

According to the studies of Schlayer, potassium iodid is excreted by the tubules of the kidney, and on it he has placed most dependence in determining tubular functional capacity. In these studies 1 c.c. of a 2.5 per cent. solution has been administered intravenously to rabbits. For this the normal elimination time is twenty-four hours. In dogs, 0.5 gm. has been administered by mouth, which normally is excreted within sixty hours. The presence of the drug in the urine has been determined by Sandow's¹⁵ test.

The excretion of salt following its administration in amounts greatly in excess of that ordinarily taken with the food is accomplished by the tubules, according to Schlayer. Normally, a large amount of salt is excreted by one of two methods. If it is given without extra water, it is almost entirely excreted within twenty-four hours without diuresis by increased salt concentration in the urine; if given with an excess of water, it is excreted partially through increased concentration in the urine and partially through diuresis.

Where vascular injury to the kidney exists, the simple administration of salt may be followed by a marked diuresis, all of the salt being excreted in twenty-four hours without its percentage content in the urine being at all increased. This is usually associated with a somewhat low and fixed specific gravity and the syndrome is spoken of as "vascular hypostenuria." Here the inability to concentrate is not due to any incapacity of the tubules to excrete salt, but to hypersensitive vessels which respond to the salt administration with a diuresis. In more severe vascular injury the vessels do not act in the same way, oliguria characterizing the urinary picture. In severe tubular destruction, a urine of fixed low specific gravity is obtained, the quantity of which is not materially affected by the administration of extra amounts of salt, and the salt content of which is not augmented by administration of extra amounts of salt because of the inability of the tubules to excrete it. Such a condition is known as "tubular hypostenuria."

In these studies gm. 1.50 were given by stomach-tube to the rabbits, and gm. 3 to dogs. The urine for the following twenty-four hours was collected, and the salt concentration and absolute excretion estimated by the Lütke-Martius¹⁶ method.

Finally, in order to make conditions as constant as possible, the rabbits were given 100 c.c. of water daily by stomach-tube. In addition,

15. Sandow's method consists in adding 1 c.c. of 2 per cent. sodium nitrite solution and 1 c.c. of 10 per cent. H_2SO_4 to from 10 to 30 c.c. of urine, followed by the addition of a small amount of chloroform. This is shaken together and allowed to separate into layers, the presence of the iodid being indicated by a purplish red or violet color in the chloroform.

16. Sahlr: *Lehrbuch der klinischen untersuchungs, Methoden*, Franz Deuticke, Leipzig and Wien, 1899, p. 421.