Sixteen-week versus standard eight-week prednisolone therapy for childhood nephrotic syndrome: the PREDNOS RCT

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Declared competing interests of authors: Nicholas JA Webb has served on advisory boards within the past 5 years for AbbVie Inc. (North Chicago, IL, USA), Alexion Pharmaceuticals (New Haven, CT, USA), AMAG Pharmaceuticals Inc. (Waltham, MA, USA), Astellas Pharma Inc. (Tokyo, Japan), Raptor Pharmaceuticals (Novato, CA, USA), Takeda Pharmaceutical Company (Osaka, Japan) and UCB (Union Chimique Belge) (Brussels, Belgium). These have related to the design and conduct of early-phase trials in childhood kidney disease. None has been related to the treatment of corticosteroid-sensitive nephrotic syndrome. Since August 2018, Nicholas JA Webb has been Translational Medicine Discovery Director, Renal and Transplantation, at Novartis Institutes for BioMedical Research. Carole Cummins has received grants from Kidney Research UK and Kids Kidney Research.

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Plain English summary

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Plain English summary

Steroid-sensitive nephrotic syndrome (SSNS) is one of the most common childhood kidney diseases. The kidney filters leak protein into the urine, resulting in low levels of protein in the blood and generalised swelling. If untreated, this can lead to serious complications, including infection and blood clots. The disease responds well to prednisolone, a steroid drug; however, it is very common for disease to recur (called a relapse).

Doctors are uncertain how long prednisolone should be given to treat children when they first present with nephrotic syndrome. In the UK, a 2-month course has traditionally been used. However, a number of research studies have suggested that giving prednisolone for ≥ 3 months may reduce the number of children who relapse and also the number who develop lots of relapses (called frequently relapsing nephrotic syndrome; FRNS).

We recruited 237 children presenting with SSNS. Half were given an 8-week standard course of prednisolone and the other half a 16-week extended course (EC). We used placebo (dummy tablets) so that the participants and doctors did not know which treatment group they were in. Participants were followed for a minimum of 24 months and monitored for the development of relapses and prednisolone side effects, including behavioural problems. A cost analysis was performed.

Giving EC prednisolone did not delay the development of disease relapse. There was also no difference in the number of children who developed FRNS or steroid-dependent nephrotic syndrome or who needed to be given other treatments. The rate of prednisolone side effects was the similar in the two treatment groups. EC treatment was, however, cheaper by £1673.

Therefore, we conclude that there is no clinical benefit associated with the administration of EC prednisolone therapy in UK children presenting for the first time with SSNS. However, EC therapy was cheaper than the standard treatment.

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