal and ectodermal origin within the central neuraxis. In concentrations and doses that might reasonably be expected accidentally to gain access to the cerebrospinal fluid the cellular response will be minimal, damage to the neural elements unlikely, and neurological deficit absent or undetected."

It is interesting that in only 4 of the 14 dogs studied was there no evidence of histologic changes. It is not surprising that, on the whole, tissue reaction was directly proportional to the concentration of the compound injected. It is, however, noteworthy that in the three instances in which the concentration of the compound injected was only one-half that recommended by the manufacturers for use as a cleansing agent the observers were equivocal in excluding a histologic reaction.

It is generally accepted that neurologic damage following spinal anesthesia is at times due to direct chemotoxic action of the anesthetic agent on the neural elements or to their

involvement secondary to proliferative changes in the mesodermal elements. For reasons not well understood, apparently the subarachnoid tissue of some persons is more sensitive than that of others to spinal anesthetic agents—hence, the rare individual who responds adversely to a concentration of anesthetic agent that in the vast majority of cases is innocuous.

It seems reasonable to speculate as to whether even minute amounts of a detergent might in some way alter the sensitivity of the tissues of the neuraxis to the action of the anesthetic agent. In other words, is it possible that the proliferative changes noted so uniformly in the mesodermal elements might render this tissue more sensitive to the chemotoxic action of the anesthetic agent? Further investigations in this area might be fruitful.

In this connection it is interesting to note a recent action of the Appellate Division, Third Department, New York Supreme Court, in upholding a workmen's compensation award to a dishwasher in whom iridocyclitis had developed subsequent to the splashing of a detergent into his eye. Benefits were awarded on the theory that the detergent had caused an exogenous infection to enter through a pre-existing bleb in the eye. The Court noted that medical testimony against the causal relationship between a detergent and the iridocyclitis seemed overwhelming, but the bare legal sufficiency of other medical opinion prevented the Court from reversing the decision of the Workmen's Compensation Board.\*

The implications of this paper certainly would not lead us to abandon the time-honored custom of thoroughly rinsing needles and syringes immediately before using them for injecting a spinal anesthetic.

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\* Cited from *Modern Medicine* 29: 284, (Sept. 4) 1961.