Cardiac Risk Score for Coronary Artery Disease and Preparation for Kidney Transplantation

U.T.		Seyfert ^a
H.G.		Gluntz ^b
F.W.		Albert ^a

^aAbteilung für Transfusionsmedizin der Unikliniken Homburg; ^bTransplantationszentrum Kaiserslautern, FRG

Dr. U.T. Seyfert, Abteilung für Transfusionsmedizin, Unikliniken, Haus 75, D-6650 Homburg/Saar (FRG)

Dear Sir,

Cardiovascular diseases and cardiac complications are the most frequent causes for the high mortality rate in patients suffering from renal insufficiency [1, 2]. The situation of dialysis and the multimorbidity of these patients are quite often linked with diagnostic difficulties and numerous problems [3,4]. The anamnestic data allow to identify 80% of the coronary artery disease patients with healthy kidneys, an additional ergometer test permits the identification in 85% of the cases [5]. Patients with renal insufficiency can quite often not sustain adequate stress tests due to their muscular weakness. Furthermore, there were often found to be remarkable changes in the hematocrit level which has a negative effect on the cardiac reserve.

In 50 patients suffering from terminal renal insufficiency of a kind where chronic intermittent hemodialysis was necessary coronary angiography was performed. In the majority of the cases (table 1) a coronary artery disease was detected and, quite unexpectedly, a relatively high percentage of cardiac valve diseases was observed. Actually, cardiac valve diseases in patients with terminal renal insufficiency were quite often not diagnosed or underestimated. The known symptoms indicating a progressing cardiac valve disease, especially the signs of congestion, can be masked by dialysis. In 30% of our patients a hypertensive cardiomyopathy was classified as suspicion of coronary artery disease before coronary angiography.

On the basis of clinical parameters a risk score for the coronary artery disease of the dialysis patients was established (table 2). 42 patients were included in the group of Table 1. Coronary angiography – results

patients whose data were evaluated. The sensitivity of the score was at 90% and its specificity at 80%. In our opinion this score facilitated to a considerable extent the indication for coronary angiography in dialysis patients. The calculation of the risk score is based on the following parameters: age, duration of dialysis, angina pectoris, transient ischemic attacks of cerebral origin, risk factors (diabetes, hyperlipidemia, etc.), ejection fraction (measured by echocardiography), autonomous insufficiency, vascular atherosclerotic disease (Doppler findings), and history of shunt thrombosis.

Our results show that patients with terminal renal insufficiency should not be excluded from invasive cardiological studies and diagnosis. Severe complications resulting from these diagnostic measures were not observed [6]. In order to assess the situation for kidney

transplantation and possibly to start therapeutic measures during preparation for transplantation the invasive cardiological diagnostics are also connected with a low risk today [6–8]. The indication for coronary angiography is facilitated by a risk score.

106

Seyfert/Gluntz/Albert

Table 2. Risk score for the coronary artery disease in end-stage kidney failure – indication for coronary angiography

no

relative

absolute

(+ A. carotis)

< 10 11–20 21–30 > 30

Indication for coronary angiography

References

Lazarus JM, Lowrie EG: Cardiovascular disease in uremic patients on hemodialysis. *Kidney Int* 1975;7:167–171.

Lindner A, Charra B: Accelerated atherosclerosis in prolonged maintenance hemodialysis. *N Engl J Med* 1974; 290:698–701.

Braun WE, Phillips D: Coronary arteriography and coronary artery disease in 99 diabetic and nondiabetic patients on chronic hemodialysis. *Transplant Proc* 1981;13:128–131.

Kramer U, Wissmann V, Kindler M, Thormann J: Urämische Herzkrankheit. *Med Welt* 1985;36:1228–1233.

Hässler R, Höfling B, Castro L: Koronare Herzkrankheit und Herzklappenerkrankungen bei Patienten mit terminaler Niereninsuffizienz. *Dtsch Med Wochenschr* 1987;112:714–718.

Seyfert UT: Diagnostik und Therapie der koronaren Herzkrankheit im Rahmen der Vorbereitung zur Nierentransplantation; in Albert FW (ed): *Praxis der Nierentransplantation*. Part III. Stuttgart, Schattauer, 1989, pp 29–31.

Kober G, Vallbracht C: Transluminale koronare Angioplastie bei Patienten mit chronischer Niereninsuffizienz. *Dtsch Med Wochenschr* 1985;110:129–134.

Rostand SG, Kirk KA, et al: Dialysis associated ischemic heart disease. Insights from coronary angiography. *Kidney Int* 1984;25:653–659.