

# Renal AA amyloidosis in elderly patients: clinical manifestations, etiologies and outcomes

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## Introduction

AA amyloidosis (AAA) is a rare disorder associated with chronic inflammatory conditions which affecting various organs. While AAA mostly occurs in young age group and secondary to familial Mediterranean fever (FMF), there are no sufficient data regarding etiology, prognosis and outcomes of renal AAA in elderly patients. In this study, we aimed to investigate demographics, clinical presentations, etiologies and outcomes of elderly patients with biopsy-proven renal AAA.

## Materials and Methods

This is a retrospective study of 53 patients who were diagnosed with AAA by kidney biopsy from 2005 to 2015 at the Department of Nephrology, Ankara University School of Medicine, Ankara, Turkey. Demographic characteristics, clinical parameters, office blood pressure levels were recorded for each patient at the time of biopsy. According to their age, patients divided two groups: more than 60 years (elderly patients) (group I), <60 years (young patients) (group II). Mean follow-up time of the patients was 12 months. Outcomes of patients in terms of the requirement of renal replacement therapy or survival were obtained from patient files.

## Results

Group I included 32 patients (female/male: 13/19 and mean age: 68±7) with AAA diagnosed and associated with 16 (50 %) FMF, 7 (21.9 %) bronchiectasis, 2 (6.2 %) chronic osteomyelitis, 2 (6.2 %) inflammatory bowel disease, 2 (6.2 %) rheumatoid arthritis, 1 (3.1 %) ankylosing spondylitis, and 2 (6.2 %) unknown. Group II included 21 patients (female/male: 10/11 and mean age: 43±8 years) with AAA diagnosed and associated with 17 (81 %) FMF (p<0.05). There were no significant different between the two groups with respect to office systolic and diastolic blood pressure levels, albumin and proteinuria. Gastrointestinal tract involvement (14 patients in group I vs.5 patients in group II, p>0.05), cardiac involvement (2 patients in group I), bone marrow infiltration (3 patients in group I) were seen with tissue biopsy. Combined chronic kidney failure and nephrotic syndrome was the most common clinical presentation in group I (73%) and group II (43%). In patients over 60 years, estimated glomerular filtration rate (eGFR) was significantly lower at the time of diagnosed and after 12 months follow up period (p<0.05). During the follow-up period, 60.7 % of the group I and 33.3 % of the group II developed end-stage renal disease requiring dialysis, while 3 patients (11 %) of the group I died. Baseline characteristics of the patients are given in Table-1 and Table-2.

## Conclusion

Our results indicated that renal AAA in elderly patients was not uncommon. Elderly patients were in more advanced stage of renal disease compared to young age group at the time of diagnosis. FMF was the most frequent cause of AAA in elderly population. In 12 months, elderly group seems to have worse renal and patient's outcomes. Early referral to nephrologist may be helpful to improve the prognosis of AAA.

**Table 1.** Characteristics of patients diagnosed with renal AA amyloidosis

Patient's characteristics	Group I (elderly patients) (>60 years) (n: 32)	Group II (young patients) (<60 years) (n:21)	P value
Age (years)	68±7(60-83)	43±8(25-54)	0.001
Sex, n (female/male)	13/19	10/11	NS
Office SBP (mmHg)	117±19(80-150)	111±23(80-180)	NS
Office DBP (mmHg)	71±11(50-90)	67±12(50-100)	NS
Serum creatinine (mg/dl)	2.9±2.1(0.52-8.16)	1.8±1.5(0.34-5.58)	0.016
Serum albumin (g/dl)	2.2±0.7	2.2±0.9	NS
Proteinuria (g/day)	8.4±4.6(2.2±18.2)	9.6±9.1(0.260-37.7)	NS
Total cholesterol (mg/dl)	217±65(87-377)	258±94(148-463)	NS
Triglyceride (mg/dl)	171±83(33-360)	238±129(102-628)	NS
LDL cholesterol (mg/dl)	140±54(35-268)	165±75(92-380)	NS
C-reactive protein (mg/dl)	37.5±39.7(1.7-151)	19.4±24.5(0.8-107)	0.05
eGFR (CKD-EPI) (mL/min/1.73m <sup>2</sup> )	36.6±32.1 28.5(5-119)	75.7±48.6 82(9-158)	0.003
Renal Replacement therapy, n (12 months after kidney biopsy) (%)	17 (60.7)	7 (33.3)	0.058
Mortality, n (12 months) (%)	3 (11)		NS

SBP, systolic blood pressure; DBP, diastolic blood pressure; eGFR, estimated glomerular filtration rate; CKD-EPI, chronic kidney disease epidemiology collaboration; NS, not significant

**Table-2:** Stage of patients according to CKD-EPI

	Group I (elderly patients) (%)	Group II (young patients) (%)
Stage-1	9.3	47.6
Stage-2	15.6	9.5
Stage-3	21.5	9.5
Stage-4	25	19
Stage-5	28.1	14.3

CKP-EPI, chronic kidney disease epidemiology collaboration

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