Croatian Transthyretin Cardiac Amyloidosis Registry - an update

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Introduction: The Croatian Transthyretin Cardiac Amyloidosis (CroATTR) Registry was founded in September 2022 to acquire demographic characteristics and follow clinical outcomes including echocardiographic, electrocardiographic and laboratory data of patients with wild type (wtATTR) or hereditary (hATTR) transthyretin cardiac amyloidosis as well as their family members with confirmed mutation of the TTR gene.[1]

Patients and Methods: We analyzed data collected retrospectively and prospectively of 48 patients included in CroATTR. Descriptive statistics methods were used to analyze the data.

Results: Of 48 patients included in CroATTR, 8 have hATTR, 34 wtATTR and 6 were phenotype negative with confirmed mutation of TTR gene. Eight hATTR patients were male, with median age 50 years (range 43-66 years). Seven have Asp18Glu mutation, while one has Val30Met mutation. Three have received heart and liver transplantation (Tx), of them two concomitant heart and liver Tx. One patient has died 5 years after heart Tx. Remaining 5 patients are treated with tafamidis. Of 34 wtATTR patients 58% are male, with median age 75.5 years (range 45-86 years). Most of the patients have several comorbidities: 79% have arterial hypertension, 38% have chronic kidney disease, 74% have atrial fibrillation, 23% have implanted pacemaker and 18% have aortic stenosis. Twenty-eight patients are on tafamidis treatment, of which 16 are on tafamidis for longer than 6 months. There is tendency to lower NTproBNP (prior to tafamidis treatment median NTproBNP 2263 ng/L, range 495-12531 ng/L, after 6 months median NTproBNP 2251 ng/L, range 349-9574 ng/L) and better 6-minute walk test results (prior to tafamidis median length 335 m, range 160-480 m, after 6 months median length 420 m, range 250-495 m) with tafamidis treatment. Three patients died of heart failure, and one has had heart failure admission. All six phenotype negative patients with confirmed mutation of TTR gene have Asp18Glu mutation. In 2 years of follow-up one patient has developed early signs of cardiomyopathy. Complete patients' data are shown in **Table 1**.

Conclusion: CroATTR is designed to increase knowledge about ATTR-CM and to follow treatment with specific therapy. According to the current data, there are signs of lower natriuretic peptides and better 6-minute walk test results in patients treated with tafamidis.[2]

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TABLE 1. Patient characteristics.

	Wild type ATTR	Hereditary ATTR	Phenotype negative, genotype positive
Number of patients (n)	34	8	6
Male (%)	58	100	50
Age (years)	75.5 (45-86)	50 (43-66)	44.5 (25-53)
Comorbidities (n,%)			
Arterial hypertension	27 (79%)	2 (25%)	1 (17%)
Chronic kidney disease	13 (38%)	1 (12.5%)	0
Atrial fibrillation	25 (74%)	2 (25%)	0
Pacemaker	8 (23%)	0	0
Aortic stenosis	6 (18%)	0	0
Echocardiography			
EF (%)	46 (20-65)	45 (25-60)	65 (60-75)
IVSd (mm)	17 (12-33)	19 (17-30)	11 (8-14)
GLS (%)	-10.5 ((-3.5) – (-17))	-7 ((-6) – (-13))	-18 ((-16) – (-21))
ECG			
Hypertrophy	4 (11.7%)	1 (12.5%)	0
Microvoltage	9 (26%)	5 (62.5%)	0
Pseudo Q	4 (11.7%)	3 (37.5%)	1 (17%)
Tafamidis (n)	28	5	0
Laboratory and functional parameters before tafamidis			
NTproBNP (ng/L)	2263 (495- 12531)	3058 (887-5119)	41.5 (33-84)
Troponin I (ng/L)	55.5 (0-200)	67.5 (10-120)	/
Creatinine (umol/L)	117.5 (56-154)	93 (71-115)	57 (50-101)
6MWT (m)	335 (160-480)	465 (450-490)	/
Laboratory and functional parameters 6 months after tafamidis			
NTproBNP (ng/L)	2251 (349- 9574)	4037.5 (498-7279)	/
Troponin I (ng/L)	35.5 (0-179)	50 (19.4-67)	/
Creatinine (umol/L)	111.5 (71-170)	98 (69-133)	/
6MWT (m)	420 (250 -495)	495 (450-520)	/
Outcomes			
Heart Transplantation	0	3	0
Death	3	1	0

All values are shown as median (min-max).

6MWT = 6-minute walk test; ECG = electrocardiogram; EF = ejection fraction; GLS =global longitudinal strain; IVSd = interventricular septum diameter; NTproBNP = N-terminal prohormone of brain natriuretic peptide

LITERATURE

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