NEITHER CLINICAL NOR BIOLOGICAL DATA CAN PREDICT RENAL INVOLVEMENT IN INFANTS WITH FEBRILE URINARY TRACT INFECTION

Submitted by Nikoleta Printza
Nikoleta Printza[a], Fotios Papachristou[a], Kaliopi Piretzi[a], Chrissa Goga[a], Georgios Arsos[b]
[a]First Pediatric Department and [b]Department of Nuclear Medicine, Hippokration General Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece

INTRODUCTION: 99m Tc-dimercaptosuccinic acid (DMSA) scintigraphy is accepted as the gold standard in the diagnosis of acute pyelonephritis.
OBJECTIVE: In an attempt to reduce the number of investigations after urinary tract infections (UTIs), with this prospective study we aimed to evaluate the diagnostic value of acute-phase reactants in identifying renal involvement in infants with febrile UTI.
METHODS: Fifty-four infants (36 male, 18 female) aged 1 to 12 months were studied. For all infants, clinical findings such as duration and height of fever before antibiotic administration and laboratory parameters such as leukocytosis (white blood cell count of >15.000/μL), elevated erythrocyte sedimentation rate (ESR) (>20 mm/hour), and high levels of C-reactive protein (>10 mg/mL) were compared with the results of the DMSA scan obtained within 72 hours after referral.
RESULTS: Regarding microbial agents, *Escherichia coli* was identified in 42 (78%) of the 54 infants, and 16 (29.5%) of the 54 of infants were febrile for >2 days before diagnosis of UTI. Leukocytosis, elevated ESR, and high levels of C-reactive protein were present in 14 (26%), 41 (76%), and 38 (70%) infants, respectively. Acute-phase DMSA showed renal involvement in 10 (18.5%) infants. Vesicoureteral reflux was found in 16 (29.5%) infants. Gender, duration of fever before antibiotic administration, leukocytosis, elevated ESR, and high levels of C-reactive protein were not related to the severity of renal damage, as shown by DMSA. Only fever of >39°C was slightly correlated with an abnormal DMSA scan result ($r = 0.3$; $P = .032$).
CONCLUSIONS: Acute-phase DMSA scintigraphy remains superior to clinical and laboratory data for predicting renal involvement in infants with febrile UTIs.

IMMUNE FINDINGS IN CHILDREN WITH IDIOPATHIC NEPHROTIC SYNDROME: COULD THEY PREDICT THE RESPONSE TO STEROID THERAPY?

Submitted by Nikoleta Printza
Nikoleta Printza, Fotios Papachristou, Vassiliki Tzimouli, Anna Taparkou, Floredia Kanakoudi-Tsakalidou
First Pediatric Department, Hippokration General Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece

INTRODUCTION: Nephrotic syndrome (NS) is thought to be associated with primary immune disturbances.
OBJECTIVE: The aim of our study was to investigate prospectively the immune disturbances in steroid-sensitive (SS) and steroid-resistant (SR) NS and identify whether these immune disturbances may predict the response to steroid therapy.
METHODS: Thirty children with SS NS and 7 children with SR NS (aged 2 to 14 years) were studied. To evaluate the possible relationship between immune disturbances and response to treatment, patients were evaluated during different disease stages. Data were compared with those obtained from 25 age-matched controls. The following parameters were assessed: basic B- and T-cell populations, percentages of $CD23^+$, $CD3^+/CD69^+$/interferon γ^+ (IFN-γ^+) cells, and $CD3^+/CD69^+$/interleukin 4^+ (IL-4^+) T cells, and serum levels of IL-13 and IL-18.
RESULTS: In patients with SS NS percentages of $CD23^+$ and $CD19^+$ B cells, $CD3^+/CD69^+$/IL-4^+ T cells and serum levels of IL-13, IL-18 were significantly higher in the active stage compared with the remission stage on steroids, remission off steroids, and controls ($P < .05$). On the contrary, percentages of $CD3^+/CD69^+$/IFN-γ^+ T cells were significantly decreased ($P < .05$). In patients with SR NS, percentages of $CD23^+$B cells, $CD3^+/CD69^+$/IL-4^+ T cells, and serum levels of IL-13 and IL-18 presented no significant difference between active stage and partial remission. Percentages of $CD19^+$ B cells and $CD3^+/CD69^+$/IFN-γ^+ T cells were elevated in active stage compared with remission stage of patients with SR NS and in controls ($P < .05$).
CONCLUSIONS: These findings suggest that when a type-2 immune response is found in the active stage of NS, one could predict a good response to steroid therapy.

RENAL INVOLVEMENT IN CHILDREN WITH GLYCOGEN-STORAGE DISEASE

Submitted by Hesham Safouh
Hesham Safouh[a], Rokayya Elsayyed[a], Samah Mansour[a], Gamal Taha[b], Mortada Elshabrawy[a], Hanaa Elkaraksy[a]
[a]Department of Pediatrics, Cairo University, Cairo, Egypt; [b]Department of Pediatrics, Beni Sweif University, Beni Sweif, Egypt

INTRODUCTION: Long-term complications of glycogen-storage diseases (GSDs) include delayed puberty, hepatic adenomata, and renal disease.
OBJECTIVE: In this study, our aim was to detect renal involvement in children with GSD and to determine the most accurate laboratory test to be the gold standard for early detection of this renal dysfunction.

METHODS: Twenty-seven children known to have GSD were included in this study. Fifteen healthy age- and gender-matched children were also included as controls. Routine urine analysis and measurement of urinary β_2-microglobulin and microalbumin levels were performed for all patients and controls. Renal-function tests, measurement of serum electrolyte, alkaline phosphatase, urinary calcium, blood, and urine pH levels, creation of a urinary and plasma aminogram, calculation of the glomerular filtration rate, bone radiography to detect rachitic manifestations, and abdominal ultrasound to measure renal size were performed for all patients.
RESULTS: Twenty-one patients had ≥1 renal abnormality. The most common was increased urinary β_2-microglobulin level (15 of 21) followed by an abnormal glomerular filtration rate, whether low or high (8 of 21), and microalbuminuria (6 of 21). Sonographically, there was nephrocalcinosis in 1 case and renal stone in another. The area under the receiver operating characteristic curve for β_2-microglobulin was 0.86 ($P = .01$) and 0.7 for the urinary microalbumin/creatinine ratio ($P = .15$). The best cutoff level for predicting renal abnormality for urinary β_2-microglobulin was 0.22 mg/L with 70% sensitivity and 100% specificity, and the best cutoff value for the urinary microalbumin/creatinine ratio was 4.5 with 86% sensitivity and 50% specificity.
CONCLUSIONS: Renal abnormalities are common in patients with GSD. Urinary B_2-microglobulin level can be considered the gold standard for early detection of renal dysfunction in these patients.

LEPTIN AND LEPTIN RECEPTOR IN SERUM AND URINE FROM CHILDREN WITH NEPHROTIC SYNDROME ACCOMPANYING HYPERLIPIDEMIA

Submitted by Xi Qiang Yang

Xi Qiang Yang[a], Jian Jun Wang[b], Li Jia Wang[a], Qiu Li[a]
[a]Children's Hospital, Chongqing Medical University, Chongqing, China; [b]Department of Pediatrics, Affiliated Hospital, Northern Sichuan Medical College, Nanchong City, China

INTRODUCTION: Hyperlipidemia may cause glomerulosclerosis in children with nephrotic syndrome (NS).
OBJECTIVE: Our goal was to observe the role of soluble leptin receptor (sOBR) and leptin in serum and urine on the mechanism of hyperlipidemia in children with NS.
METHODS: Twenty-three children with untreated NS and 15 age-, gender-, and BMI-matched healthy controls were enrolled onto the study. Leptin and sOBR in serum and urine were measured by enzyme-linked immunosorbent assay, and plasma lipid and insulin levels were detected by automatic biochemistry analyzer and radioimmunoassay, respectively. sOBR messenger RNA and membrane protein expression in peripheral blood mononuclear cells were detected by reverse-transcription polymerase chain reaction and immunocytochemistry.
RESULTS: Low-density lipoprotein, total cholesterol, triglyceride, and apolipoprotein A levels were increased. sOBR messenger RNA and membrane protein expression by peripheral blood mononuclear cells were significantly lower in the patient group compared with controls. The ratio of serum leptin versus sOBR (free leptin index) was significantly higher in the NS group. Urinary leptin in the patient group was higher than that in the control group. The free leptin index showed no correlation with BMI or total cholesterol, triglyceride, or apolipoprotein B levels in both groups but did show a correlation with plasma albumin, low-density lipoprotein, high-density lipoprotein, apolipoprotein A, and insulin levels in the patient group.
CONCLUSIONS: The reduced sOBR level, which enhanced the biologically active form of leptin in children with NS, might be correlated partly with serum lipid parameters, albumin, and insulin. Increased free leptin in serum might be a complementary mechanism against hyperlipidemia in children with NS.

LONG-TERM PROGNOSIS OF HENOCH-SCHÖNLEIN NEPHRITIS IN CHILDREN

Submitted by Ayse Oner

Ayse Oner[a], Φzlem Erdogan[b], Tuba Eren[b], Gülay Demircin[b], Mehmet Bülbül[b], Sahika Baysun[b], Nilufer Arda[b]
[a]Pediatric Nephrology Department, Trakya University Medicine Faculty Hospital, Edirne, Turkey; [b]Pediatric Nephrology Department, Dr Sami Ulus Children's Hospital, Ankara, Turkey

INTRODUCTION: The long-term prognosis in Henoch-Schönlein purpura is determined principally by the development of progressive glomerulonephritis (>10% progress to end-stage renal failure).
OBJECTIVE: In this study we aimed to investigate the long-term prognosis of Henoch-Schönlein nephritis (HSN) in childhood.
METHODS: Between 1991 and 2003, 156 patients with HSN were investigated retrospectively.
RESULTS: There were 86 boys and 70 girls with a mean age of 9.6 years. They were graded according to the degree of renal involvement: grade 1, isolated microscopic hematuria ($n = 31$); grade 2, hematuria and mild proteinuria ($n = 60$); grade 3, acute nephritic syndrome ($n = 4$); grade 4, nephrotic syndrome ± hematuria ($n = 18$); grade 5, acute nephritic and nephrotic syndrome ($n = 43$). Renal biopsy was performed on 43 patients with grade 4 or 5 disease. Twenty patients had extensive crescent formation (>50%) as shown by the renal biopsy and were given triple therapy (intravenous pulse methylprednisolone [30 mg/kg per day for 3 days] fol-

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