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Higher risk of being a man in becoming renal failure

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SUMMARY

Our nation-wide questionnaire study revealed that the number of male dialyzing patients is greater than that of female with male-female ratio of 1.85 and nearly equal death rate both in male and female dialysis patients. Studying other nation-wide statistical informations together, it was elucidated that numbers of glomerulonephritis were almost equal in both sexes, but chronic renal failure was observed more in males. Thus, the most cardinal explanation for the male's excess over female among those on dialysis therapy should be the men's superior susceptibility to state of renal failure in Japan.

INTRODUCTION

Under the socialized medical system in Japan, the patients' expense for dialysis treatment is negligibly small. The social and emotional concepts are as such making an invisible and strong barrier to the cadaveric renal transplantation and home dialysis, besides the easy access to the well manned free dialysis. Consequently, nearly all Japanese in terminal uremia would go into institutional hemodialysis. These Japanese circumstances would offer an uniform ground for statistical studies on dialyzed patients. Curiously, the number of male patients having been introduced to chronic dialysis therapy was larger than that of female in our dialysis unit, at the male number of 2.1 against one female in cumulative 174 patients. In order to clarify this particular composition of dialysis patients, we have studied our questionnaire and senses covering entire Japan.

SUBJECTS AND METHODS

Questionnaire forms were sent out to 400 institutions composed of university hospitals, national and regional public hospitals and selected private clinics out of 985 institutes enlisted to Japanese Society of Dialysis Therapy. The recoveries were gained from 161 institutions. Among the checking details were the cumulative number of all patients dialyzed for chronic uremia and that of deaths in

the dialyzing patients before the end of August 1977 in each institution. We also employed the national statistics on chronic glomerulonephritis and chronic renal failure in November 1974 reported by Chronic Nephritis Research Committee of Japan²⁾ and Japanese population statistics in 1977¹⁾.

RESULTS

Total dialysis patients treated in 161 institutions by August 31st 1977 were 7274 including 4722 males and 2552 females cumulatively. This elucidates to show male's excess by ratio of 1.85 against female. Among this group of patients, deaths in male were 1355 against 714 of that in female making male-female ratio of 1.90. Death rates, however, were 28.7 per 100 dialyzing patients for male and 28.0 for female with male-female ratio of 1.03, showing almost negligible sexual difference. To explain this discrepancy we had assorted suburemic renal diseases. Chronic renal failure patients fulfilling either of serum creatinine concentration of 3 mg/dl or more, value over 40 mg/dl of blood urea nitrogen and blood non-protein nitrogen over 60 mg/dl who had been seen at 1400 major clinics between November 1st. and November 30th. 1974 were totalled to be 4552 in male and 2545 in female²⁾ making male-female rate of 1.79. Impressively, 96.8% of the renal failure patients were in working age of 20 years old and over²⁾. The commonest causative disease for renal failure in chronically dialyzed patients was glomerulonephritis in Japan occupying 80.1% of all²⁾. In 1944 the males of glomerulonephritis were 8337 against female number of 7808 making the ratio of 1.07 in male's slight predominance²⁾. In reference, male-female ratio of Japanese population is 0.97 in 1977. These results are illustrated in figure 1.

DISCUSSION

In Japan, where practically everybody in terminal renal failure gets treated by artificial kidney, the male patients markedly outnumber the female with male-female ratio of 1.85. There should be at

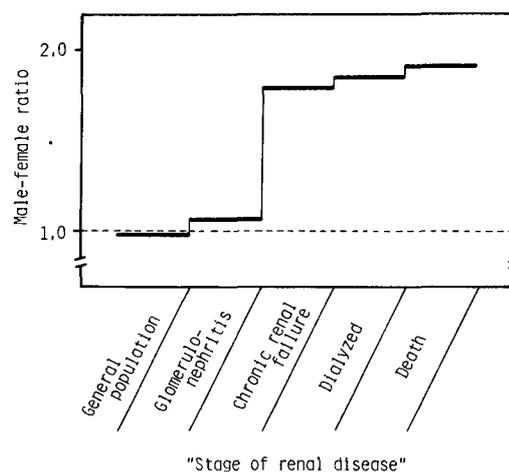


Fig. 1. Male-female ratios in progression of renal disease

least five possibilities to explain this imbalance as followings, males exceed females in general population, the renal disease prevalence is higher in male, men go into renal failure more frequently, more males being introduced to the dialysis therapy and a higher death rate in female dialyzing patients. The obtained data proved the first, and fifth possibilities to be inconsistent with actual data. Among them the most cardinal cause was elucidated to be the men's superior susceptibility to becoming renal failure. The second place in the causes should be slightly higher prevalence of renal disease in male and somewhat larger number of male patients introduced to the dialysis therapy. In Europe, where racial and social bases are different, similar male preponderance is seen at the ratio of 1.48 in those receiving dialysis therapy so as in those transplanted with the ratio of 1.53⁴⁾. However, it is impossible to trace the origin of this imbalance because of difficulties in gathering appropriate data concerning their background by our hands.

About the high susceptibility of men to becoming renal failure, we do not have a definite pathogenetic evidence to it. However, von Holst³⁾ has explained the effect of social stresses in pathogenesis of renal failure with gathered knowledges from several animal experiments. According to his results, inter-individual stresses produce sympathetic nerve overactivation reflecting to renal vasoconstriction which proceed to provoke subsequent renal damage finally followed by renal failure in the line of process. Here, it should be considered that in Japanese society the man is the bread winner worker for the family, and has to take more physical and mental stresses through the long working hours in competitive society without appropriate rest or recreation. Actually, almost all renal failure patients belong to the working age in Japan.

In the other side of story, we may indicate that the sufficient timely rest and relaxation for those with diseased kidney shall reduce various stresses and ordinarily prevent the acceleration towards the renal failure in daily practice. In the fact, the sensus proves that men and women are equally surviving, after becoming renal failure, probably because men also reduce their work and take enough rest as designated by their medical attendants.

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