



International scientific conference

D.A. Tsenov Academy of Economics - Svishtov & SWorld

International scientific publication

C *Search for scientific answers to the challenges of our time '2020* **onference proceedings**

DECEMBER 28-29, 2020

Series Conference proceedings
SWorld-Bul conference proceedings

Published by:
SWorld in conjunction with
D.A. Tsenov Academy of Economics,
Svishtov, Bulgaria

UDC 08

BBK 94

Reviewed and recommended for publication

The decision of the Organizing Committee of the conference

"Search for scientific answers to the challenges of our time '2020"

No 6 on December 29, 2020

Chairman:

Shibaev Alexander Grigoryevich, Doctor of Technical Sciences, Professor, Academician

Deputy Chairman:

Kuprienko Sergey Vasilievich, Candidate of Technical Sciences

Organizing Committee:

More than 150 doctors of sciences. The full list is available on pages 3-5.

UDC 08

BBK 94

DOI: 10.30889/2709-183X.2020-06-00

Published by:

SWorld &

D.A. Tsenov Academy of Economics – Svishtov, Bulgaria

Copyright

© Collective of authors, scientific texts, 2020

© SWorld, general edition and design, 2020

UDC 616.72-002.77:616.611-002-039.36-074-097.3-053.2

**RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS WITH THE
POSITIVE ANTI-NEUTROPHIL CYTOPLASMIC ANTIBODY (ANCA) IN
CHILDREN WITH JUVENILE RHEUMATOID ARTHRITIS****Borysova T.P.***d.m.s., prof.*

ORCID: 0000-0001-8347-4348

Samsonenko S.V.*as. prof*

ORCID: 0000-0001-6812-0939

Badogina L.P.*c.m.s., as. prof*

ORCID: 0000-0002-2971-9815

*State Institution "DNIPROPETROVSK MEDICAL ACADEMY
of the Ministry of Health of Ukraine", Dnipro, Vernadskogo 9, 49044*

Abstract. *The literature review presents data on the mechanisms of development, clinical manifestations, diagnosis, treatment and outcomes of ANCA-associated glomerulonephritis in children with juvenile rheumatoid arthritis (JRA).*

ANCA-associated glomerulonephritis is most often described in the literature. The main methods of treatment are the use of glucocorticoids in combination with cytostatics. A positive effect from the use of an immunobiological preparation (anakinra) was noted. It should be noted that there are different outcomes from the treatment of ANCA-associated glomerulonephritis: recovery renal replacement therapy (hemodialysis, kidney transplant), lethal.

Key words: *Juvenile rheumatoid arthritis, children, ANCA-associated glomerulonephritis.*

Introduction.

Juvenile rheumatoid arthritis (JRA) is a chronic disease of children under 16 years of age with a leading articular syndrome and possible involvement of other organs in the process [1]. With JRA in children, renal lesions are described, which aggravate the course and prognosis of the underlying disease [2]. The structure of renal pathology in children with JRA is represented by secondary amyloidosis, glomerulonephritis, tubulo-interstitial nephritis [3]. The available literature describes 20 clinical cases of various variants of glomerulonephritis (GN): membranous nephropathy, mesangioproliferative glomerulonephritis, focal segmental glomerulosclerosis, extracapillary glomerulonephritis, minimal changes disease, ANCA-associated glomerulonephritis, IgA – nephropathy [4].

Main text.

Screening to study the presence of ANCA in children with JRA is reflected in three studies [5,6,7]. ANCA concentration was studied using enzyme immunoassay in all cases. The study included children with different forms of JRA (oligoarticular, polyarticular, systemic). The number of examined children was: Speckmaier M. et al (66), Mulder L. et al, (93), Bakkaloglu A. et al (31). Age range 1-16 years on average 7.6 years. It is noteworthy that antinuclear antibodies (ANA) were positive in 16%, and ANCA in 45% of patients [5,7]. Antineutrophilic cytoplasmic antibodies were detected according to Mulder L. et al in 35% of patients with JRA, ANCA was present in 44% of patients with oligoarticular, in 36% with polyarticular and 16% with systemic [6].

ANCA-associated glomerulonephritis is the most common in the literature. Analysis of clinical data of 7 patients suffering from JRA and developing ANCA-associated glomerulonephritis.

As can be seen from the table, more than half of the subjects were of school age, however, 2 patients were at an early age. Almost all of the patients were girls. The forms of JRA are equally often described - polyarticular and systemic, the duration of the process is from 5 months to 6 years. Clinical manifestations in 6 out of 7 patients with ANCA-associated HN were characterized by isolated urinary syndrome in the form of proteinuria. In four cases, the latter was combined with hematuria. A feature of ANCA GN in children with JRA is the absence of edema, hypertension and the presence of an increased level of blood creatinine. An isolated increase in blood creatinine levels in the absence of renal and emergency manifestations was described in one child. The above features of GN are the basis for examining patients for the titer of antibodies to the cytoplasm of neutrophils (ANCA). Confirmed diagnosis, patients underwent intensive therapy with prednisolone in the form of pulse therapy in combination with immunosuppressants (cyclophosphamide, azathioprine, methotrexate, mycophenolate mofetil). Clinical cases were described more than 15 years ago, and the therapy made it possible to achieve end-stage renal failure in two patients with a replacement transition to renal therapy - dialysis and kidney transplant. Belot et al, in 2012 presented three clinical cases of children with JRA, of which 2 were young children. ANCA GN remission was achieved in one child using an interleukin-1 receptor antagonist (Anakinra).

The investigators noted that ANCA-associated glomerulonephritis was most likely caused by an uncontrolled baseline level of inflammation, indicating a common pathogenesis of glomerulonephritis and systemic JRA.

Summary and conclusions.

In conclusion, for the timely diagnosis of ANCA-associated glomerulonephritis in children with JRA, it is necessary to monitor the urinalysis and the level of creatinine in the blood; if pathological changes are detected, the level of antineutrophilic cytoplasmic antibodies should be studied.

References:

1. Petty R.E., Southwood T.R., Manners P., et al. International League of Associations for Rheumatology classification of juvenile idiopathic arthritis: second revision, Edmonton. 2001. J Rheumatol 2004. 31(390). P.2.
2. Dursun I., Yel S., Yilmaz K., et al. Renal Involvement in Children with Rheumatic Diseases Other Than Systemic Vasculitis, SLE and Autoinflammatory Diseases. Annals of Paediatric Rheumatology. 2012. 1(2). P. 97-105. DOI: 10.5455 / anpr.033120121350
3. Icardi A., Araghi P., Ciabattini M., et al. Coinvolgimento renale in corso di artrite reumatoide [Kidney involvement in rheumatoid arthritis]. Reumatismo. 2003. 55(2). P. 76-85. doi: 10.4081/reumatismo.2003.76
4. Bandin F., Merhenberger M., Modesto A., et al. Steroid-responsive nephrotic syndrome in a child with juvenile idiopathic arthritis. Pediatr Nephrol. 2008 Apr. 23(4). P. 651-4. doi: 10.1007/s00467-007-0678-9. Epub 2007 Nov 24. PMID:

18038156

5. Speckmaier M., Röther E., Terreri T., et al. Prevalence of anti-neutrophil cytoplasmic antibodies (ANCA) in juvenile chronic arthritis. Clin Exp Rheumatol. 1996 .14(2). P. 211-6. PMID: 8737731

6. Mulder L., Rossum M., Horst G., et al. Antineutrophil cytoplasmic antibodies in juvenile chronic arthritis. J Rheumatol. 1997. 24(3). P. 568-75. PMID: 9058667

7. Bakaloglu A., Ozen S., Saatci U., et al. Antineutrophil cytoplasmic antibodies in juvenile chronic arthritis. Clin Rheumatol. 1999.18(4). P. 304-7. doi: 10.1007/s100670050106. PMID: 10468170

8. Dhib M., Prieur A.M., Courville S., et al. Crescentic glomerulonephritis in juvenile chronic arthritis. J Rheumatol. 1996 Sep. 23(9). P. 1636-40. PMID: 8877938

9. Washizawa K., Wakabayashi Y. A case of juvenile rheumatoid arthritis with MPO-ANCA associated nephritis. Ryumachi. 1998 Feb. 38(1). P. 29-33. PMID: 9564775

10. Hwang Y.S., Rhie Y. J., Ahn S.Y., et al. A Case of ANCA-associated Pauci-immune Crescentic Glomerulonephritis in Juvenile Rheumatoid Arthritis. Journal of the Korean Society of Pediatric Nephrology. 2005. 9(2). P. 231-236. <http://www.chikd.org/journal/view.php?number=343>

11. Belot A., Bader-Meunier B., Niaudet P., et al. ANCA-associated glomerulonephritis in systemic-onset juvenile idiopathic arthritis. Am J Kidney Dis. 2012 Mar. 59(3). P. 439-43. doi: 10.1053/j.ajkd.2011.11.002

Scientific adviser: Doctor of Medicine Sciences, prof. Borysova T.P.

Article sent: 29/12/2020