Top 10 Takeaways for Clinicians from the KDIGO 2021 Clinical Practice Guideline for the Management of Nephrotic Syndrome in Children

1 Initial management

Below the age of 1 year, all children fulfilling the definition of nephrotic syndrome should be referred to a specialist in pediatric nephrology. This also applies to all forms of nephrotic syndrome that are steroid-resistant, atypical (including onset >12 years of age), or steroid-sensitive requiring a glucocorticoid-sparing agent.

2 Kidney biopsy

The prognosis for childhood nephrotic syndrome is best predicted by the patient's response to initial treatment and frequency of relapse during the first year after treatment. Therefore, a kidney biopsy is not usually needed at initial presentation unless the patient displays steroid resistance, has an atypical clinical course, or is > 12 years of age at presentation.

3 Treatment of first episode

Initial treatment of nephrotic syndrome with oral prednisone/prednisolone in children should not be prolonged beyond 12 weeks: evidence is insufficient to choose between giving 4 weeks at full dose followed by 4 weeks on alternate-day glucocorticoid dosing (total 8 weeks) or giving 6 weeks at full dose followed by 6 weeks of alternate-day dosing (total 12 weeks). (Figure 1)

4 Treatment of relapse

Treatment of relapse should include prednisone as a single daily dose of 60 mg/m^2 or 2 mg/kg (maximum 60 mg/d) until the child remits completely for at least 3 days. After achieving complete remission, reduce prednisone to 40 mg/m^2 or 1.5 mg/kg (maximum 50 mg/d) on alternate days for at least 4 weeks.

5 Introduction of glucocorticoid-sparing agent

For children with frequently relapsing nephrotic syndrome who develop serious glucocorticoid-related adverse events, and for all children with steroid-dependent nephrotic syndrome, we recommend that glucocorticoid-sparing agents be prescribed. (Figure 1)

6 Choice of glucocorticoid-sparing agent: the patient

Choosing the most appropriate steroid-sparing agent between oral cyclophosphamide, levamisole, mycophenolate mofetil, rituximab, and calcineurin inhibitors depends on specific patient-related issues such as resources, compliance, potential for adverse effects, and patient preferences.

7 Choice of glucocorticoid-sparing agent: the disease

Among glucocorticoid-sparing agents for steroid-sensitive nephrotic syndrome, oral cyclophosphamide and levamisole may be preferable in frequently relapsing forms. Mycophenolate mofetil, rituximab, and calcineurin inhibitors may be preferable in steroid-dependent forms of disease.

8 Genetic testing

For steroid-resistant nephrotic syndrome, consider the possibility of a genetic cause where immunosuppression may not be useful. Genetic testing performed by experts should be rapidly implemented, particularly in infantile forms, if there is a positive family history of kidney disease and/or the patient has syndromic features.

9 RAAS blockade for SRNS

In children with steroid-resistant nephrotic syndrome, a renin-angiotensin-aldosterone system inhibitor should be started, with careful evaluation of volume depletion to minimize the risk of AKI.

10 Calcineurin inhibitor for SRNS

We recommend using cyclosporine or tacrolimus as initial second-line therapy for children with steroid-resistant nephrotic syndrome.

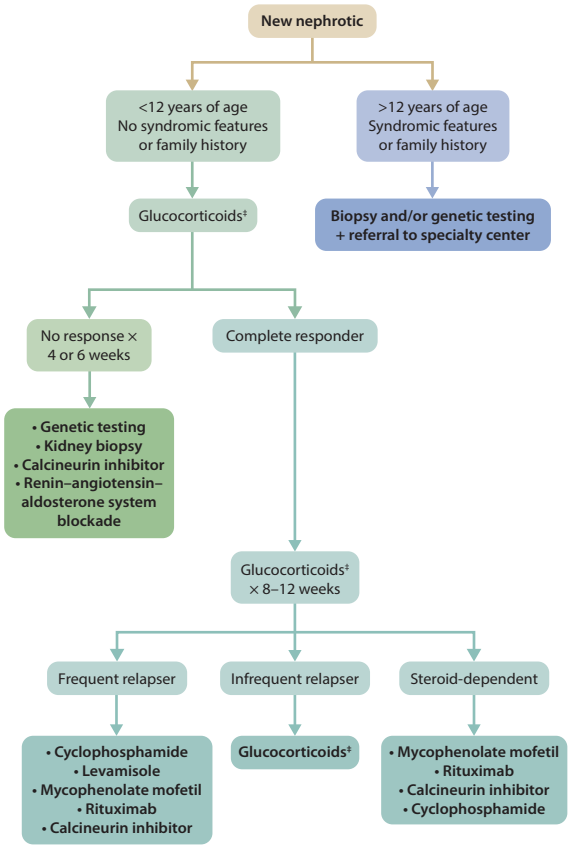

Figure 1