

# DIABETES MELLITUS AND RENAL DISEASE: RESULTS OF A GENERAL POPULATION SURVEY IN SPAIN

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## OBJECTIVES

Diabetic nephropathy patients traditionally show significant proteinuria prior to the development of renal impairment.

However, this clinical paradigm has recently been questioned.

The current study evaluated the impact of diabetes mellitus on the prevalence of renal disease in general population.

## METHODS

Data from of the HERMEX survey, an observational, cross sectional, population based study were used.

They were randomly selected 3,402 subjects from the Health Care System of Extremadura. The final sample included 2,813 subjects (mean age 51.2 years, 53.5% female). Three hundred and forty seven patients were diabetics.

Urinary albumin excretion (UAE) rate was analyzed and Glomerular filtration rate (GFR) was evaluated using the CKD-EPI formula in all patients.

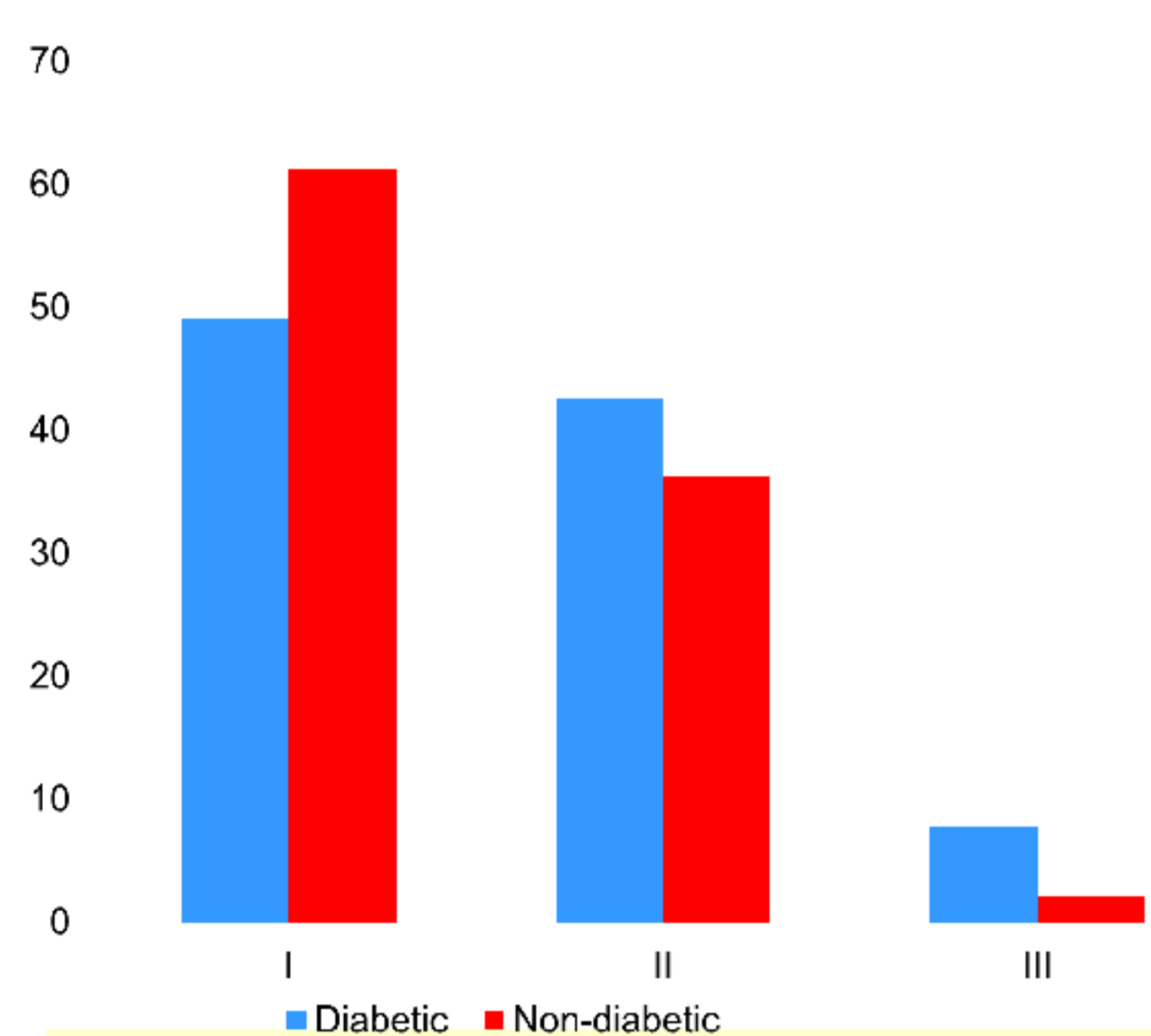


Figure 1. Prevalence of CKD stages by group. The difference is significant ( $p < 0.01$ , Square Chi test).

	B	95% CI LOWER BOUND	95% CI UPPER BOUND	P
Constant	-0.054	-0.088	-0.020	0.115
Age	0.003	0.003	0.003	<0.001
Male Gender	-0.010	-0.017	-0.003	0.186
Smoking	-0.009	-0.017	-0.001	0.246
SBP	-0.001	-0.001	-0.001	0.007
DBP	0.000	0.000	0.000	0.409
Total cholesterol	0.000	0.000	0.000	0.092
Albuminuria	0.000	0.000	0.000	<0.001
Diabetes mellitus	0.027	0.016	0.038	0.016
Waist perimeter	0.000	-0.001	0.001	0.355
BMI	0.003	0.002	0.004	0.028

Multivariate analysis

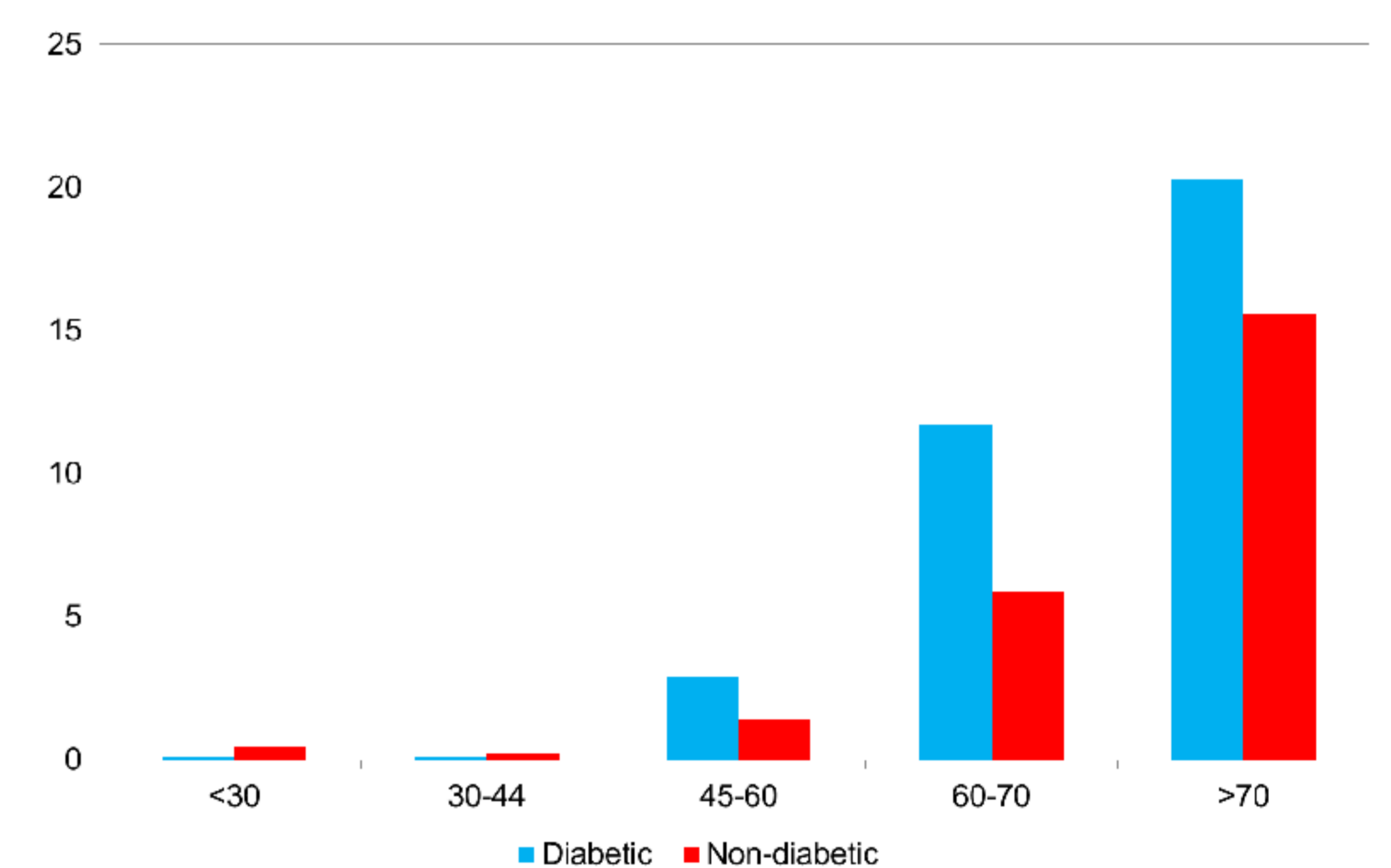


Figure 2. Comparison of CKD prevalence by age group. The difference is significant ( $p < 0.01$ , Square Chi test).

## RESULTS

Among non-diabetic participants 2.7% had a GFR<60 ml/min (95%CI, 2.2%-3.5%), but only 0.1% were in KDOQI CKD stages 4 or 5 (95%CI, 0.04%-0.4%).Prevalence of abnormal UAE in non-diabetic population was 3.4% (microalbuminuria: 3.2%; proteinuria 0.2%) (95%CI, 2.7%-4.2%). The global prevalence of renal disease was 5.6% (95%CI, 4.8%-6.6%).

Prevalence of GFR <60 ml/min in diabetic subjects was 9.8% (95%CI, 7.1%-13.4%,  $p < 0.001$ , square Chi test), but only 0.3% were in KDOQI CKD stages 4 or 5 (95%CI, 0.03%-1.6%).Prevalence of abnormal UAE in diabetic population was 15.6% (95%CI, 12.1%-19.8%) (microalbuminuria: 11.2%; proteinuria 4.3%)( $p < 0.001$ , square Chi test). Global CKD prevalence among diabetic patients was 22.5% (95%CI, 18.4%-27.2%) ( $p < 0.001$ , square Chi test).

The multivariate analysis showed an independent association of CKD as dependent variable with age, SBP, albuminuria, diabetes mellitus and BMI

## CONCLUSIONS

Most of diabetic patients with chronic kidney disease (GFR < 60 ml/min) have no proteinuria.

Therefore, classic diabetic nephropathy does not appear to be the underlying renal lesion in a substantial number of diabetic subjects with chronic kidney disease.

The causes for this change in the pattern of renal disease in diabetic patients remains to be settled.

