IDIOPATIC NEPHROTIC SYNDROME AND ATOPY IN PEDIATRIC AGE

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Background: Idiopatic Nephrotic Syndrome (INS) is the most frequent glomerular disease in children. About 90% of children with INS have istological finding of minimal change (MCNS). The pathogenesis of INS is unknown, but evidences suggesting a disorder of T-cell function and abnormal humoral immunity. It has been proposed that cell-mediated immunity and T-cell activation are key features in the etiology of INS and numerous example of abnormal immune responsiveness have been described. The association between NS and allergic phenomena was originally recognized about 40 years ago, when case report appeared which described nephrotic syndrome triggered by bee stings, poison ivy and pollen hypersensibility. Numerous other studies have confirmed that there is an increased incidence of atopy (infantile eczema, allergic rhinitis and asthma) both in patients with steroid-sensitive NS and their first-degree relatives, altought the occurrence of overt atopic disease at the time of nephrosis is uncommun [(1)].
One striking clinical association is with a personal or family history of atopy and serum IgE is tipically elevated in MCNS, both in the acute phase and during remission.
The interleukin-4 (IL-4), a T cell-derived cytokine, plays a key role in the regulation of IgE production and allergic response[(2)], being absolutely required for class switching of B-cells to IgE production and also promoting eosinophil chemotaxis and adherence. IL-4 effects are mediated by a two-chain high-affinity receptor expressed on most haemotopoietic cells. There is preliminary evidence for enhanced activity of IL-4 in MCNS with increased seum levels, increased production by peripheral blood mononuclear cells in vitro and enhanced expression of IgE receptors[(3)].
Aim of the study: to evaluate if exists a correlation between atopy, NS istological finding and evolution of disease, to verify if at different istological pattern and evolution of disease is correlated a different immuno-allergic pattern.
Materials and method: We have selected 56 children with INS. Their mean age at the investigation was 10.9 $\pm$ 5.7 years (range 3-20 years) and the male to female ratio was 3:1. The mean period of follow up prior to the study was 6 $\pm$ 5 years (range 1-13 years). History and phisical examination were obtained for each patients, with particular attention to evidence for an infectious or allergic illness immediately preceding or accompanying the relapses. The diagnostic criteria for INS were based on the International Study of Kidney Disease in Children (ISKDC). In all children, prednisone was given at a dosage of 60 mg/m^2 per day as single dose for 4 weeks, followed by 40 mg/m^2 per day, given on alternate days for the next 4 weeks. Remission patients were considered as those with protein-free urine for 3 alternate days and with restored normal albuminemia levels, within 6 weeks of prednisone therapy. The patients were considered to have MCNS if they had nephrotic proteinuria, no hematuria, no hypocomplementemia, normal blood pressure and renal function.
All the patients were divided into four group: untreated relapse (Group A); relapse during therapy with low-dose of corticosteroid (Group B); remission, 6 months after relapse (short-term remission) receiving altemate-day prednisone therapy with dose of 0,5 mg/Kg/day (Group C) and 6 months off-therapy, almost 1 year after relapse (long-term remission, Group D).
In this study we have investigated a higher number of T cell-subset and the production of cytokines by Th-1, Th-2. In addition in all patients was evaluated the presence of atopy with prick test. seric IgE and RAST levels, spirometry. Control were taken from ten healthy patients (4 girls and 6 boys) with mean age of 10.1 $\pm$ 6.7 years, selected from the outpatient clinic. They had no evidence of infection, systemic or renal disease from their history and physical examination.

Results: The study is started at February 2002 and this is preliminary results. Serum creatinine (Cr) levels averaged 0.67 $\pm$ 0.16 mg/dl (range 0.33-0.93 mg/dl) and estimated creatinine clearances (C_{Cr}) averaged 116 $\pm$ 16 ml/min (range 83.3-142.5 ml/min)
29 patients (51.8 %) have elevated levels of seric IgE. In this group, 20 patients (68,9%) have various manifestation (rhinitis, dermatitis, asthma) and was given treatment with antihistaminic. Spirometry is in the normal range and prick-test confirmed the RAST levels .

The B lymphocyte count (CD19) did not show any substantial variation in all groups; but the values were significantly increased compared with controls ($p < 0.005$).
Two patients are in relapse off- therapy (one is atopic children), four pts are taking low-dose corticosteroid therapy from one years and have presented a relapse during these therapy (three are atopic), ten pts are in remission in therapy and four of these are taking Cyclosporine A; fourthy pts are off -therapy from five years. This preliminary data are encouraging because they confirm the existence of a striking correlation between pattern immuno-allergic of patients and NS.

References

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