

## Late referral of patients with chronic renal disease for specialised nephrologic evaluation and its impact on cardiovascular diseases

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### Introduction

The early referral for specialised nephrologic evaluation has shown its advantages in the treatment, management and medical care in patients presenting chronic renal disease (CRD) (1-4). Advances made in the management of the chronic renal failure (CRF) in the last decade assure to the early referred patients a better chance of avoiding, or at least delaying end-stage renal disease (ESRD) (4, 5-8). Cardiovascular disease (CVD) is one of the main causes of morbidity and mortality in ESRD patients (3, 4). They develop early in the course of CRD because the risk factors for their implementation are present from the earlier stages of CRF. Cardioprotection has emerged as one of the fundamental goal in the treatment of CRF patients. Cardioprotective therapy should be implemented as early as possible to prevent the development of CVD, that means strict blood pressure control (8), timely use of recombinant erythropoietin (9-11), adequate calcium and iron supplements, phosphate binders, prevention of lipid abnormalities and malnutrition, and preservation of quality of life (12, 13).

The aim of this study is to evaluate the impact of late referral on CVD that are the major cause of morbidity and mortality in ESRD population.

### Subjects and methods

The study comprises 111 patients referred for the first time at our nephrologic service in the period January 1999 - January 2001.

The patients were divided in 3 groups by the level of preservation of the glomerular filtration (GF). The first group comprised 40 patients with mild CRF that presented a GF 50 - 75 ml/min. The second group comprised 41 patients with moderate CRF, presented with a GF 25 - 50 ml/min. The third group comprised 30 patients with severe CRF, GF < 25 ml/min. All the patients were examined for the presence of hypertension and anemia. They were also examined for the presence of CVD by asking them for a former history of CVD, by physical examination, ECG, stress tests and echocardiography (14). Every type of cardiac arrhythmia's were determined as dysrhythmia. Left ventricular (LV) dilatation was determined as cavity volume > 90 ml/m<sup>2</sup>. LV hypertrophy (LVH) was determined by mass index > 100 g/m<sup>2</sup> in females and > 131 g/m<sup>2</sup> in males. Concentric LVH (conc LVH) has been determined as hypertrophy with normal cavity volume. Eccentric LVH (exc LVH) has been determined as hypertrophy with LV dilatation (15). Cardiac failure has been considered by the presence of persistent or recurrent dyspnea plus two of the following: raised jugular venous pressure, bibasilar crackles, pulmonary venous hypertension or interstitial oedema on chest X-ray (16). The follow up period for the determination of late referral was 6 months. Patients that in this period needed RRT were determined as late referrals.

Results

All the patients of this study group developed ESRD within 6 months from their referral at the nephrology service, and were considered late referral's. Anemia was present also in all patients. The haemoglobin levels were 8,6 ± 14 mg/dL in the first group; 8,1 ± 1,8 mg/dL in the second group and 7,5 ± 1,2 mg/dL in the third group. The prevalence of hypertension was 52,4%, 67,5% and 83,4% for each group respectively. The anomalies of left ventricular geometry were common in all stages of CRF, and LV dilatation was prevalent (Tab. 1 and Fig. 1).

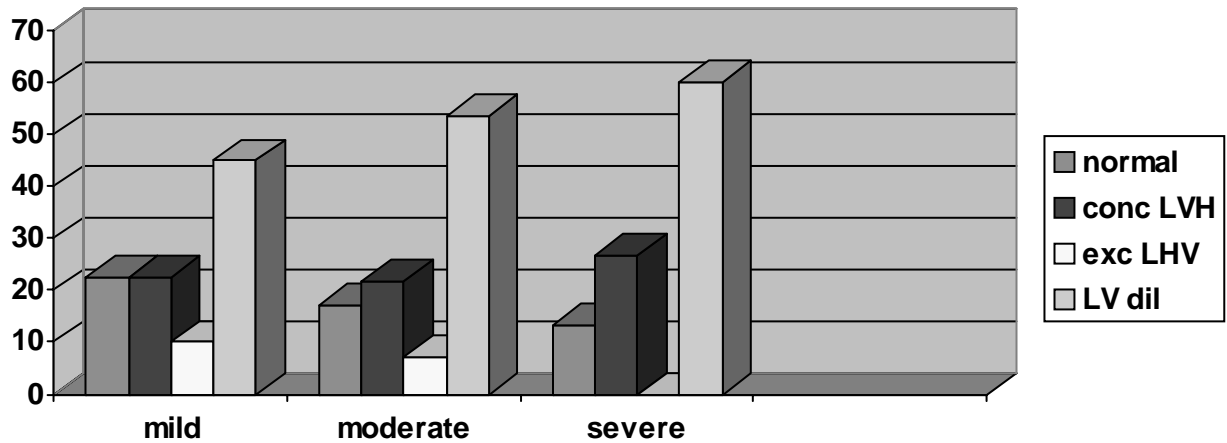
### Results

**Table 1. The prevalence of anomalies of left ventricular geometry by groups**

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Stage of CRF	Mild		moderate		severe	
	nr	%	nr	%	nr	%
normal	9	22,5	7	17,0	4	13,3
conc LVH	9	22,5	9	21,9	8	26,6
exc LVH	4	10,0	3	7,3	0	0,0
LV dil	18	45,0	22	53,8	18	60,1

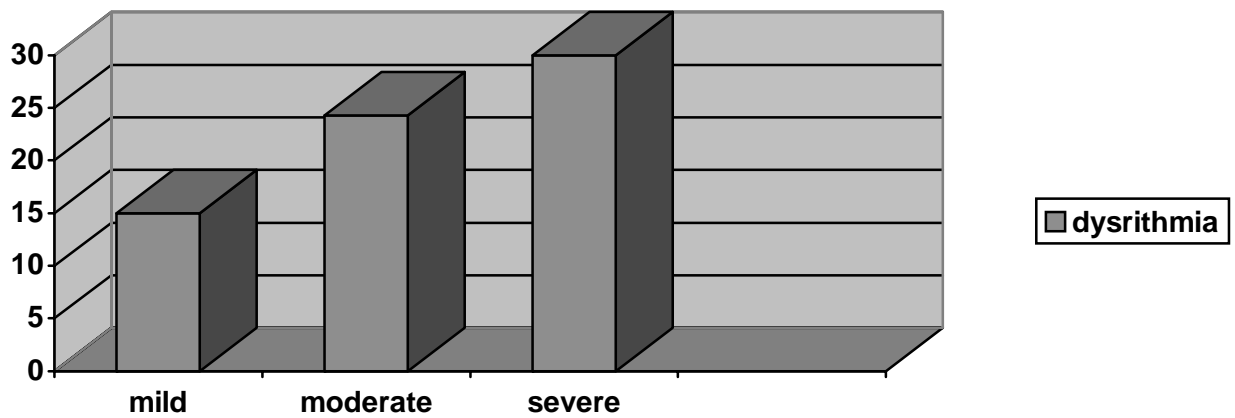
Figure 1. The prevalence of left ventricular geometry anomalies by groups



We found that the vast majority of patients presented different various and combined affections of the cardiovascular system. The IHD was present in all study groups and its prevalence growth with the decline of GF. Dysrhythmias

were also present in all groups. Their prevalence becomes higher with the decline of GF (Fig. 2). Cardiac failure was not present in the patients of this series.

Figure 2. The prevalence of dysrhythmias by groups



**Discussion**

The dates showed that all the patients of this study group are late referrals. We found also a high prevalence of anemia and hypertension that are important risk factors for the development of CVD. CVD were present in all stages of CRF despite the relatively young age of the patients  $40,2 \pm 3,7$  and a very small number of patients presenting diabetes (only 2). This picture we found were characteristic for CRF decades ago. The renoprotective and cardioprotective strategies applied nowadays in CRF patients tend to ameliorate the cardiovascular involvement. The late referral of these patients for specialised treatment is perhaps the main responsible of the high burden of CVD founded in this series. None of the patients was treated with EPO and 45% of

them were not on antihypertensive therapy. Also in the patients on antihypertensive regimen the blood pressure was poorly controlled and ACE- inhibitors were not prescribed. The poor control of risk factors is responsible for the consistent presence of CVD. The high prevalence of anomalies of the left ventricle anomalies, especially of LV dilatation, makes clear the huge CV risk this patients has been exposed. The rush progress to ESRD demonstrated also the leak of renoprotective therapy.

**Conclusions**

We conclude that the late referral of the patients with CRD for specialised evaluation and treatment is accompanied with high burden of CVD, especially LVH, LV dilatation,

IHD and dysrhythmias, by the other hand it is also responsible for the rush progress of CRF to ESRD.

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