

Steroid Minimization Regimens for Management of Nephrotic Syndrome

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ABSTRACT

Researchers from Great Ormond Street Hospital in London conducted 2 studies to evaluate the effectiveness of low-dose prednisone in treating relapse in children with steroid-sensitive nephrotic syndrome (SSNS). The retrospective analysis included healthy children with SSNS who started taking 1 mg/kg prednisone daily for ≥ 7 days to treat relapsing SSNS between January 2012 and July 2013 at 2 sites in London. The current treatment in the UK for children with relapsing SSNS is typically 2 mg/kg/d until complete remission for at least 3 days. For the study, a relapse was defined as significant proteinuria according to a dipstick test for at least 3 consecutive days, and remission was defined as 0 or trace proteinuria for at least 3 days. The main outcome was the proportion of patients achieving remission on the low-dose regimen; the relapse rate in the 6 months prior to and the 6 months after the index relapse in each child was compared by using a paired *t* test. The second study was a random selection of the patients in the initial study who had been treated with both standard-dose and low-dose prednisone for different relapses. In July 2015, parents of the selected study patients completed separate PedsQL 4.0 questionnaires to assess their child's quality of life (QOL) in 4 separate domains during relapses treated with the standard- or low-dose regimens.

A total of 50 children aged 3–17 years (mean, 9.1 years) were included in the primary investigation. In all, 87 relapses occurred; remissions were achieved by using the low-dose regimen in 61 (70%). The mean number of relapses in the 6 months prior to the index relapse in study patients was 1.01, compared to a mean of 0.86 relapse per patient in the subsequent 6 months ($P = .30$). Parents of 15 study children subsequently completed PedsQL 4.0 questionnaires. For each of the 4 domains, scores were significantly higher (indicating higher QOL) when parents rated their child's QOL during low-dose treatment compared to standard-dose treatment of relapses.

The authors conclude that a low-dose prednisone regimen helped to achieve remission in 70% of relapses in children with SSNS without compromising the relapse rate and was associated with higher QOL when compared to standard-dose treatment.

COMMENTARY BY

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Minimal-change nephrotic syndrome, one of the most commonly encountered glomerular diseases of childhood, is defined by its overall sensitivity to corticosteroids. Approximately 80% of patients with minimal-change nephrotic syndrome respond to steroids¹, and a 2–3-month course is standardly prescribed at initial presentation, with shorter courses used for relapses. While effective at achieving remission, prolonged steroid courses result in adverse side effects, including weight gain, Cushingoid features, hypertension, and growth retardation. It is therefore important that treatment regimens be developed to avoid prolonged steroid use. While the treatment of many other diseases has moved on to other first-line agents, the standard regimen for treatment of minimal-change nephrotic syndrome has been in place for decades².

The current investigators reported a 70% remission rate in those treated with a low-dose steroid regimen for relapse, with no significant difference in relapse rate for the 6 months before and after the dosing change. Side effects as determined with the QOL questionnaire were diminished in patients taking the low-dose prednisone regimen. While this study is limited by its size and retrospective nature and other studies have suggested a benefit to more prolonged steroid courses³, this study addresses the important area of developing new steroid-sparing regimens for management of nephrotic syndrome. Many studies have been conducted to evaluate the use of second-line agents, such as tacrolimus, mycophenolate, and rituximab, in steroid-resistant nephrotic syndrome⁴; however, there has been little published on the use of these agents as an alternative for those with adequate steroid response. Studies undertaken to evaluate the use of these agents compared to corticosteroids for initial management of nephrotic syndrome could help alleviate the many adverse side effects associated with the prolonged use of steroids in this disease.

Bottom Line: Low-dose corticosteroids were used to successfully treat relapses in most children with SSNS. The development of steroid-sparing regimens for patients with nephrotic syndrome is important, as these may result in reduction of adverse side effects and improvement in QOL.

References

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