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Acute Kidney Injury in A Young Adult Following Whey Protein Supplement and Gym Workout (Case Report)

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Abstract:
The use of supplements whey protein and excerise for muscle building is prevalent in society. while these suppliments carry signficants risks including severe medical complication like acute kidney injury, gastrointestinal problems. We present a 37-year-old male with mild to moderate swelling on face and feet, bilateral sided flank pain, nausea and vomiting. These suppliments and extreme gym workout enhanced the acute renal injury and gastrointestinal problems. This case highlight the importance of recognizing and managing complications related to exercise and whey protein suppliments. Enhance the social awareness and research on these complications avoid these suppliments and excercises to prevent from the longterm potential problems.

Keywords: Acute Kidney Injury, Whey Protien Suppliment, Gym Workout

Introduction:

Muscle-building dietary supplements are commonly consumed by young adult bodybuilders all over the world. Dependent on these supplements may be kidney damage by various methods. The kidney damage brought about by these supplements is 'gym nephropathy. (1) When physical exercise is being done, the body transports the blood into essential regions such as body muscle and reduces the volume of blood in non-essential regions such as the kidney. It has been demonstrated that the kidney under normal conditions has about 20% of cardiac output, and when one is engaging in physical exercise, the kidney is very sensitive, thus initiating a renal physiology shift. (2) The consumption of steroids and supplements is a common strategy in the fitness and bodybuilding communities to increase strength and build muscle mass. The most common supplements are whey protein, creatine, and vitamins. These supplements and exercises lead to sudden onset of renal failure, breakdown of skeletal muscles, and GI tract problems. Supplements high in protein intake, however, may very well have adverse renal consequences, inducing glomerular filtration a condition with glomerular filtration rate (GFR) increased and blood flow in the glomerular capillaries also increased (3) Nephropathy due to exercise is called acute kidney injury a condition in which kidneys are unable to work properly doing gym workout. Nephropathy is not fully understood endocrine aspects also have a role in the development of kidney injury while the exact mechanism underlying gym. (4) A 27-year-old male taking a high protein diet for 18 months. He was admitted to the hospital with azotemia high level of serum creatinine, protein, and blood in

urea. A renal biopsy was taken which showed nephron sclerosis and chronic tubule-interstitial damage. The patient has started three sessions of hemodialysis in a week and planned for a kidney transplant. (5)

Case Report:
A 37-year-old male with no significant past medical history presented at CMH Rawalpindi Hospital with nausea, vomiting fever, bilateral flank pain, and swelling in the face and abdomen patient history has been taken he had taking whey protein supplements for 3 years and doing intense rigorously gym workout.

Clinical Findings:
On examination patient was found ill with mild facial and abdominal edema. Radiology and laboratory investigations were done and showed the following results.

Radiology:
Ultrasound shows mild hydronephrosis.

Laboratory:

Lab Test	Result	Normal Ranges
WBC	7.7 ×10^9/L	4.0-10.0 ×10^9/L
HB	13.7 g/dL	13.0-17.0g/dL
Platelates	281 ×10^9/L	15-400 ×10^9/L
CRP	36.9 mg/L	Less than 6mgdl
Urea	5.7 mmol/L	3.3-6.7 µmol/L
Cretinine	171 µmol/L	71-115 µmol/L
Soduim	134 mmol/L.	135-145 mmol/L.
Pottasuim	4.1 mmol/L.	3.5-5.0 mmol/L.
Serum Albumin	46 g/L	35-50 g/L
Serum ALT	33 U/L	Up to 42 U/L
Total Bilurubin	05 umol/L	0-17 umol/L
Alkaline Phosphate	63 U/L	46-141 U/L
Urine Color	Pale	Light yellow
Urine PH	5.5	4.5-8
WBC in urine	2-4HPF	0-5HPF
Prtienurea	Nill	Nill

Discussion:
Prolong consumption of whey protein supplements with intense exercise affects the kidneys and may lead to permanent damage this patient's raised urea creatinine indicates acute kidney injury while whey protein is considered safe for bodybuilders with normal kidney function, taken in high amounts with rigorous workout and not drinking as required water lead into dehydration this can increase the renal workload patient urine dr shows normal and ultrasound results are also normal and shows no any structural abnormalities. This indicates the acute or early stage of renal disease rather than chronic kidney disease. The patient's symptoms and elevated inflammatory markers suggest an inflammatory or infectious process that may have exacerbated renal stress. The patient was treated with hydration, antibiotics (Tab Ciprofloxacin 500mg), an alpha-blocker (Cap Tamsulosin), Cran Max sachets, and pain management (Tab No-Spa) for 14 days. Adequate hydration and cessation of whey protein supplementation were advised to alleviate renal strain.

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