

A Study of the Renogram, Applied as one of the Preoperative Tests

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Laboratory studies of the preoperative renal function tests, as a part of the factors for determining operative risk, often give rise to discussion at the time of operation by using general anesthesia. The purpose of this study is to review the possibility of the renogram as one of the useful preoperative renal function tests in determining the operative risk. In addition, relationship of the age and the degree of operation to the renogram was also reviewed.

Methods:

(1) The renograms of an individual case were taken on different three occasions; before operation and at 1 & 3 weeks after operation.

(2) The P.S.P. test, Fishberg's concentration test, urea clearance test, creatinine clearance test, nonprotein nitrogen, blood pressure and erythrocyte sedimentation rate were determined before operation and at 3 weeks after operation. The examinations at 1 week after operation included the Fishberg's concentration test, nonprotein nitrogen, blood pressure and erythrocyte sedimentation rate.

(3) In an analysis of these renograms, the MINAMI classification was applied as criteria for qualitative analysis and the TAKEUCHI classification was applied as criteria for quantitative analysis.

Results:

The present report deals with 14 cases: second decade, 1; third decade, 2; fifth decade, 8; sixth decade, 3. Of these 14 cases examined, 10 were performed major surgery (gastric resection or total gastrectomy) and the other 4 were performed minor surgery.

(1) Review of the cases, determined to be operated according to the conventional routine preoperative tests, suggests that the preoperative renograms of these cases corresponded to type N or M₁ (none corresponded to type L) in the MINAMI classification and corresponded to grade 0, grade I or upper limits of grade II (none corresponded to lower limits of grade II or grade III) in the TAKEUCHI classification.

(2) For the cases which were of a younger age and were performed minor surgery, the postoperative renograms were stable.

(3) For the cases which were performed the major surgery and of an older age, there tends to be the reduction of the R.F.I. on the postoperative renograms, compared with preoperative ones. 6 of 11 cases over 50 years of age showed the reduction of the R.F.I.; of these, 4 were of grade O-I before operation and were reduced to grade II after operation.

(4) Only one of 14 cases was thought not to be operated because the P.S.P. test revealed less than 15% excretion in 15 minutes and the urine specific gravity by means of the Fishberg's concentration test was 1.013. However, the analysis of the preoperative renogram was of type M and grade I. Therefore, according to (1) of result, described above, the operation was carried out and acute renal insufficiency has not occurred and this patient is now healthy.

Conclusion:

The renogram is very useful as one of the preoperative renal function tests in determining the operative risk. In addition, it is also useful for the follow-up study of the postoperative renal function of the operated.