

Efficacy of high-dose methylprednisolone pulses in a child with noninfectious persistent pleuropericarditis revealing systemic juvenile idiopathic arthritis

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To the Editor,

The combination of persistent polyserositis and fever in children might be referred to systemic juvenile idiopathic arthritis (sJIA), a distinct variant among all forms of pediatric arthritides, as it may be regarded as an acquired autoinflammatory disorder (1).

An 11-year-old boy was hospitalized due to fever started 7 days before, unresponding to ibuprofen and ceftriaxone, with neutrophil leukocytosis (12,810/mm³, N 82.1%), increased C-reactive protein [141 mg/L, normal values (n.v.) <5] and hyperferritinemia (1128 ng/mL, n.v. 21-275). A relevant left pleural effusion combined with a circumferential pericardial effusion was revealed by chest X-ray film and echocardiography, performed due to anterior chest pain and progressive dyspnea. Tachycardia and paraphonic heart tones were also evident. Two days later a chest computed tomographic scan revealed copious bilateral pleural and pericardial effusions. Furosemide was started and ibuprofen (30 mg/kg/day in four doses) continued. After 1 week, due to persistent chest pain, irregular dyspnea and massive left pleural effusion, thoracentesis was performed, removing 400 cc. from patient's left pleural space. The pleural fluid was sterile with low pH, poor cell count, and low glucose level. The child remained still febrile with different fever spikes during the day and tachycardia (135 beats/min) due to his pericardial effusion, though with no clear signs of heart tamponade. Extensive laboratory testing for tuberculosis, infectious, and autoimmune

systemic diseases was unrevealing. After 5 days bone marrow aspirate was negative for primary hematological disorders and macrophage activation syndrome, and the boy underwent 2 courses of intravenous immunoglobulins (1 g/kg/day) for two days, without any improvement of his serositis. Fever spikes (higher than 39°C) still persisted in combination with diffuse severe joint pains, and diagnosis of sJIA was postulated after one further week.

High-dose pulsed methylprednisolone (30 mg/kg/day) was then intravenously administered for three consecutive days, followed by prednisone (2 mg/kg/day). Pleural effusion and fibrinous pericardial effusion disappeared completely after 5 days. Prednisone was then slowly tapered in 4 weeks, and naproxen (15 mg/kg/day in two doses) administered for further 6 months. No pleural or pericardial sequelae were observed.

Children with apparently refractory noninfectious polyserositis can be framed in the setting of sJIA, but intravenous immunoglobulins have given conflicting results in these children, differently from other rheumatologic diseases, such as Kawasaki disease (2). Very few cases of pediatric patients with persistent pleural and pericardial disease treated with pulsed methylprednisolone have been reported, mostly in the case they showed macrophage activation syndrome, an ominous complications of sJIA (3).

A study carried out in 1998 assessed the outcome of high-dose methylprednisolone pulses in children with sJIA, reporting clinical improvement only in a minority of

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cases (4). However, methylprednisolone pulses were unsuccessful in a 7-year-old boy with a 4-month history of sJIA who presented a fibrinous pericarditis: this patient improved only after intravenous immunoglobulins (5).

Another previously healthy 5-year-old boy developed pleural and pericardial effusions with cardiac tamponade, as the initial presentation of sJIA, requiring placement of a pericardial drain, but did not respond to pulsed methylprednisolone, as tamponade recurred shortly thereafter; subsequently, the same child required high-dose intravenous immunoglobulin, infliximab, and anakinra to obtain the remission of the pericardial disease (6). Systemic inflammation in sJIA has been associated with dysregulation of the innate immune system, suggesting that its autoinflammatory mechanisms might respond to interleukin-1 inhibition: many recent data suggest that early cytokine blockade might abrogate chronic features of the disease and open a potential window of opportunity in the care of children with sJIA.

Overall outcome data of patients with pleuropericarditis treated with high-dose methylprednisolone pulses are not simple to analyze, especially in children: multicenter trials should be attempted to con-

firm that high-dose methylprednisolone pulses could be effective on sJIA-related pleuropericarditis before considering more invasive procedures.

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