Observational Study

Eur J Pediatr

. 2023 Oct;182(10):4723-4729.

 doi: 10.1007/s00431-023-05150-6. Epub 2023 Aug 12.

**Spectrum of Anemia in Indian children with Nephrotic Syndrome: a prospective observational study**

[Vidushi Mahajan](https://pubmed.ncbi.nlm.nih.gov/?term=Mahajan+V&cauthor_id=37572146)[1](https://pubmed.ncbi.nlm.nih.gov/37572146/#full-view-affiliation-1), [Anam Siddiqui](https://pubmed.ncbi.nlm.nih.gov/?term=Siddiqui+A&cauthor_id=37572146)[2](https://pubmed.ncbi.nlm.nih.gov/37572146/#full-view-affiliation-2), [Anita Tahlan](https://pubmed.ncbi.nlm.nih.gov/?term=Tahlan+A&cauthor_id=37572146)[3](https://pubmed.ncbi.nlm.nih.gov/37572146/#full-view-affiliation-3), [Sanjay D 'Cruz](https://pubmed.ncbi.nlm.nih.gov/?term=D+%27Cruz+S&cauthor_id=37572146)[4](https://pubmed.ncbi.nlm.nih.gov/37572146/#full-view-affiliation-4), [Shivani Jaiswal](https://pubmed.ncbi.nlm.nih.gov/?term=Jaiswal+S&cauthor_id=37572146)[5](https://pubmed.ncbi.nlm.nih.gov/37572146/#full-view-affiliation-5)

Affiliations expand

* PMID: 37572146

* DOI: [10.1007/s00431-023-05150-6](https://doi.org/10.1007/s00431-023-05150-6)

**Abstract**

We aimed to estimate the prevalence of anemia in children with nephrotic syndrome (NS), determine its etiology, and correlate severity with disease duration and response to steroids. This was a prospective cohort study carried from 15th July 2019-14th July 2021 at the pediatric nephrology clinic, of a teaching hospital in India. We screened children aged 3 months-18 years with NS for eligibility. We excluded those suffering from chronic kidney disease and, on haematinics. All children underwent investigations for evaluation of nephrotic syndrome and anemia. To define the clinical phenotype of nephrotic syndrome, the patients were classified as infrequent relapsers, frequent relapsers, steroid dependent and steroid resistant NS as per ISPN guidelines. Children were followed up at least for a period of one year to define their response to steroids. A total of 125 children were finally analysed for all treatment outcomes. Of 125, 37 (30%) children presented with the first episode of NS. Remaining 88 were follow up cases of NS. Of 125 children, 41 (33%) were found to be anemic as per the WHO criteria. Iron deficiency anemia was found in 21 (51%) children. Steroid resistance was twice more prevalent in the anemic group compared to the non-anemic group, 7.3% vs 4.8% respectively, however this difference was not statistically significant, p = 0.65. Anemic group had a trend of higher no. of children receiving antihypertensives compared to non-anemics (38 (93%) vs. 67 (80%), p = 0.07.

**Conclusion:**Iron deficiency anemia was the commonest cause of anemia and, anemia and need for anti-hypertensives to attain BP control and adequate proteinuria often coexisted in children suffering from nephrotic syndrome.

**What is known:**• Anemia is a significant complication in children suffering from nephrotic syndrome. • Cause of anemia in nephrotic syndrome is multifactorial.

**What is new:**• Iron deficiency anemia was the most common cause of anemia in Indian children with nephrotic syndrome. • Anemia and need for anti-hypertensives to attain adequate BP control and proteinuria often coexisted in children with nephrotic syndrome.

**Keywords:**Anemia; Erythropoietin; Iron deficiency; Steroid resistant nephrotic syndrome; Steroid sensitive nephrotic syndrome.