A new method is described for determination of the glomerular filtration rate, based on the fact that at an urinary specific gravity of 1001 the final urine is concentrated 6.67 times, as compared with the primary glomerular filtrate. The glomerular filtration rate is evaluated by multiplication of the minute diuresis at a specific gravity of 1001 by the factor 6.67. In this manner the chemical analysis of urine and blood is avoided. Urine with a specific gravity of 1001 is obtained by water loading much the same as in the dilution test of Volhard. For checking the accuracy of the method, comparative studies were conducted with creatinine clearance in 36 patients and with $^{51}$Cr-EDTA clearance in 33 patients. The difference in the values of the glomerular filtration rate, evaluated by the above-mentioned two methods and the new method was statistically not significant ($p > 0.05$). The method is recommended for the early detection of disturbances in the glomerular function prior to the occurrence of azotemia.

The progress in nephrology during the last decades revealed the great compensatory capacity of the kidneys. It became evident that the blood level of the residual nitrogen substances could not be used as a test for the early diagnosis of renal diseases, since they increased until 2/3 of the renal function were lost [5]. This implies the use of renal functional investigations. Most often the concentration tests of Volhard is used owing to its common availability. A considerable disadvantage of this test is that it reflects only the partial nephron function. Therefore, it could not serve for the estimation of the degree of renal impairment [4, 5]. The clearance tests have the highest diagnostic and prognostic significance because they supply exact quantitative information on the severity of renal impairment. Despite some disadvantages, the endogenous creatinine clearance is usually performed, although it requires well-equipped laboratory and trained personnel. This restricts its extensive use in the early diagnosis of renal diseases.

At present there is no generally available method which is easy to perform, requires no special equipment and trained personnel, and which may be used for the early demonstration of disorders in renal filtration prior to the onset of azotemia.

We have therefore developed a method for the determination of glomerular filtration rate in which the chemical analysis of urine and blood is substituted by a correction factor (6.67), which reflects the degree of concentration of the primary glomerular filtrate into the final urine at a specific gravity of the urine of 1001.
Theoretically, the correlation U/P (ratio between the urinary level of a given substance and its blood plasma level) for substances that are eliminated only by glomerular filtration reflects the degree of concentration of the primary glomerular filtrate into the final urine. If the degree of concentration of the primary glomerular filtrate into the final urine is evaluated by the urinary specific gravity, the chemical analysis of urine and blood for assessment of the ratio U/P in the classical clearance formula \( C = \frac{U \times V}{P} \) could be avoided.

According to the modern conception of renal water excretion, based on micropuncture studies, 15\% of the primary glomerular filtrate enter the distal tubule, no matter whether the body is dehydrated or hyperhydrated [1, 3, 6, 7] (Fig. 1).

During water loading, as a result of inhibition of the antidiuretic hormone and water reabsorption in the distal tubules and the collecting canals, these 15\% of the glomerular filtrate could be completely excreted (i.e. the maximum diuresis which could also occur after water loading is 15\% of the glomerular filtrate).

Since the maximum dilution of urine goes up to a specific gravity of 1001, this value could be used as a criterion for the maximum suppression of water reabsorption in the distal tubules and the collecting canals, when minute diuresis is 15\% of the glomerular filtrate. Therefore, at a specific gravity of 1001 of the final urine, the primary glomerular filtrate will be concentrated 6.67 times, since \( 100 : 15 = 6.67 \). The exact determination of the degree of concentration of the primary glomerular filtrate into the final urine according to the specific gravity could be performed only under a specific gravity of 1001 because this value ex-