

presence of diacetic acid. He uses the following solutions for the determination of the acidosis index:

a. The 'standard solution,' consisting of ethyl aceto-acetate 1 c.c., alcohol 25 c.c., and distilled water to 1000 c.c.

b. Ferric chloride solution, consisting of 100 grams of ferric chloride dissolved in 100 c.c. of distilled water.

An equal quantity (10 c.c.) of (*a*) and of the urine to be tested is put into two test-tubes separately. To each of these 1 c.c. of (*b*) is added. After waiting a few minutes, the intensity of the colour of the two is compared. If the solution in the (*a*) test-tube is lighter than the urinary solution, add known quantities of distilled water to the latter till the shade of the two is the same. From the figures so obtained the 'acidosis index per litre' is arrived at.

Thus:

Large's test positive and Gerhardt's test negative

Large's test positive and Gerhardt's test positive

Volume of urine solution 10 c.c.

" " " 20 "

" " " 100 "

and so on in proportion.

Acidosis index
per litre
0.5

1

2

10

To obtain the 'acidosis index,' the 'acidosis index per litre' is multiplied by the amount of urine in litres passed in twenty-four hours.

This method gives an 'acidosis index' which can be translated in terms of 3-oxybutyric acid. Thus an acidosis index of 10 is equivalent to the daily excretion of 10 gram. of 3-oxybutyric acid.

Another helpful test is the reaction of the patient's urine to alkali given by the mouth. e.g., a patient who requires more than 1 oz. a day of sodium bicarbonate to make his urine alkaline is suffering from acidosis of very considerable severity. In a healthy individual 2 dr. of sodium bicarbonate will keep the urine alkaline for twenty-four hours. If, however, an excess of acid is being formed in the body, the soda will unite with the acid radicals, and be excreted in the form of neutral salts, and thus fail to make the urine alkaline. The amount of sodium bicarbonate required to be given to induce alkalinity helps materially therefore in forming a prognosis.

The reduction in the alkalinity of the blood will also give valuable indications, for if this is reduced, it is almost certain that the rest of the tissues have suffered to a greater degree. The method more frequently used at the bedside is the determination of the percentage of nitrogen excreted in the form of ammonia, and the comparison of this percentage with the percentage of nitrogen excreted in the form of urea. The ammonia nitrogen in health is at most about 5 per cent of the urinary nitrogen, but in conditions of acidosis it not infrequently rises to 18 to 20 per cent, and readings as high as 40, 50, or even 60 per cent have been recorded.

The nitrogen is apparently excreted in the form of ammonium