IMMUNOGLOBULIN A DEFICIENCY IN A HEMODIALYSIS PATIENT: MYTH OR REALITY

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BACKGROUND: selective igA deficiency (SIGAD) is defined as having a serum igA undetectable or less than 5 mg/dl in human. Affected patients are linked to autoimmune disorders malignancy, adverse reaction to blood product perfusion and allergic reactions. Herein, we describe a case of autosomal dominant polycystic kidney on dialysis that was found to have SIGAD and a compensatory igM deficiency.

AIMS and Methods: BKS is a 74 year old nord-African man patient with end stage renal failure under hemodialysis since 2001. He is known to have an autosomal polycystic kidney disease, arterial hypertension, palmar Dupuytren's disease, chronic prostatitis , descending aorta and abdominal aneurysm and career of chronic hepatitis C infection (HCV) type ii genotype. Treatment of this later with Peg interferon and Ribavirin was poorly tolerated. Subsequently, the patient underwent a left nephrectomy for cystic hemorrhage, failed arterio-venous fistula creation and iodine therapy for hyperthyroidism lately. He admitted being and active tobacco smoking which was added to history of pulmonary tuberculosis as responsible of chronic obstructive pulmonary disease (COPD). He was found to be positive for remote syphilis and hepatitis B. Clinical examination showed a conserved patient's health and laboratory investigations failed to show any inflammation. hemogramm values disclosed an acceptable hemoglobin level despite a picture of iron store deficiency and the existence of chronic thrombocytopenia. He was having a cyclic neutropenia for a leucocyte count estimated at 6000/l without eosinophilopenia. However, there was a lymphopenia at 1047/l with lymphocyte phenotype study showing CD3= 770 mega/l (86%), CD4 445 mega/l (54%) and CD8= 242mega/l (29%). CD4/CD8 + 1.8 (N 1-3). The remaining parameters are related to ESRF with biological markers of severe hyperparathyroidism treated by pulse vitamino calcic agents and calcimimetics (Cinaclcet) given at the end of dialysis session. Intact parathyroid hormone level decreased sharply from 1509 ng/ml to reach 376 ng/ml (N 15-65). Vitamin D3 level was 26 nmol/l (N 75- 200) mandating gradual increasing dose. Ionized calcium was low and liver function test showed alkaline phosphatase at 488 ui /ml (N<270) and the phosphocalcic product at 4.38 mmol/l. Thyroid hormone levels showed TSH = 0.47 mcUI/ml (0.27- 4.7), free T4= 8.3pmol/l (9-20) and free T3 4.2 pmol/l (4-8.3). Plasma protein electrophoresis and protein profile didn't show any tracing blood paraproteinemia. Protein profile was showing hyper immunoglobulin (Ig) M = 4.5g/l (0.49- 1.38), mildly elevated Ig G= 13.8g/l (6.36-12.31) and hypo IgA = 0.05g/l. Low level of IgA was persistent having a polyclonal aspect on immunofixation. Albumin level was at 31.25g/l and the remaining parameters were negative or within normal range including immunological profile. Viral load of HCV determined by polymerase chain reaction was 7.2 log copies/ml (threshold 2.1). Patient was dialyzed through a right dual lumen tunneled catheter without any dysfunction or alarming during the session of dialysis. Blood pump and dialysate flow were respectively at 300 and 500 ml/min. He was dialyzed thru polyester-polymer alloy membrane (PEPA), FLX Nikkiso co –Japon, which surface area ranged between 1.2 and 2 .1m. He became anuric after his left nephrectomy and was dialyzed 3 times 4h30 min guided by clinical and

urea monitoring modeling. Radiological explorations confirmed the presence of cysts in the liver and kidney and aspect of thoracic and abdominal aneurysm.

Discussion: SIGAD is the most common humoral deficiency which could be either primary or secondary. Less is known about the incidence of this finding and its clinical significance in hemodialysis population. In this setting, both cellular and humoral immunity is altered. SIGAD is commonly associated with normal B lymphocytes in peripheral blood, normal VD4 and CD8 T cells, and usually normal neutrophil count. Herein, our patient presented impaired cellular and humoral immunity, characterized by lymphopenia, neutropenia, increased CD4/CD8 ratio, and low igA and polyclonal increased of IgG and IgM. Tendency to thrombocytopenia could be the result of concomitant chronic HCV infection. Low IgA level existed at the admission to renal replacement program without associated autoimmunity. This finding co –existed with adult polycystic kidney disease suggesting a dominant autosomal in heredity. Such association has never been described despites added clinical presentation. In addition, there are reports that indicate clear association between SIGAD and increased susceptibility to particular infection, as demonstrated here by history of pulmonary tuberculosis, both positive HCV and HBV, syphilis, chronic prostatitis and recurrent chest infection exacerbating his COPD. Elevated IgM level didn't protect him from acquiring the mentioned infections; which could be an effect movens. However, discrepancy still exists concerning the relationship between SIGAD and predisposing to infection. We don't know whether hyperthyroidism discovered during investigation of altered cognition was the consequence of earlier Peg interferon therapy or a co-existing disease by itself with negative immunological investigation despites the presence of lymphopenia and cyclic neutropenia. Neutropenia could be acquired due to either chronic HCV infection or hyperthyroidism or both... Hereditary cyclic autosomal dominant could not be excluded as well. Neutropenia alone or combined with IgA deficiency predispose to recurrent infection. Both findings have been reported associated with the development of autoimmune disorders. Patient developed ESRF due to the progression of autosomal polycystic kidney disease probably sharing the same mechanism with SIGAD and cyclic neutropenia.

Conclusion: the hallmark of IgA deficiency is the clinical recurrent infection, autoimmunity, allergic reaction to blood product perfusion and in some circumstances chronic gastro intestinal symptoms. Their presence in patient known to have polycystic disease should alert physician to complete laboratory investigation by requesting a protein profile and qualitative and quantitative aspect of immunoglobulin.