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Metabolic and Toxicological Effects of Water-Soluble Xenon Compounds Are Studied

Since the recent discovery of water-soluble xenon compounds, there has been much interest in their biological properties. Metabolic and toxicological studies have been conducted on mice, which extend the scientific knowledge of these rare gases.

The primary features of these studies on the biology of water-soluble xenates were: (a) the moderate toxicity of these substances, (b) their rapid decomposition in the body, (c) the speed with which the xenate appeared to be reduced to xenon gas, and (d) the very rapid elimination of this gas from the body.

For this research, the mice were injected intravenously and intraperitoneally with aqueous solutions of sodium xenate. When injected intravenously, the sodium xenate was found to be moderately toxic. The median lethal dose was between 15 and 30 mg/kg. Early deaths were preceded by marked convulsions and tetanic contractions, while those that occurred later were characterized by a deepening comatose state.

Radioactive labelled sodium xenate also was injected into the mice and the retention of the xenon formed was studied. Intravenously injected sodium xenate left the body very quickly, presumably after reduction to xenon gas. The peak value was reduced to 50% within 20 seconds and to 20% in 75 seconds. Intraperitoneally injected sodium xenate left the body more slowly. A value half that of the peak was reached in six minutes.

Notes:

1. The information should be of interest to physiologists and others engaged in studying the effects of rare gases on life systems.
2. Additional details are contained in: *Noble Gas Compounds*, edited by H. H. Hyman, Univ. of Chicago Press, Chicago, London; Univ. of Toronto Press, Toronto 5, Canada; Library of Congress Catalog Card #63-20907, 1963, p. 309-314.
3. Inquiries concerning this innovation may be directed to:

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Patent status:

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