

## The Occurrence of Cancer in Patients with Membranous Nephropathy

Sophia Lionaki<sup>1,2</sup>, Sean Barbour<sup>3</sup>, Yichun Hu<sup>1</sup>, Susan L. Hogan<sup>1</sup>, Caroline E. Jennette<sup>1</sup>, Ronald J. Falk<sup>1</sup>, Daniel C. Cattran<sup>3</sup>, Patrick H. Nachman<sup>1</sup>, Heather N. Reich<sup>3</sup>

<sup>1</sup>UNC Kidney Center, University of North Carolina, NC, USA <sup>2</sup>Nephrology, Laiko Hospital, Greece, <sup>3</sup>University of Toronto, Toronto, ON, Canada

**BACKGROUND:** To describe the frequency and character of cancers (CA) in patients with biopsy proven membranous nephropathy (MN), in relation with clinical parameters, and long term outcomes.

**METHODS:** We studied 898 patients with MN from the Glomerular Disease Collaborative Network (N=412) and the Toronto Glomerulonephritis Registry (N=486). Clinical and laboratory values at biopsy were included in the analysis. Smoking and immunosuppressive therapies for MN were studied as predisposing factors for cancer.

**RESULTS:** Among 898 patients with MN, a total of 85 malignancies were recorded in 64 patients (7.1%) [56 patients (6.2%) excluding non-melanoma skin CA]. Of these, 39 (45.9%) occurred within 5 years of biopsy diagnosis. The most common cancers were of the skin (20), prostate (10), breast (9), lung (9), GI tract (6) and hematologic (6). Excluding non-melanoma skin CA, patients with CA were older.

Characteristic Total, N=898	Patients with CA, N=56	Patients without CA, N=842	P value
Age (years)	60.8±11.9	48.4±15.8	<0.0001
Caucasian, n(%)	42(80.8)	556(70.6)	0.25
Male, n(%)	33(58.9)	522(62)	0.67
24hr prot (g/day)	7.9±5.8	7.7±5.5	0.92
Serum albumin (g/dl)	25.49±7.51	25.96±7.58	0.81
Duration of proteinuria prior to Bx (months)	4.9±8.7	3.4±34.8	0.14
eGFR adjusted for age (ml/min/1.73m <sup>2</sup> )	77.2±31.3	72.8±31	0.31
Smoking, ever, n(%)	27(65.85)	330(60.44)	0.62
Patients treated with Immunosuppression, n (%)	30(53.7)	486(57.7)	0.58
Patients reaching ESRD, n(%)	8(14.3)	96(11.4)	0.52
Time to ESRD (months)	62.0±70.4	56.35±61.2	0.9

There were no statistical differences in serum albumin, eGFR adjusted for

age, proteinuria or duration of proteinuria prior to biopsy between those with and without CA. Cancers occurred in 3.6% of patients <60 y.o. and 12.9% in those  $\geq$  60 y.o.

**CONCLUSIONS:** There is an increased frequency of cancers among patients with MN older than 60 years. We found no distinguishing clinical features at presentation between patients with and without cancer. Presence of cancer did not affect renal survival.