

## CASE REPORT

# Acute renal failure after influenza vaccination: a case report

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## Key words

Influenza vaccine • Acute renal failure • Statins

## Summary

*A fifty-three years old surgeon had acute renal failure consisting with acute tubulo-interstitial nephropathy twelve days after influenza vaccination; he was on statin therapy since one month. He was given steroidal therapy and fully recovered two weeks*

*apart. This is the fourth case report of acute renal failure after influenza vaccination in patients on statins therapy. The case we describe could account for a underestimated, even if very rare, phenomenon.*

A fifty-three years old surgeon was vaccinated against seasonal influenza on December 15, 2012, with 0,5 ml of split inactivated vaccine in a prefilled syringe (Vaxigrip). The surgeon had been previously vaccinated since year 2000, without any side effect, but this was the first time he took Vaxigrip. Standard hygiene procedures were followed during vaccination and no local or systemic side effect were reported soon thereafter. The surgeon was on statin therapy since one month and took low dose aspirin since a couple of years; the day after vaccination he took 10 mg ketorolac once by the oral route, for backpain; he rarely used ketorolac for the same reasons, always well tolerated. Twelve days after vaccination the surgeon had abrupt onset of extreme thirst with compensatory polyuria up to 3,5 liters daily, diffuse myalgias, weakness and one febrile peak at 38° C. On the fourth day of persisting symptoms he did laboratory exams consisting with a worsening acute renal failure: creatinine 2,34 mg/dl, urea 69 mg/dl. Urine analysis showed minimal leukocyturia and micro-haematuria, low level albuminuria with total proteinuria not exceeding 1 gr daily and without myoglobinuria. Leukocytosis (12.300 WBC/ml) was also present, with increase of C-reactive-protein (1,6 mg/dl, range: 0-0,5); creatine phospho kinase was in the normal range and the autoimmune screening, including anti-neutrophil cytoplasmic antibodies (ANCA) was negative. The patient was admitted to Nephrology ward; he was otherwise well and had no symptoms suggestive of urinary tract infection: history was negative for exposure of any other nephrotoxic substance and he didn't report recent travels in tropical areas. Diuresis was unaffected. Given the urine pattern acute tubulo-interstitial nephropathy was suspected, the statin was stopped and the patient was given hydration and oral prednisolone 1 mg/kg for two weeks. The clinical picture rapidly improved, with regression of symptoms, improvement of

the renal function, urine normalization without residual proteinuria; the renal biopsy was therefore not done and the patient was discharged on day three: renal function was normal on the follow-up visit two weeks after. The patient fully recovered and returned to work by the end of January.

At our knowledge and after extensive literature search this is one the very first cases of acute renal failure possibly due to influenza vaccination; our patient had a tubulo-interstitial pattern while in the other few cases a glomerular one was prevalent. In particular, we found three other previously published cases [1-3], who had acute renal failure as a consequence of rhabdomyolysis, possibly triggered by vaccination in patients taking statins, as our patient did. Also in another case [4] rhabdomyolysis caused renal failure, but it was unrelated to any other known cause. By contrast, we found just one case [5] of acute renal failure after influenza vaccination not due to rhabdomyolysis; in this patient the renal biopsy led to the diagnosis of minimal change disease [6]. Our patient took a small dose of ketorolac just after vaccination; this is a possible alternative explanation for acute renal failure, but has to be considered very unlikely [7]. Immunizations are a cornerstone of the nation's efforts to protect people from infectious diseases and vaccines are generally very safe [8, 9]; though generally very rare or minor, there are side effects, or "adverse effects," associated with some vaccines: importantly, some adverse events following a vaccine may be due to coincidence and are not caused by the vaccine. All this given, even if we cannot assume a causal relationship between acute renal failure and influenza vaccination in our patient, the association of the very few cases observed so far with statins therapy is noteworthy, and could account for a underestimated, albeit very rare, phenomenon.

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