

normal tolerance of animals and also of the human individual is dependent upon the effect of the pituitary secretion, which eventually reaches the circulatory blood. Cushing has shown that the secretory product of the posterior lobe of the hypophysis enters the cavity of the third ventricle by way of the infundibulum and becomes dissolved in the cerebro-spinal fluid, a medium which passes from the ventricle to the subarachnoid spaces and thence in all probability enters the blood stream by way of the dural spaces. That it is contained in the subarachnoid fluid he has repeatedly shown by causing a glycosuria or a lowered tolerance by injecting the fluid into dogs. The glycosuria or diminished tolerance just after operation is believed to be due to an increased amount of pituitary secretion being forced into the cerebro-spinal fluid by manipulation. The phenomenon is analogous to the increased symptoms which follow thyroidectomy after the operative treatment of exophthalmic goitre.

Cushing comments on the discordant results that different observers have found in the study of carbohydrate tolerance in acromegaly. Some have found, as already stated, an actual glycosuria; others only a diminished tolerance, and still others a decidedly increased tolerance. He is of the opinion that these discrepancies are entirely dependent upon the stage of the disease at which the case comes under observation. He holds that the adenomas or other tumors of the anterior lobe of the pituitary, which cause the characteristic features of acromegaly, also produce hyperplasia and over-activity of the posterior lobe in the early stages (hyperpituitarism), with the result that an excess of the secretion reaches the circulation and a lowered tolerance to carbohydrates ensues. In the later stages a hypoplasia with partial destruction of the posterior lobe and consequent lack of its secretion occurs, with the result that there is an increased tolerance to carbohydrates.

Clinical observation on cases of infantilism (hypopituitarism) in the human individual confirm the correctness of Cushing's theory. Since we know that this remarkable condition is due to absence of the secretion of the pituitary, we would expect the tolerance to carbohydrates to be markedly increased. Feeding tests with glucose prove this to be the case, for the patients can ingest 3 to 5 times the normal amount of glucose without glycosuria resulting. It should be emphasized here that in the experimentally produced infantilism of dogs the carbohydrate tolerance is also markedly increased. The deposition of fat in human infantilism, as well as that experimentally produced in dogs, is directly dependent on this increased tolerance to carbohydrates, and is probably due to lowered powers of oxidation in the tissues, with consequent conversion of the in-