Rituximab for adults with multi-drug resistant FSGS: a case series

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Introduction

Adults with primary focal segmental glomerulosclerosis (FSGS) are frequently resistant to multiple immunosuppressive (IS) agents (1). Rituximab (RTX) is considered a last resort treatment, however there are few successful cases reported in adults (2). We reviewed all adult patients with FSGS in the province of BC who were treated with RTX from January 2014 – April 2018.

Objectives

1) To identify patients with IS-resistant FSGS at a large Canadian health centre
2) To observe renal function in this population prior to and after rituximab treatment
3) To compare non-rituximab medication used before and after rituximab treatment

Methods

- 121 patients in British Columbia received RTX for the treatment of GN from Jan 2014 – April 2018, 3 were adults (>=19 years old) with primary FSGS in the native kidney
- Clinical and laboratory data were extracted from the charts and are summarized in Table 1.
- RTX dosing was at the discretion of the treating physician.
- The maintenance RTX was administered based on patients' CD20 B cell reconstitution.

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*Equal contribution made by both first authors.

Results

Patient 1 is a 41 year old female who had previously failed combination therapy with prednisone, mycophenolate mofetil (MMF), tacrolimus and galactose. Her creatinine was 71 µmol/L, albumin 23g/L and proteinuria 4.95 g/d. She was treated with RTX 375 mg/m^2 weekly for 4 doses followed by single 375 mg/m^2 doses with CD20 reconstitution. After RTX she was tapered off all other IS, with serum creatinine 69µmol/L, albumin 34g/L and proteinuria 0.33g/d.

Patient 2 is a 21 year old male, who had previously failed tacrolimus, cyclosporine, and was on prednisone and MMF. His serum creatinine was 168µmol/L, albumin 30 g/L and proteinuria 8.69g/d. He was treated with RTX 375 mg/m^2 weekly for 4 doses followed by single 375 mg/m^2 doses with CD20 reconstitution. After RTX he was tapered off all other IS, with serum creatinine 187µmol/L, albumin 39g/L and proteinuria 1.68 g/d.

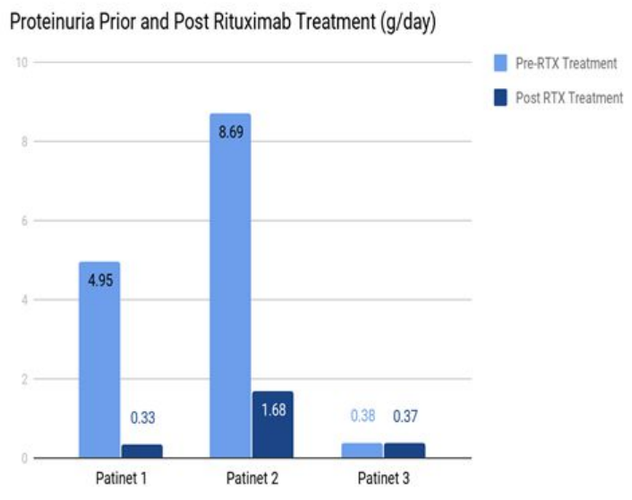

Figure 1. Proteinuria, prior to and post rituximab treatment.

Table 1. Non-rituximab medication used in FSGS treatment before and after rituximab.
MMF = mycophenolate mofetil, TAC = tacrolimus, CsA=cyclosporine, CYC=cyclophosphamide

Patient	Therapies before RTX	Therapies post-RTX
1	Prednisone, MMF, TAC, galactose, CsA	none
2	Prednisone, MMF, TAC, CsA, CYC, infliximab, galactose	none
3	Prednisone, CYC, CsA, TAC	TAC

Results

Patient 3 is a 26 year old female who was steroid sensitive but unable to taper prednisone below 10 mg/day without a disease flare despite concurrent use of cyclophosphamide, cyclosporine and tacrolimus. At the time of being treated with RTX 1g every 2 weeks for 2 doses she was on TAC 3mg BID and prednisone 20mg/d, with serum creatinine 63µmol/L, albumin 35g/L and proteinuria 0.38g/d. After RTX treatment, she was able to discontinue all other IS-agents besides TAC, which was reduced to 1.5 mg BID (her lowest ever dosage), with serum creatinine 61µmol/L, albumin 36g/L and proteinuria 0.37g/d.

Conclusions

- RTX therapy can be an effective therapy in adult patients with IS resistant FSGS in their native kidney
- The patients in this study were able to discontinue their other immunosuppressive agents by the last follow up time point, while maintaining partial proteinuric remission and stable eGFR.
- There are currently few successful reports of IS-resistant FSGS cases which respond to RTX and these 3 cases contribute to the sparse existing data (2,3,4,5).
- Further studies are warranted.

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