

## Research Reports: 1957

be removal of metabolic CO<sub>2</sub> from CNS a process slowed by acetazolamide. N<sup>5</sup>-t-butyl acetazolamide (J. Pharm. Exp. Therap. **117**, p. 385) was used as a control and produced none of the effects reported for acetazolamide.

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### **Drug Transfer from Blood to Brain, Ventricular and Cerebrospinal Fluids of *S. Acanthias***

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Previous work on the blood-brain and blood-cerebrospinal fluid barriers in the dogfish led to the hypothesis that the fluid surrounding the brain was extradural in position and displayed drug transfer characteristics different from those of brain. To test this conclusion further a direct comparison was made of the rates of appearance and steady state ratios of several drugs in dogfish brain, ventricular and extradural fluids. Sulfadiazine, antipyrine and sulfanilic acid were injected intravenously and samples of blood, extradural fluid, ventricular fluid and brain obtained at intervals. In ventricular fluid sulfadiazine appeared rapidly and reached a fluid/plasma ratio of 0.8-1.10; sulfanilic acid a ratio of 0.13 and antipyrine a ratio of 1.0-1.2. In brain antipyrine was not measured but at 4 hours sulfadiazine reached a brain/plasma ratio of 0.53 and sulfanilic acid 0.17. In extradural fluid all three substances appeared slowly and the 4 hour fluid/plasma ratios were sulfadiazine 0.24, sulfanilic acid 0.26. If diamox was given before sulfadiazine, the final ratio to plasma became greater than 1.0 for ventricular fluid and brain, but was unchanged for extradural fluid. All the observations lead to the conclusion that the extradural fluid of the dogfish resembles a slowly formed dialysate of plasma, rather than true ventricular fluid in its drug transfer characteristics. This has also been shown in limited observation to be true for a cyclostome (*P. marinus dosatus*) and a marine teleost (*G. callarias*).

### **Renal Excretion of Tetraethylammonium in *Lophius americanus***

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With R. P. Forster and F. Berglund the excretion of an organic base, tetraethylammonium was studied in *Lophius*. The aglomerular fish rapidly excreted the injected tetraethylammonium in the urine to the extent of 35-66 per cent in 24 hours. In a few experiments the dogfish excreted 10-20 per cent in 17 hours. Simultaneous studies of endogenous creatine and