

# Malnutrition prevalence in patients with advanced chronic kidney disease by bioimpedance and albumin levels.

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## Background

The mortality in patients with renal chronic disease is hardly conditioned by the nutritional status. The prevalence of malnutrition is estimated in 50-70%. Scientific evidences recommend the assessment and monitoring of the nutritional status along the progression or starting levels in renal chronic disease. The purpose in the nephrology consulting purports to avoid complications and delay the progress of renal failure. Due to the metabolic changes in renal patients is difficult to provide a suitable nutritional marker, nevertheless we have different options like: anthropometric measures, biochemical values and dietary measures. As part of the attention in the nurse consultation we need markers that are cheap, reliable and easy to determine. For these reasons we foreground the albumin serum levels, a significant reduction is related to an increase in complication and mortality, although it is not an indicator of early malnutrition and it could be lower in inflammatory situations or acute phases.



## Objective

To identify nutritional status in patients attending a renal nurse consultation by serum albumin and bioimpedance.



## Methods

Observational research, descriptive, transversal and prospective along year the year 2016. We included every patient who came at the renal nurse appointment of the Virgen de la Arrixaca Hospital in that period of time. We excluded patients with artificial pacemaker or those who were unable to lay down on the stretcher to do the BCM test. We registered variables like age, sex, place of residence, BCM, lean mass, muscle mass, overhydration, E/I (relationship between extracellular and intracellular water), serum albumin level, creatinine clearance by CKD-EPI. The program used was SPSS.



## Results

We studied 53 patients, 25 men and 28 women, 43% of them over 65 years old, and 91% of them lived in a family environment. According to albumin, 94 % of these cases were in a normal nutritional status and just 6% had an malnourished (all of them were men). The 26% presented lean mass values less than normality and 28% showed fat mass values out of range. Hydration status was normal in 41,5%, 2% were low and 56.5% above range. 64% of men were overhydrated.

Table n°2: Variables and average

N	AGE (years)	ALBUMIN (g/dl)	CKDEPI	BMI	LTI	FTI
53	64.87±16.76	4.11±0.34	13.79±4.70	29.52±4.66	12.60±2.67	16.01±5.26

Table n°3: Albumin nutritional range

ALBUMIN (g/dl)	NORMAL (≥ 3.5)	SLIGHT (3.4-2.8)	MODERATE (2.7-2.1)	GRAVE (<2.1)
FREQ.	94.3%	5.7%	0%	0%

Table n°4: Nutritional status vs sex nutritional range

	SEX	NUTRITIONAL STATUS		
		NORMAL	SLIGHT	TOTAL
	MAN	22	3	25
	WOMAN	28	0	28
	TOTAL	50	3	53
χ <sup>2</sup> n.s.				

Table n°6: Nutritional status vs albumine

	ALBUMINE	N	AVERAGE	ST.D.
CKEPI	NORMAL	50	14,0670	4,7
	MALNOURISHED	3	9,2233	0,8
T Student n.s.				



## Conclusion/Application to practice

With the regards of previous results in the study we could concluded that the malnutrition prevalence, depending on albumin as standard parameter, in patients with advanced kidney disease was low while when this prevalence was measured with bioimpedance the value was higher.

The applicability of the study is to detect nutritional status in our patients as well as to improve the program of prevention and treatment of malnutrition in patients with advanced chronic kidney disease.

Table n°1: Bioimpedance

BCM	LOW	NORMAL	HIGH
E/I	1.9%	41.5%	56.6%
FTI	1.9%	69.8%	28.3%
LTI	26.4%	71.7%	1.9%

Chart n°1: Age distribution

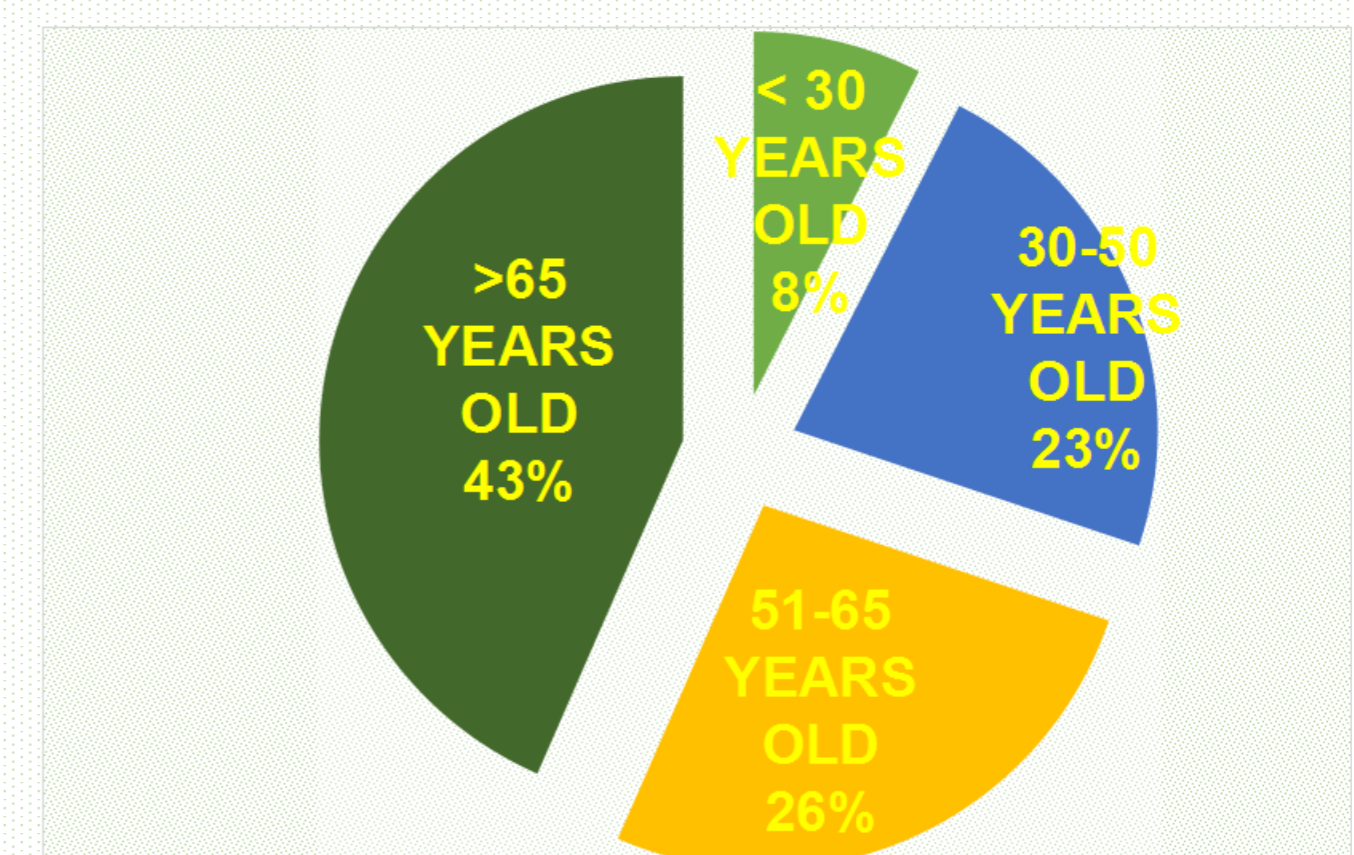


Table n°5: Nutritional status vs family environment

	FAMILY ENVIR.	NUTRITIONAL STATUS		
		NORMAL	SLIGHT	TOTAL
	ALONE	5	0	5
	NOT ALONE	45	3	48
	TOTAL	50	3	53
χ <sup>2</sup> n.s.				

Table n°1 Nutritional status vs E/I

	E/I	N	AVERAGE	ST.D.
CKEPI	NORMAL	22	14,76	4,8
	MALNOURISHED	31	13,11	4,54
T Student n.s.				