

## Supplementary Material 2

**Table S1.** Search strategy in PubMed database.

PUBMED (n=274)		
Search	Query	Results
#7	Search: (((kidney) AND (membranous AND nephropathy)) AND (posttransplantation)) AND (recurrence) Sort by: Most Recent	41
#6	Search: (#5) AND (rituximab) Sort by: Most Recent	133
#5	Search: (((kidney OR renal) AND (transplantation OR transplant OR allograft)) AND (recurrence OR recurrent)) AND (membranous nephropathy OR nephritis) Sort by: Most Recent	1532
#4	Search: ((allograft) AND (membranous nephritis)) AND (recurrence) Sort by: Most Recent	173
#3	Search: (((kidney transplantation) AND (membranous nephropathy)) AND (recurrence)) AND (rituximab) Sort by: Most Recent	29
#2	Search: ((kidney transplantation) AND (membranous nephropathy)) AND (post transplantation) Sort by: Most Recent	83
#1	Search: ((kidney transplantation) AND (membranous nephropathy)) AND (recurrence) Sort by: Most Recent	209

**Table S2.** Search strategy in SCOPUS database.

SCOPUS (n=272)		
ID	Query	Documents
#7	( ALL ( kidney ) AND ALL ( membranous AND nephropathy ) AND ALL ( posttransplantation ) AND ALL ( recurrence ) )	180
#6	(( ALL ( kidney AND transplantation ) AND ALL ( membranous AND nephropathy ) AND ALL ( recurrence ) AND ALL ( rituximab ) ) AND ( ( ALL ( kidney OR renal ) AND ALL ( transplantation OR transplant OR allograft ) AND ALL ( recurrence OR recurrent ) AND ALL ( membranous AND nephropathy OR nephritis ) ) )	406
#5	( ALL ( kidney AND transplantation ) AND ALL ( membranous AND nephropathy ) AND ALL ( recurrence ) AND ALL ( rituximab ) )	507
#4	( ALL ( kidney OR renal ) AND ALL ( transplantation OR transplant OR allograft ) AND ALL ( recurrence OR recurrent ) AND ALL ( membranous AND nephropathy OR nephritis ) )	1852
#3	( ALL ( allograft ) AND ALL ( membranous AND nephritis ) AND ALL ( recurrence ) )	439
#2	( ALL ( kidney AND transplantation ) AND ALL ( membranous AND nephropathy ) AND ALL ( posttransplantation ) )	301
#1	ALL ( "kidney AND transplantation" AND "membranous AND nephropathy" AND "recurrence" )	1400

**Table S3.** Search strategy in Web of Science database.

WEB OF SCIENCE (n=149)		
Set	Results	Saved History
#6	60	(#5) AND ALL=(rituximab)
#5	494	((((ALL=(kidney OR renal)) AND ALL=(transplantation OR transplant OR allograft)) AND ALL=(recurrence OR recurrent)) AND ALL=(membranous nephropathy OR nephritis))
#4	23	((ALL=(allograft)) AND ALL=(membranous nephritis)) AND ALL=(recurrence)
#3	26	((((ALL=(kidney transplantation)) AND ALL=(membranous nephropathy)) AND ALL=(recurrence)) AND ALL=(rituximab))
#2	11	((((ALL=(kidney)) AND ALL=(membranous AND nephropathy)) AND ALL=(posttransplantation)) AND ALL=(recurrence))
#1	103	((ALL=(kidney transplantation)) AND ALL=(membranous nephropathy)) AND ALL=(recurrence)

**Table S4.** Demographic characteristics of transplanted patients with iMN recurrence.

Age (mean, years) n=139	47.82
Men (n)	93/130 (71.54%)
Women (n)	37/130 (28.46%)
Living donors (n)	89/123 (72.36%)
Deceased donors (n)	34/123 (27.64%)
ABO Incompatibility (n)	2/33 (6.07%)
Biopsy with iMN in native kidney (n)	128/130 (98.46%)
Induction therapy:	
• ATG (n)	41/58 (70.68%)
• Basiliximab (n)	13/34 (38.23%)
• Alemtuzumab (n)	4/18 (22.22%)
• OKT3 (n)	0/5 (0%)
• Plasmapheresis* (n)	1/15 (6.67%)
• Rituximab* (n)	2/33 (6.07%)
Maintenance therapy:	
• Steroids (n)	61/71 (85.92%)
• MPA (n)	50/62 (80.64%)
• Tacrolimus (n)	83/113 (73.45%)
• Cyclosporin (n)	30/113 (26.55%)
• Azathioprine (n)	7/20 (35%)
Diagnostic biopsy for recurrent iMN:	
• Per- protocol (n)	45/134 (33.59%)
• Clinical indications (n)	89/134 (66.41%)
Serum creatinine at recurrence (mean, mg/dl) n=97	2.00
Proteinuria at recurrence (mean, g/24h) n=117	3.97
Treatment of recurrent iMN with Rituximab:‡ (n)	55/115 (47.82%)
• 4 doses of 375 mg/m <sup>2</sup> per week (n)	8
• Single dose of 1gr (n)	2
• 2 doses of 1 gr with an interval of 2 weeks (n)	19
• 1-2 doses of 375 mg/m <sup>2</sup> with an interval of 2 weeks (n)	6

\*: ABO Incompatibility

‡: not mentioned in 20 patients

**Table S5.** Quality assessment using the ROBINS-E tool.

Study	Confounding	Classification of exposures	Selection of participants	Deviations from intended exposures	Missing Data	Measurement of outcomes	Selection of the reported result	Overall bias
Couchoud et al. 1995	Some Concerns	Low	Low	Low	Low	Low	Low	Moderate
Briganti et al. 2002	Low	Low	Low	Low	Low	Low	Low	Moderate
Ibrahim et al. 2006	Low	Low	Low	Low	Low	Low	Low	Low
Moroni et al. 2010	Low	Low	Low	Some Concerns	Low	Low	Low	Moderate
Sprangers et al. 2010	Low	Low	Low	Some Concerns	Low	Low	Low	Moderate
Debiec et al. 2011	Some Concerns	Low	Low	Low	Low	Low	Low	Moderate
Rodriguez et al. 2012	Some Concerns	Some Concerns	Low	Some Concerns	Low	Low	Low	Moderate
Kennedy et al. 2013	Some Concerns	Low	Low	Some Concerns	Low	Low	Low	Moderate
Kattah et al. 2015	Low	Low	Low	Some Concerns	Low	Low	Low	Moderate
Quintana et al. 2015	Some Concerns	Low	Low	Some Concerns	Some Concerns	Low	Low	Moderate
Grupper et al. 2016	Some Concerns	Low	Low	Some Concerns	Low	Low	Low	Moderate
Gupta et al. 2016	Low	Low	Low	Some Concerns	Low	Low	Low	Moderate

**Table S6.** Graft survival in transplanted patients with recurrent iMN.

Study	Transplanted patients due to iMN (n)	Recurrent iMN in renal allograft (n) <sup>+</sup>	Graft loss due to recurrent iMN (n)	Control transplanted patients with no iMN recurrence (n)	Graft loss due to any other cause (n)
Couchoud et al. 1995	18	5	1 (20%)	14	5 (35.71%)
Briganti et al. 2002	81	5	– <sup>*</sup>	76	– <sup>¥</sup>
Ibrahim et al. 2006	19	4	0 (0%)	Group 1: transplant patients due to various types of GN with rapid discontinuation of corticosteroids (n=105) Group 2: transplanted patients for non-GN diseases with rapid discontinuation of corticosteroids (n=439) Group 3: historical control group of transplanted patients due to various types of GN with long-term steroid-based immunosuppressive therapy (n=260)	– <sup>¥</sup>
Moroni et al. 2010	35	12	6 (50%)	23	11 (47.82%)
Sprangers et al. 2010	34	15	2 (13.33%)	19	4 (21.05%)
Debiec et al. 2011	10	11 <sup>+</sup>	6 (54.54%)	6	– <sup>¥</sup>
Rodriguez et al. 2012	18	18	0 (0%)	8	0 (0%)
Kennedy et al. 2013	32	13 <sup>+</sup>	7 (53.84%)	23	6 (26.08%)
Kattah et al. 2015	26	18	2 (11.11%)	8	2 (25%)
Quintana et al. 2015	21	7	1 (14.28%)	14	– <sup>¥</sup>
Grupper et al. 2016	63	30	5 (16.66%)	33	6 (18.18%)
Gupta et al. 2016	16	6	0 (0%)	10	1 (10%)
<b>Total</b>	<b>373</b>	<b>144</b>	<b>30 (21.59%)<sup>**</sup></b>	<b>234</b>	<b>35 (25.36%)<sup>***</sup></b>

<sup>+</sup>: refers to number of grafts as some patients received >1 kidney transplants.

<sup>\*</sup>: only the hazard ratio is presented in this study

<sup>¥</sup>: number of grafts lost in control patients not reported.

<sup>\*\*</sup>: for n=139 grafts

<sup>\*\*\*</sup>: for n=138 control patients

GN: glomerulonephritis

**Table S7.** Graft survival between patients with iMN recurrence that were treated with rituximab and those that received no specific treatment.

Study	Number of patients					
	Recurrence iMN + RTX		Recurrence iMN + no RTX		No Recurrence	
	Graft loss	Survival	Graft loss	Survival	Graft loss	Survival
Couchoud et al. 1995*	-*	-*	1 (25%)	4	5	9
Moroni et al. 2010	1 (50%)	1	5 (50%)	5	11	12
Sprangers et al. 2010	0 (0%)	4	2 (18.19%)	9	4	15
Rodriguez et al. 2012	0 (0%)	8	0 (0%)	10	0	8
Kennedy et al. 2013	0 (0%)	1	7 (58.34%)	5	6	17
Kattah et al. 2015	3 (27.28%)	8	0 (0%)	5	2	6
Quintana et al. 2015	1 (25%)	4	0 (0%)	3	-¥	-¥
Grupper et al. 2016	3 (17.64%)	14	2 (15.39%)	11	6	27
Gupta et al. 2016	1 (16.67%)	5	0 (0%)	0	1	9

RTX: Rituximab, iMN: idiopathic membranous nephropathy

\* No rituximab was given

¥ number of grafts lost in control patients not reported