

WHICH CKD STAGE 3 PATIENTS SHOULD BE REFERRED TO A NEPHROLOGIST?

RESULTS OF A RETROSPECTIVE, PATIENT-LEVEL, COHORT ANALYSIS

INTRODUCTION AND OBJECTIVES

- The high prevalence of CKD and its increasing awareness by primary care clinicians is posing a huge burden over health care systems, especially over Nephrology departments.
- While the referral of CKD stage 4 and 5 to a nephrology clinic is undisputable, the need for stage 3 patients referral is still subject to debate.

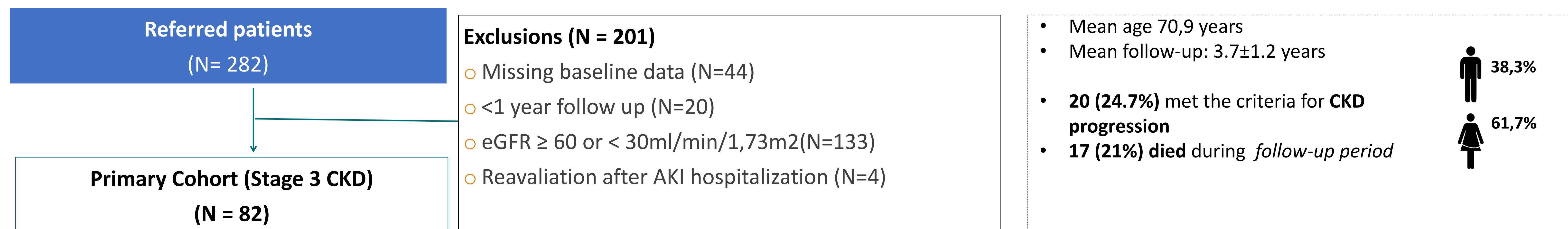
Objectives:

- Investigate baseline characteristics of CKD stage 3 patients associated with subsequent CKD progression, in order to help determine which patients should be referred at this stage.
- Investigated the association of CKD stage 3 progression with morbidity and overall mortality.

METHODS

- Patient-level, retrospective, cohort analysis
- Population:
 - All patients referred to a nephrology clinic over a **6 month** period
 - Patients with CKD stage 3 and **at least one year follow-up** were included
 - Follow up between February 2012 until December 2016
- Univariate and multivariate analysis were employed to determine independent predictors of CKD progression and mortality.
- Baseline covariates included demographics, comorbid conditions and laboratory values.
- Follow up data: death (all causes and cardiovascular), hospitalizations (all causes, cardiovascular, acute kidney injury) and need for RRT
- CKD progression was defined as an eGFR (CKD-EPI – KDIGO criteria) decline superior to 10% per year (approximately 5 years until reaching CKD stage 5) or the need for chronic RRT.

RESULTS AND CONCLUSIONS



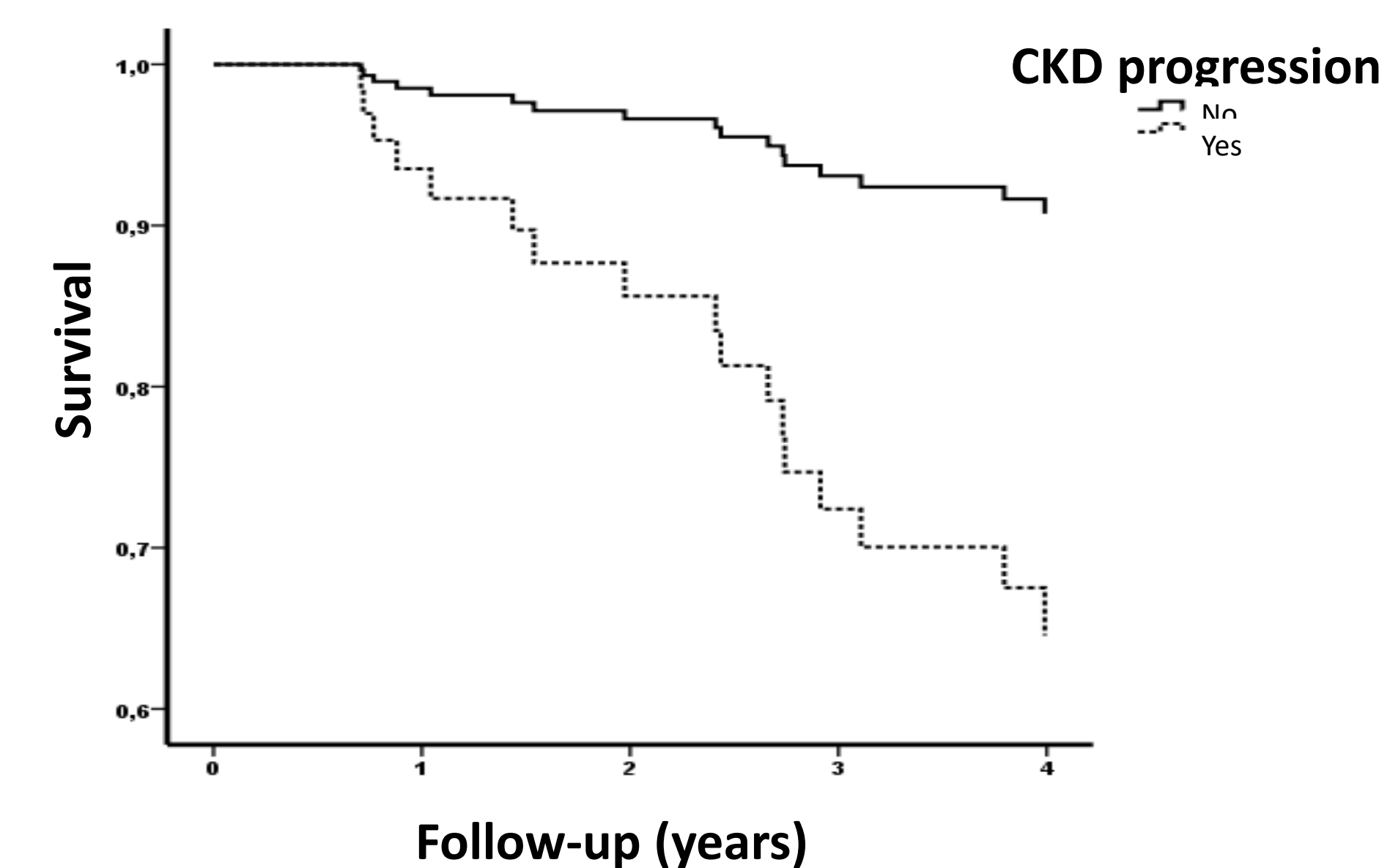
- Mean age 70,9 years
 - Mean follow-up: 3.7±1.2 years
 - 20 (24.7%) met the criteria for CKD progression
 - 17 (21%) died during follow-up period
- 38,3% (Male)
61,7% (Female)

Univariate analysis

VARIABLE	PROGRESSION	NO PROGRESSION	P value	VARIABLE	PROGRESSION	NO PROGRESSION	P value	VARIABLE	PROGRESSION	NO PROGRESSION	P value
N (%)	20 (24.7)	61 (75.3)		Diabetes, N (%)	9 (45)	27 (44.3)	0.954	UACR mg/g, median (IQR)	387.2 (1804.4)	30.5 (231.1)	0.006
Age, median (IQR)	72.29 (30.7)	74.06 (15.91)	0.341	Hypertension, N (%)	20 (100)	56 (91.)	0.326	UACR > 300mg/g (%)	12 (60)	18 (29.5)	0.014
Gender Male, N (%)	9 (45)	22 (36.1)	0.476	Heart failure, N (%)	10 (50)	17 (27.9)	0.068	Hospitalizations, N (%)	11 (55.0)	32 (52.5)	0.525
African race, N (%)	0 (0)	4 (6.6)	0.567	Occlusive CV disease, N (%)	11 (55)	29 (47.5)	0.563	Hospitalizations AKI, N (%)	9 (45)	15 (24.6)	0.083
Baseline eGFR ml/min/1.73m ² , mean (sd)	40,6 (9,1)	41,6 (8,2)	0,627	Obesity, N (%)	5 (25)	22 (36.1)	0.362	CV events, N (%)	5 (25)	13 (21.3)	0.761
								Death, N (%)	9 (45)	8 (13.1)	0.005

Multivariate analysis

CKD Progression				Mortality			
VARIABLE	ODDS RATIO	IC 95%	P value	VARIABLE	HR	IC 95%	P value
Age (per one year ↓)	1.05	1.00 – 1.09	0.032	Age (per one year ↑)	1.05	0.99 – 1.10	0.078
Heart failure	4.4	1.3 – 15.4	0.018	Heart failure	5.45	1.71 – 17.4	0.004
UACR > 300 mg/gr	4.07	1.3 – 12.6	0.015	CKD progression	4.5	1.61 – 12.6	0.004



- Our study confirms that severe albuminuria (macroalbuminuria) plays a major role in CKD progression (at stage 3)
- This study suggests that younger patients and patients with heart failure (HF) comorbidity present a higher risk of CKD (stage 3) progression.
- Both HF and evidence of faster CKD progression (at stage 3) succumb to a higher risk of mortality
- Larger studies are needed to verify if this or other criteria may be useful in guiding which CKD stage 3 patients should be referred to a nephrology clinic

References:

Vinhas, J et al., Prevalence of Chronic Kidney Disease and Associated Risk Factors, and Risk of End-Stage Renal Disease: Data from the PREVADIAB Study, 2011
KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease