

#### 4. The use of RAOVIN ( $I^{131}$ -P.V.P.) in the Diagnosis of Organic Cerebral Lesions

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In 1962, Tauxe reported the results of scintillation encephalography using RAOVIN ( $I^{131}$ -labelled polyvinylpyrrolidone, molecular weight about 40,000) in experimental cerebral traumatic lesions. According to him, localization of damage was satisfactorily scanned by means of photoscanner.

We produced acute closed head injuries in dogs by local freezing of cerebrum with liquid nitrogen through the intact calvaria. After varying time intervals, usually 24 hours to 2 months, the dogs were injected intravenously 20 to 50  $\mu$ C/Kg. of Raovin and their heads were scanned with various intervals of 6 to 48 hours after the injection. Contrary to our expectation, positive localization of acute cerebral damage was generally unsuccessful.

Distribution in tissues, excretion and general reactive effects of Raovin were observed. Following these experimental investigations, 300 to 500  $\mu$ C of Raovin injected intravenously in 12 cases of suspected brain tumors. The scanning method enabled the resulting pattern of dots to be charted. By this method, the outline of tumor was detectable in only two cases, i.e. meningioma and metastatic tumor, and abnormal findings were obtained in other two cases.

In 9 cases of verified brain tumor, geometrical arrangements of radioactivity were counted with scintillation counter in 12 to 48 hours following the injection of Raovin. Of these 5 cases showed the localization abnormal radioisotopic activities, and were confirmed the overall accuracy by surgery.

In order to estimate the relation of tumor type to differential uptake, Raovin, sodium iodine and Neohydrin containing radioactivity, were injected intravenously, in doses of 300 to 500 microcurries, at varying time intervals after injection from 4 to 48 hours, the extirpated materials, both from tumors and from normal brain tissues, were counted for radioactivity ratio by well-typed scintillation counter. Radioactivity ratio of tumors, including medulloblastoma, glioblastoma, astrocytomas, ependymomas, meningiomas and metastatic tumors, to brain never exceeded 2 to 1.

Thus, the positive radioisotopic diagnosis was obtained in cases actually showing minimal differences in radioactive uptake between tumor tissue and normal brain. Considering from these facts, diagnostic accuracy may be attributed not only to the differential uptake but also to the attitudes of surrounding vascular bed of the tumor for radioisotope.

It's our impression that Raovin ( $I^{131}$ -labelled P.V.P.) is fairly useful for both R.I.—encephalography and scintillation—encephalography.