SECONDARY AMYLOIDOSIS WITH RENAL INVOLVEMENT AND HISTOPATHOLOGIC CORRELATION. LONG TERM FOLLOW-UP RESULTS

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INTRODUCTION:

Renal amyloidosis is a rare form of chronic kidney disease and long term follow-up results are absent in the literature. Kidney biopsy provides information about prognosis in certain diseases while primary glomerular disease, but there is no evidence for amyloidosis. We aimed in this study to obtain histopathologic features of secondary amyloidosis correlated with prognosis.

METHOD:

This is a retrospective cohort study. Patients, who have admitted to nephrology clinic with amyloidosis between 2005 and 2013 were retrospectively analyzed. Demographic characteristics, baseline biochemical parameters and outcome of patients as requirement of renal replacement therapy and death were analyzed. The kidney biopsy specimens of patients with secondary amyloidosis were re-evaluated to obtain a pathologic feature, which could be correlated with clinical outcome.

RESULTS:

We found 168 patients diagnosed with amyloidosis. Ten patients with multipl myelom, 3 patients with light chain disease, 24 patients with insufficient data and 25 patients with follow up period less than 6 months were excluded from the study. Kidney biopsy of 37 patients were examined. Baseline characteristics and demographic features are given in Table 1.

At baseline, estimated glomerular filtration rate(eGFR-MDRD) was lower in patients with glomerular expansion(p=0.041), global glomerular amyloid involvement(p=0.016), moderate (p=0.017) or severe interstitial fibrosis(p=0,018), severe tubular atrophy(p=0.010), moderate interstitial inflammation(p=0.006). C-reactive protein was higher in patients showing glomerular basement membrane amyloid deposition(p=0.019) and was correlated positively with oblitered glomerul number due to amyloid deposition(p=0.046, r=0.340).

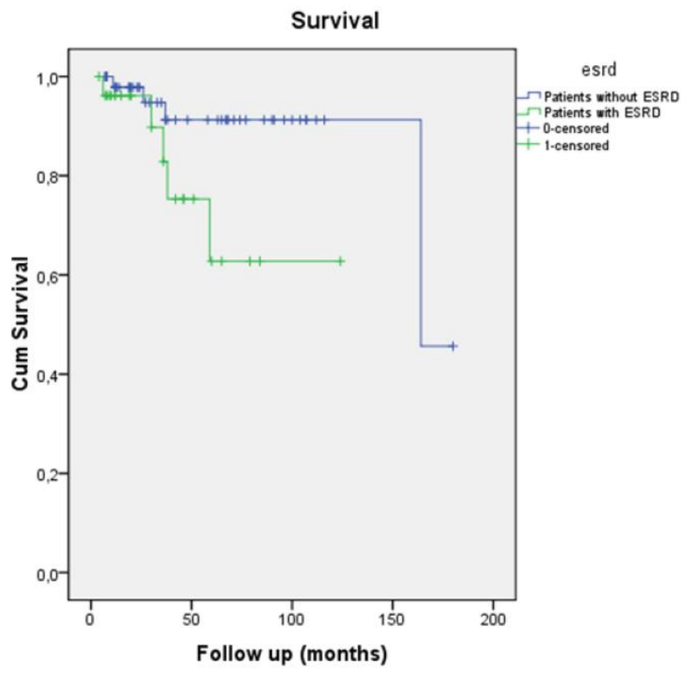
At follow-up mean eGFR declined to 43±45 ml/min/1.73m² and 35 patients developed end stage renal disease(ESRD). Obliteration of glomerulus due to amyloid deposition(p= 0.033), glomerular expansion(p=0.037), global amyloid deposition in glomerulus(p=0.006), interstitial fibrosis(p=0.046) and tubular atrophy(p=0.024)was observed more frequently in patients with ESRD than patients without ESRD.
Multivariete analysis of renal biopsy characteristics showed that global amyloid deposition in glomerulus is an independent risk factor for development of ESRD [p=0.015, OR=16.250, 95% CI=1.736-152.086].Baseline LDL>130 mg/dl [p=0.075, OR=0.370, 95% CI=0.123-1.107] , ferritin>300 ng/ml[p=0.076, OR=3.713, 95% CI=0.872-15.809] and eGFR<60 ml/min/1.73m²[p=0.006, OR=0.173, 95% CI=0.050-0.606] are also independent risk factors for development of ESRD.

One year patient survival in patients with ESRD was 96%, 3 year survival 82% and 5 year survival 62%. One year survival in patients without ESRD was 97%, 3 year survival 94% and 5 year survival 91%, but there was no statistifically significance between patients with or without ESRD(logrank p= 0.053, Figure 1).

Table 1: Baseline characteristics and demographic features of patients

Parameters	Result	Parameters	Result
Age (years, mean±SD)	51 ± 15	Creatinine (mg/dl, mean ± sd; median, min/max)	2.8 ± 2.9; 1.53 (0.3-9.41)
Gender (n, F/M)	58/77	Urinary Protein excretion (mg/24 h, mean ± sd)	7507±6915
Mean follow-up period (months, mean ± sd)	45 ± 37	Ferritin(mg/dl, mean ± sd)	224 ± 251
eGFR(MDRD, mean ± sd)	51±47	CRP (mg/dl, mean ± sd)	33 ± 41

Figure 1: Survival of patients with and without ESRD



CONCLUSION:

Although secondary renal amyloidosis is not rare disease in certain countries, long term follow-up and histopathological features have not been defined well. For the first time at the literature, our study showed that glomerular amyloid deposition is an independent risk factor for development of ESRD and ESRD due to secondary amyloidosis decreases patient survival.

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