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Letters to the Editor / Cartas al Editor

ACUTE RENAL FAILURE SECONDARY TO RHABDOMYOLYSIS INDUCED BY INFLUENZA VACCINE IN AN OLD PATIENT

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To the Editor:

Rhabdomyolysis (massive and acute muscle destruction) is one of the etiologies of acute renal failure in old population¹. Many promoting damaging muscle factors have been described in the aged group, being some of them the ageing muscle changes, viral agents and their vaccines². However, there are few reports regarding rhabdomyolysis induced by influenza virus or its vaccine and even less ones reporting acute renal failure caused by this mechanism³⁻⁷. Because of that we decided to present the following clinical case.

We report the case of a seventy three year-old male patient suffering from diabetes mellitus (type II) treated with diet, hypertension treated with 5 mg/day of enalapril, auricular fibrillation treated with 75 mg of atenolol and 4 mg of acenocumarol; and chronic renal disease: plasma creatinine 2.1 mg/dl (0.6-1.2 mg/dl).

He received the influenza vaccine five days before his admission, developing forty-eight hours later fever and malaise. He was initially medicated with 500 mg/day of paracetamol, but his symptoms worsened. At his admission he presented oliguria, fever, and marked muscle pain in his inferior limbs.

Main laboratory alterations were: plasma urea: 243 mg/dl (10-40 mg/dl), creatinine: 11 mg/dl (0.6-1.2 mg/dl), calcium: 7.2 (8-11 mg/dl), plasma creatinphosphokinase: 11.600 UI/l (12-140 UI/L) and the presence of abundant myoglobin in a urine sample.

A rhabdomyolysis was suspected as the cause of his acute renal failure and since he did not improve with intravenous rehydration, bicarbonate and furosemide (200 mg/day) infusion, a hemodialysis treatment had to be initiated. He dialyzed daily for a week and then he progressively recovered his renal function until he reached his original level.

The ageing process produces a significant reduction of the body lean mass, specially the one represented by the muscle tissue (around 30%). This process of anatomical and functional muscle reduction, called senile sarcopenia, mainly affects the superior limbs and the type I (fast) muscle cells¹.

Many studies performed on aged muscle cells have shown a reduction in the number of their myofibrils and oxidative enzymes concomitantly with an increase in their intracellular lipofucsin deposits. All these changes mentioned above make old people myocytes frail and prone to be damaged by different agents².

The main causes of rhabdomyolysis in the elderly are crush syndrome, hypothermia, severe hypokalemia and hypernatremia, malignant neuroleptic syndrome, lipid-lowering agents, viral infections and some kind of vaccines³.

Rhabdomyolysis can lead to renal dysfunction in approximately 30% of the cases. The main mechanisms implicated in the rhabdomyolysis induced acute renal failure are: vasoconstriction secondary to nitric oxide reduction, myoglobin induced intra-tubular obstruction and toxic tubular damage^{4,5}.

Regarding infection and vaccination as rhabdomyolysis promoters, among the former influenza A and B, coxsackie, Epstein-Barr, herpes simplex, cytomegalovirus, HIV and parainfluenza viruses stand out⁶⁻⁹. Regarding the latter, there are only two articles reporting influenza vaccination as an inducer of rhabdomyolysis and acute renal failure. However, in these two cases the patients were also under lipid-lowering drugs, and because of that the vaccination was interpreted only as a trigger of the rhabdomyolysis process and not its main cause^{10,11}. Conversely, in our case report the patient was neither taking any drug nor going through any situation that could justify the appearance of rhabdomyolysis except for the antecedent of the influenza vaccination. Since the existence of this report the possibility of rhabdomyolysis secondary to this sort of vaccination only could be described.

In conclusion, acute renal failure due to rhabdomyolysis should be considered one of the potential influenza vaccine side effects especially, in the elderly.

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SUMMARY

Ageing leads to structural and functional muscle reduction, a process known as senile sarcopenia. This situation predispose aged muscle tissue to rhabdomyolysis which is one of the etiologies of acute renal failure in the elderly. Many factors have been described as promoters of this disease such as viral agents and their vaccines. Two previous articles reported influenza vaccination as a trigger of rhabdomyolysis and acute renal failure in patients under treatment with lipid-lowering drugs. In the present report we communicated a case of rhabdomyolysis induced acute renal failure in an old patient solely caused by influenza vaccine administration.

RESUMEN El proceso de envejecimiento produce una reducción estructural y funcional del tejido muscular esquelético, lo cual se designa como sarcopenia senil. Esta situación predispone al tejido muscular de los ancianos a sufrir rhabdomiólisis, la cual constituye una de las causas de insuficiencia renal aguda en este grupo etario. Muchos factores han sido descritos como promotores de esta enfermedad como sucede con los agentes virales y sus vacunas. Dos artículos recientes han reportado casos de pacientes bajo tratamiento con drogas hipolipemiantes que desarrollaron insuficiencia renal aguda secundaria a rhabdomiólisis tras haber recibido la vacuna antigripal. En el presente reporte comunicamos el caso de un paciente anciano que desarrolló una insuficiencia renal aguda secundaria a rhabdomiólisis en el cual la vacuna antigripal fue su único factor causal.

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