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Prevalence of Cholelithiasis in Patients with End-Stage Renal Disease

Dear Sir,

The prevalence of cholelithiasis (CL) differs with age, sex, obesity, diet, infections, and concomitant diseases like diabetes mellitus, hemolytic anemias, and chronic hepatic failure [1]. Geographic regions, ethnic origin, race, and socioeconomic factors have also their effects on the prevalence of CL [1–3]. Today, it has been accepted that ultrasonography is superior to oral cholecystography for detecting gallstones. We studied the prevalence of CL by ultrasonography and its relationship to serum lipids in patients with end-stage renal disease.

One-hundred patients, aged between 15–80 years, were included in the study. After the physical examinations and the histories, the patients with end-stage renal disease (creatinine clearance < 10 ml/min) were examined for hematocrit, white blood, cell count, blood urea nitrogen, serum glucose, aspartate, and alanine aminotransferases, uric acid, bilirubin, alkaline phosphatase, total lipid, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides. All patients were asymptomatic in terms of a gallbladder disease. Echoic intraluminal, mobile masses with acoustic shadows were regarded as gallstones. Our study group did not include alcoholics. The results are expressed as mean values ± SEM, and the SPSS program package was used for statistical analysis.

The mean age of the patients was 47.72 ± 17.33 (range 15–80) years, and out of the 100 patients, 56 were male and 44 female. Thirty-five patients were undergoing hemodialysis, and 65 patients were outpatients with a creatinine clearance < 10 ml/min. The causes of the renal failure were hypertensive nephrosclerosis (n = 33), tubulointerstitial nephritis (n = 28), chronic glomerulonephritis (n = 12), diabetes mellitus (n = 17), autosomal dominant polycystic kidney disease (n = 6), and renal amyloidosis (n = 4). One of the patients underwent cholecystectomy. CL was seen in 8% of all patients, in 5.8% (1/17) of the diabetics, in 8.4% (7/83) of the nondiabetics, and in 5.7% (2/35) of the hemodialysis patients. The prevalence of CL was 6.6% in males and 10.8% in females (table 1).

The prevalence of CL changes in different countries. In the USA it is 20% for females and 10% for males among the age group 55–60 years [1]. The known highest incidence is reported for American Indians. Similarly high rates are reported from western Europe [4]. The prevalence we found in patients with chronic renal disease was 8%. In a study performed in our region (n =

Table 1. Patient characteristics according to the presence and absence of CL

	CL	No CL	p
Age, years	56.00 ± 13.14	46.90 ± 17.53	NS
Male/female ratio	3/5	53/39	
Prevalence in the whole group, % (male/female ratio)	6.6/10.8	93.4/89.2	
Cholesterol, mg/dl	161.11 ± 23.14	198.03 ± 97.74	0.006
Total lipid, mg/dl	616.88 ± 167.96	695.00 ± 223.63	NS
Triglyceride, mg/dl	158.00 ± 50.64	182.41 ± 70.21	NS
High-density lipoprotein cholesterol, mg/dl	52.00 ± 31.09	42.60 ± 13.39	NS
Low-density lipoprotein cholesterol, mg/dl	84.33 ± 39.88	96.23 ± 48.86	NS

NS > 0.05.

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3,375) [5], the prevalence of CL was found to be 5.1%. In that study the gallstone prevalence was 7.07% for females and 3.22% for males. The highest prevalence was in the age group 50–60 years: 5.3% for males and 13.5% for females [5]. In our study group, the patients with gallstones were in a similar age group, and the prevalence was 6.6% for males and 10.8% for females. Similar results were found in hemodialysis patients [6]. Relatively low prevalence for CL are seen in Japan. In some regions of East Africa CL has not been seen at all [7]. These differences may be due to increased fiber and decreased cholesterol intakes [4]. The low dietary fiber content of western diets causes an increase in deoxycholic acid, so that the formation of gallstone increases.

According to serum lipid, high- and low-density lipoprotein cholesterol, and triglyceride levels, there was no significant difference between the patients with and without CL. It is amazing that these parameters have been found to be more pathologic in patients without gallstones. The gallstone prevalence among diabetics was not significantly different from that of nondiabetics. Badalamenti et al. [8] found that the prevalence of gallstone disease in dialysis patients is 28% and that the prevalence is significantly higher than that of the general population. In a study from Israel [6], a prevalence rate of CL similar to that of the general population was found. Similar to our study, although our study group was small.

In conclusion, the prevalence of CL is 8% in our prospective study. Despite the changes in bile saturation index and dietary changes may increase the gallstone formation in end-stage renal disease patients, our observations suggest that there is no significant difference between patients with end-stage renal disease and the general population for CL.

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