UREA CONCENTRATION TEST.

A WELL TRIED TEST OF RENAL EFFICIENCY.

By JOHN HATCHER.

The Urea Concentration Test of Maclean and De Wesselow is very widely used in the investigation of renal disease. Its great advantage is the extreme simplicity with which it is carried out, a very valuable point in any investigation. The principle of the test is to compel or provoke the kidneys to concentrate urea by flooding the blood with urea and at the same time withholding fluids, thereby bringing about a concentration. Urea is, of course, only one of a number of substances dealt with by the kidneys; the reason it is selected is that it is present in reasonably measurable amounts and technically the necessary tests are both simple and accurate.

Preparation of the Patient.

Though the necessary preparation of the patient is very simple it is extremely important that it should be properly done. In actual practice it consists only of withholding fluids overnight and during the period of the test. If desired food may be taken, though it must be of a dry nature, or as the text books somewhat inappetisingly put it " a dry breakfast."

Collection of Specimen.

This test should never be carried out unless a recent blood urea estimation has proved the urea content of the blood to be below 100 mgms. per 100 c.c. The reason for this is that it might be inadvisable to give a patient who already has urea retention an additional dose to deal with. In any case there is no point in giving additional urea as the kidneys have already been provoked to their maximum effort. To minimise the inconvenience to the patient the test is usually started early in the morning. The patient's bladder is emptied, the volume noted and a specimen saved and marked " O," the dose of urea is then given and exactly one hour later another specimen of urine is collected and marked specimen " I," two further specimens are collected at hourly intervals and marked specimen " 2 " and " 3." Unless the whole of the specimens are sent, the total volume passed on each occasion must be recorded. Occasionally a blood urea estimation is also required, this is collected after the specimen marked " 2." For the blood urea estimation 5 to 10 c.c. of either clotted or whole blood is required, the specimen is obtained by vein puncture.

Urea Prescription.

Urea	...	15 grams.
Water	...	100 c.c.

Urea has a somewhat unpleasant metallic taste, and a few drops of tincture of orange will help to make it more palatable. This prescription is intended for adults, for children smaller amounts must be used.

Age.	*Urea Prescription.*	*Amount of Urea.*
8–12	80 c.c.	12 grams.
5–8	70 c.c.	10 ,,
3–5	50 c.c.	7½ ,,
1–3	40 c.c.	6 ,,
Under 1	25 c.c.	4 ,,

Interpretation of Results.

The object of the test is to ascertain the maximum concentration of urea in urine it is possible to secure. Normal findings are usually from 2½ to 4 per cent. urea, though in practice any concentration over 2 per cent. is taken as satisfactory. This means that if any of the specimens marked 1, 2 or 3 give 2 per cent. or over urea the test is satisfactory. One very important point must be considered, the volume of the urine passed, and if the concentration of urea is below 2 per cent. the first thing to be excluded is excessive diuresis. The volume passed in the first specimen passed after the urea has been given should not exceed 120 c.c., and in the two subsequent specimens 100 c.c. If the concentration of urea is below 2 per cent. and the volume of urine passed exceeds these amounts, the test must be repeated; if urea concentration is satisfactory despite excessive diuresis there is of course no need to repeat the test. The usual cause of excessive diuresis is failure to withhold fluids; there is, however, the possibility of fluids retained in the body being released. The test may be relied upon to detect the presence of serious renal disease, but it is well to remember that the kidneys like other organs has a very considerable reserve and experimental work has proved that between 50 per cent. and 60 per cent. of kidney tissue must be affected before subnormal concentration is obtained.

THE PASSING BELL.

It is with deep regret that we record the death of the following Sisters, who are presumed to have been killed in action at sea on January 24th, 1944, while serving on a Hospital Carrier :—

Sister Sarah Elizabeth Dixon, S.R.N., Q.A.I.M.N.S.R.

Sister Winnie Alice Elizabeth Harrison, S.R.N., S.C.M., Q.A.I.M.N.S.R.

It is with the deepest regret that we record the death of Sister Janie Beryl Wright, S.R.N., Q.A.I.M.N.S.R., the result of an accident in Middle East on August 7th, 1944.

APPOINTMENTS

ASSISTANT MATRON.

Brompton Hospital, London, S.W.—Miss Ethel Midgley, S.R.N., has been appointed Assistant Matron. She was trained at the Royal Devon and Exeter Hospital, Exeter, and has been Ward Sister, Night Sister and Sister Tutor at the Huddersfield Royal Infirmary, and Sister Tutor-Office Sister at the Brompton Hospital, London.

Botley's Park Colony, Chertsey.—Miss E. M. Burrows, S.R.N., has been appointed First Assistant Matron. She was trained at the Gloucester County Hospital, Southmead General Hospital, Bristol, and in Housekeeping at the Royal Gwent Hospital, Newport, Mon.. Miss Burrows has been Ward Sister, and Night Superintendent at the Gloucester County Hospital, and Second Assistant Matron at Botley's Park Colony, Chertsey.

NURSING RECRUITMENT SERVICE.

King Edward's Hospital Fund for London.

It is announced that Miss Helen Stuart Sheard, S.R.N., S.C.M., has been appointed Assistant Secretary.

She trained at the Westminster Hospital, and took her midwifery at the Simpson Memorial Hospital, Edinburgh. She undertook Ward, Theatre, and Night Sister's duties in her training school, was Night Sister at the Dreadnought Hospital, Women's Ward Sister at the General Hospital, Hitchin, returned to the Dreadnought Hospital as Assistant Matron, and then became Matron of the Royal Albert Dock Hospital, E.16. She is an examiner to the General Nursing Council.

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