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Autopsy Findings in Dialysis Patients with Polycystic Disease of the Kidney

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Autopsy findings of 98 dialysis patients with polycystic disease of the kidney were studied.

The 50–59 year-old group was the largest as well as the 1000g–1990g group of kidney weight. Death due to infections was the most frequent, followed by bleeding. The total number of patients with infections and bleeding was 39 cases (39.8%) and 38 cases (38.8%), respectively. Brain and subarachinoid bleeding seemed to be the most important risk factors. But, the causes of death were nonspecifically related to polycystic renal desease. The total number of patients with polycystic disease of the liver was 51 cases (57.1%) and the mean weight of liver was 1960.2g.

(Key Words: Autopsy findings, Dialysis, Polycycystic kidney)

INTRODUCTION

There were 1,442 dialysis centers in the files of the Japanese Registry with 53,017 patients treated by maintenance dialysis as of December 31, 1983 and 27% of these were patient with polycystic kidney (4).

The authors collected autopsied dialysis cases with polycystic disease of the kidney, and the natural history and risk factors of dialysis patients with polycystic disease of the kidney are discussed in this paper.

MATERIALS AND METHODS

The 98 autopsied dialysis patients with polycystic disease of the kidney were collected from the Annuals of Pathological Autopsy Cases in Japan, 1958–1981, published by the Japanese Pathological Society (3).

Materials studied were all autopsied cases, and no information was available concerning clinical course, clinical data and duration of dialysis.

RESULTS

1. Fig. 1 shows age and sex distribution among autopsied dialysis patients with cystic disease of the kidney. In the 60 male cases, the 40–49 year-old group was the largest, followed by the 50–59 year-old group. In 38 female cases, the 50–59 year-old group was the largest. When the male and female cases were combined, the 50–59 year-old group was the largest. The incidence of peritoneal dialysis (PD) in female cases was significantly higher than that in male cases.
2. Fig. 2 shows kidney weight among adult autopsied dalysis cases with cystic disease. In kidney weight, the 1000g–1990g group was the most frequent. All cases under 400g of kidney weight were treated by hemodialysis (HD). In one case of PD, left and right kidneys weigh over 3000g, respectively.
3. Table 1 shows the direct cause of death in autopsied dialysis patients with cystic disease of kidney. Infectious death was the most frequent, followed by bleeding. Deaths due to brain and subarachinoid bleeding were the most frequent and they seemed to be the most important risk factors in the end stage of cystic disease of

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kidney.

4. Table 2 shows the incidence of infectious diseases in autopsied dialysis cases with cystic disease of kidney. The total number of patients with infections on dialysis was 39 cases (39.8%). No significant differences were seen in the male and female group and the PD and HD group. Bronchopneumonia was the most frequent followed by peritonitis and lung tuberculosis. The incidence of tuberculosis in patients of the end stage of cystic disease of kidney on dialysis was high as dialysis patients in general.
5. Table 3 shows the frequency of bleeding in autopsied dialysis patients with cystic disease of kidney. The total number of patients with bleeding was 38 cases (38.8%). No significant differences were seen in the male and female group and the PD and HD group. The incidence of gastrointestinal, brain and subarachinoid bleeding were the most frequent.
6. Table 4 shows the cases of cystic disease of liver complicating cystic disease of kidney. The 31 cases (51.7%) in males and the 25 cases (71.4%) in females were complications of cystic disease of liver when the male and female cases are combined, there was 51 cases (57.1%). The mean weight of liver was 1960.2g and no significant differences were seen in the male and female group.

DISCUSSION

In this study, male to female ratio was 1.6 to 1. Males were slightly more frequent. As Yazaki et al, male to female ratio was 1.4 to 1 and males were slightly more prevalent (7). As other previous investigators (1, 5, 6), no significant differences of incidence of patients with polycystic renal disease were seen in the male and female group. The reason for this difference of male to female ratio is not known, but there are many factors to be considered including race and clinical or autopsy study.

In these autopsied cases studied, no information was available concerning duration of dialysis. So, degree of contracted changes of kidney for dialysis treatment was unknown. All cases under 400g of kidney weight in this study may be long term dialysis treatment.

It is known that there are complications of cerebral artery aneurysma, liver fibrosis, polycythaemia and cystic disease of other organ systems, for example, liver, pancreas, spleen, lung, ovalium, uterus, thyroid glands, bladder and testis. In this study, the incidence of cerebral artery aneurysma was unknown, but deaths due to brain and subarachinoid bleeding were the most frequent. Brain and subarachinoid bleeding seemed to be the most important risk factors, but death due to brain bleeding were 16.4% of dialysis autopsied cases due to chronic glomerulonephritis (unpublished data). So, incidence of deaths due to brain bleeding in the group of polycystic renal disease was no significantly different to chronic glomerulonephritis.

As reported by Rall et al (5), incidences of cystic diseases of liver, pancreas and spleen were 33%, 9% and 2%, respectively. As other previous studies (2), the incidences of cystic disease of liver in patients with cystic renal disease range from 5.5% to 75.0%. In this study, the cases of cystic disease of liver complicating cystic disease of kidney was 51 cases (57.1%) and there were only four cases with cystic disease of other organ systems except liver.

The causes of death were nonspecifically related to polycystic renal disease.

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Table 1 Direct causes of death in dialysis cases with polycystic disease of the kidney

	HD	PD	Total
Brain and subarachinoid bleeding	9 cases	5 cases	14 cases
Peritonitis*	2	5	7
Bronchopneumonia	2	2	4
Miliary tuberculosis	3	0	3
Bacteriemia, Sepsis	1	1	2
Acute respiratory failure	0	1	1
Acute splenitis	1	0	1
Pericarditis	1	0	1
Pyelonephritis	1	0	1
Pyonephrosis	1	0	1
Lung abscess	1	0	1
Lupture of abdominal aneurysma	1	0	1
Uremic lung	1	0	1
Gastrointestinal bleeding	1	0	1
Bleeding of adrenal gland	1	0	1
Lung cancer	1	0	1
Unknown	36	21	57
Total	63	35	98

* Including peritonitis due to perforation of gastrointestinal ulcer 13 cases on PD and one case on HD

Table 2 Infections in autopsied dialysis cases with polycystic disease of the kidney (n = 98)

1) Number of dialysis patients with infectious disease complicating polycystic disease of the kidney

Sex \ Age	0～29	30～39	40～49	50～59	60～69	70～79	Total (%)
Males	0	1	7	9	7	3	27(45.0%)
Females	0	2	1	3	5	1	12(31.6%)
Total(%)	0(0%)	3(50.1%)	8(36.3%)	12(35.4%)	12(50.0%)	4(59.2%)	39(39.8%)

2) Kinds of infectious disease

	HD	PD	Total
Bronchopneumonia	7 cases	6 cases	13 cases
Peritonitis	4*	4*	8
Lung tuberculosis	4	0	4
Pyelonephritis, pyonephrosis	1	3	4
Lung abscess	2	0	2
Systemic miliary tuberculosis	2	0	2
Splenitis	2	0	2
Cholecystitis	1	1	2
Sepsis and/or Bacteriemia	1	1	2
Mucor and/or Aspellgirus	1	0	1
Pleuritis	1	0	1
Cystitis	1	0	1

* Including tuberculosis (one case on PD and one case on HD)

Table 3 Bleeding in autopsied cases with polycystic disease of the kidney (n = 98)

1) Number of dialysis patients with bleeding complicating polycystic disease of the kidney

Sex \ Age	0～29	30～39	40～49	50～59	60～69	70～79	Total (%)
Males	0	0	9	7	5	1	22(36.6%)
Females	0	1	3	4	7	1	16(42.1%)
Total(%)	0(0%)	1(16.7%)	12(54.5%)	11(32.4%)	12(50.0%)	2(28.6%)	38(38.8%)

2) Focus

Gastrointestinal	17 cases (17.3%)
Brain + Subarachinoid	14 cases (14.3%)
Others*	7 cases (7.1%)

* Including spleen, kidney, bladder, pancreas, lung and systemic bleeding tendency

Table 4 Number of cases with polycystic disease of the liver (n = 98)

1) Number of cases with polycystic disease of the liver complicating polycystic disease of the kidney

Males : 31 cases (51.7%)
Females : 25 cases (71.4%)
Total : 56 cases (57.1%)

2) The mean weight of the liver with polycystic disease

Males : 1993.9 g (1110 g ～3345 g)
Females : 1923.8 g (1310 g ～3000 g)
Total : 1960.2 g (1110 g ～3345 g)

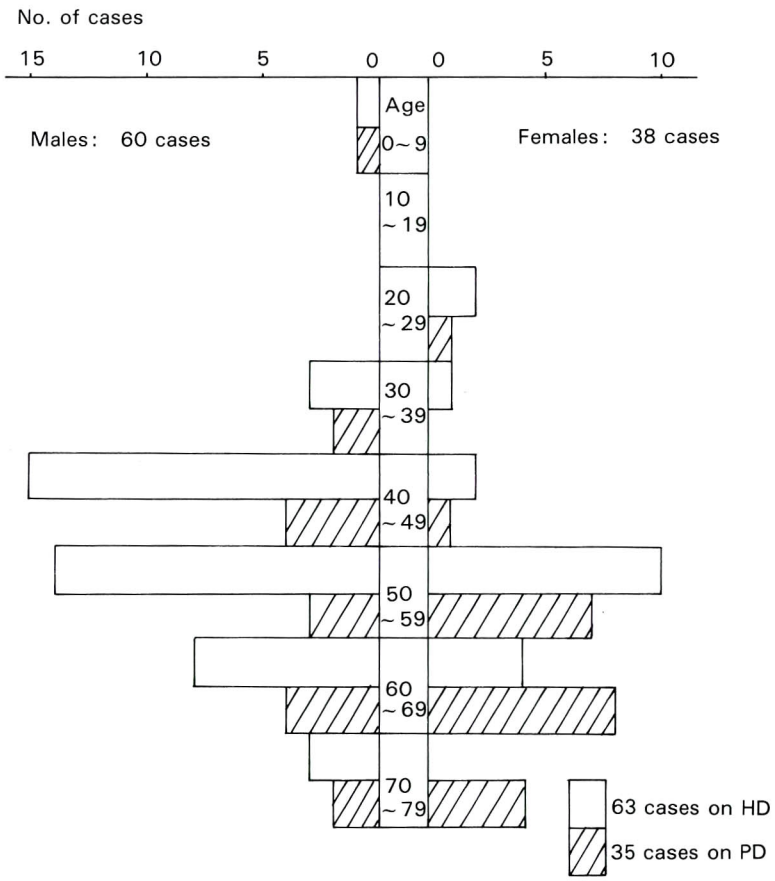

Fig. 1 Age and sex distribution among autopsied dialysis patients with polycystic disease of the kidney under dialysis (98 cases)

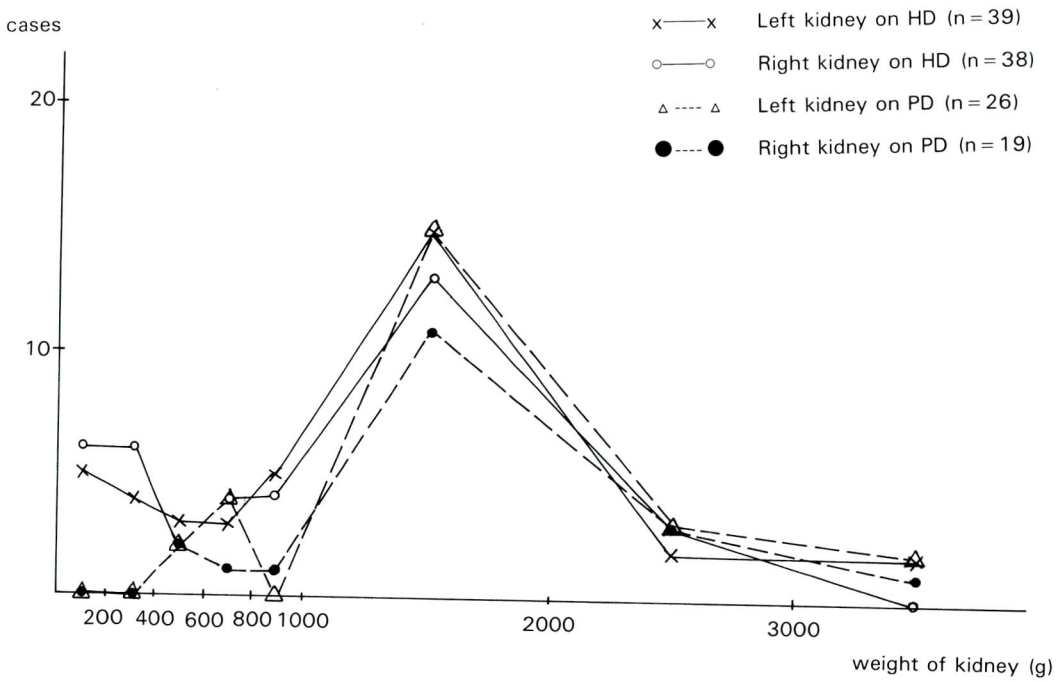

Fig. 2 Weight of the kidney with polycystic disease