

Intravenous Cyclophosphamide for Treatment of Single-Positive Anti-GBM Disease in a Tertiary Renal Centre

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Background:

Anti-Glomerular Basement Membrane (GBM) disease is a condition caused by antibodies to type IV collagen, presenting with a progressive glomerulonephritis and/or pulmonary haemorrhage. The standard of care is accepted to be daily oral Cyclophosphamide, corticosteroids and plasma exchange. In the treatment of ANCA-associated vasculitis, it is well recognised that intravenous (IV) pulsed Cyclophosphamide is as effective as oral Cyclophosphamide therapy and that treatment-associated toxicity is significantly reduced. We report our single-centre experience using pulsed IV Cyclophosphamide, in conjunction with corticosteroids and plasma exchange, for anti-GBM disease. There is a paucity of data on the use of IV Cyclophosphamide in this condition.

Aim:

The primary aim was to compare our outcomes using pulsed IV Cyclophosphamide with published data reporting outcomes with oral Cyclophosphamide in anti-GBM disease.

Method:

This was a retrospective review of records of patients with single-positive anti-GBM disease treated between January 2006 and December 2018. Patients who were dual-positive with ANCA were excluded. Data were extracted manually from the renal unit database and patient records.

Results:

20 patients with single-positive Anti-GBM disease were treated at our renal centre during the study period. One patient with incomplete records was excluded.

14 of the 19 included individuals were male. The median age was 53 years (range 17–77) and the median presenting creatinine was 426 $\mu\text{mol/L}$ (range 64–3000). 14 of 19 had renal-limited disease and 2 had lung-limited disease. 17 patients started treatment with pulsed IV Cyclophosphamide, corticosteroids and plasma exchange. 10 received all 6 doses of IV Cyclophosphamide as planned. 7 had fewer than 6 doses of Cyclophosphamide due to infection, dialysis dependence with anuria and thus little likelihood of recovering renal function or concerns about the patient's ability to cope with strong immunosuppression. 2 patients who presented with dialysis-dependent renal failure and no lung involvement did not start immunosuppressive treatment during initial presentation. However, both of them developed pulmonary haemorrhage, the first at 1 and the second at 2 months, and both then required commencement of therapy.

Of 17 with renal involvement, 10 required dialysis at presentation. One of these later recovered renal function at 3 months. Of the 7 patients not requiring dialysis at presentation, none developed end-stage renal failure at 1 year. This gave an overall 1-year renal survival of 47% in those with renal involvement, but of 100% in those who were not dialysis dependent on initial presentation.

One patient, who was dialysis-dependent at presentation, and could not complete treatment because of sepsis, died at 3 months. Thus our 1-year patient survival was 95%.

Conclusion:

Published outcomes from centres using oral Cyclophosphamide report a 1-year patient survival of 87–100%, and 1-year renal survival to be 90–100% in patients not requiring dialysis at presentation (1–3). Our data

show comparable outcomes in patients treated with IV Cyclophosphamide, suggesting that pulsed IV Cyclophosphamide may be as effective. We recognise, however, that our numbers are small and larger studies would be needed to validate these data.