

Pneumocystis pneumonia in patients with giant cell arteritis treated with high dose steroids: is there an indication for prophylaxis?

Sirs,

Pneumocystis pneumonia (PCP) is a severe infection associated with high mortality rates, affecting almost exclusively immunocompromised patients (1). Also the use of high dose steroids has been associated with an increased risk of PCP (2). Recently, Park *et al.* reported about the risk of PCP and use of prophylactic trimethoprim-sulfamethoxazole in patients with rheumatic diseases using high dose steroids (3). They showed that the risk of PCP is mainly increased in patients that were diagnosed with granulomatous polyangiitis, microscopic polyangiitis and systemic lupus erythematosus. Possibly this increased risk can be explained by concomitant use of the immunosuppressive medication such as methotrexate or cyclophosphamide. Another explanation is that the susceptibility of infection is increased by pulmonary involvement of the disease. Only few patients with giant cell arteritis (GCA) were included in this study. GCA is the most common large-vessel vasculitis (4). Although patients with GCA are also treated with high dose steroids this disease does not have pulmonary involvement and these patients usually do not use other immunosuppressive drugs besides steroids. It is therefore uncertain whether the risk of PCP is also increased in these patients and whether PCP prophylaxis is indicated.

To assess the risk of PCP in these patients we checked the medical records of all patients diagnosed in the Franciscus Hospital with GCA in the period 2010-2019 for the incidence of PCP. In total 184 patients were diagnosed with GCA (Table I), with an average age of 73 years. Of these patients five had used PCP prophylaxis. The average starting dose was 47 mg/day, and 24 patients had used IV methylprednisolone. Five of these patients used concomitant methotrexate in the first 3 months of treatment. None of the patients diagnosed with giant cell arteritis had developed a reported PCP a year after the diagnosis. Eight patients died within one year after the diagnosis. Two patients died due to endocarditis, in one patient death was related to a severe skin infection, in five cases the cause of death was not known.

Table I. Patients diagnosed with GCA.

	No PCP prophylaxis (n=179)	PCP prophylaxis (n=5)
Demographics		
Gender, male, n (%)	57 (32)	1 (20)
Mean age, years (SD)	73 (9.7)	69 (8.5)
Treatment		
Mean initial prednisone dose, mg/day (SD)	47 (10.9)	56 (8.9)
Use of IV methylprednisone, n (%)	23 (13)	1 (20)
Use of methotrexate*, n (%)	5 (3)	0 (-)
Use of cyclofosfamide*, n (%)	0 (-)	0 (-)
Use of mycofenolate*, n (%)	0 (-)	0 (-)
Outcome		
Developed PCP †, n (%)	0 (-)	0 (-)
Died †, n (%)	8 (4)	0 (-)

*Within the first 3 months after the diagnosis of GCA.

†Within 1 year after the diagnosis of GCA.

PCP: pneumocystis pneumonia; IV: intravenous; SD: standard deviation.

These results suggest that the risk of PCP in patients with GCA using solely high dose steroid is low. Very limited studies are published about the risk of PCP in patients with giant cell arteritis receiving high doses of steroids. One study included 62 patients with GCA (5). Four of these patients had developed PCP, but all of these four patients also used methotrexate. In a retrospective database study from Baulier *et al.* 3 cases of PCP in patients with GCA were included (6). Two of these patients concomitantly used methotrexate and one additionally used tocilizumab. Finally, in one case series from a tertiary referral clinic, 7 patients with GCA who developed a PCP are presented (7). From these cases 2 used methotrexate and 2 others had severe comorbidities being myelodysplastic syndrome and interstitial lung disease. These results suggest that concomitant use of immunosuppressive medication or comorbidities might increase the risk of PCP in patients with GCA treated with high dose steroids.

Given the low PCP risk in our population of patients with GCA using high dose steroids we think there is limited indication for PCP prophylaxis in these patients. Especially since, although adverse effects in patients using PCP prophylaxis are usually limited, serious adverse effects are reported including severe pancytopenia and Steven Johnson syndrome. In case of concomitant immunosuppressive drug use, or immunosuppressive or pulmonary comorbidities the risk of PCP might be increased and prophylaxis should be considered.

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