



PEDIATRIC POST COVID 19 RHABDOMYOLYSIS - A RARE CASE REPORT

Paediatrics

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ABSTRACT

Covid 19 is an illness caused by novel Corona virus SARS CoV 2. Covid 19 in paediatric population is usually a mild illness and myalgia is less common presenting feature when compared to adults. This case report describes a 5 year old male child presenting with fever, severe myalgia, dark coloured urine. He was covid antibody positive. His initial CPK was 22,778 IU highest CPK was 1,46,097 IU. RFT was normal. Covid induced rhabdomyolysis was suspected and hence was managed with fluid therapy and urine alkalinisation with sodium bicarbonate. His urine colour normalised. CPK reduced. This case is reported to insist that covid 19 induced rhabdomyolysis should be suspected in covid patients presenting with severe myalgia and early treatment should be initiated with adequate fluid replacement to prevent acute kidney injury.

KEYWORDS

Rhabdomyolysis, Alkalinisation, Acute kidney injury

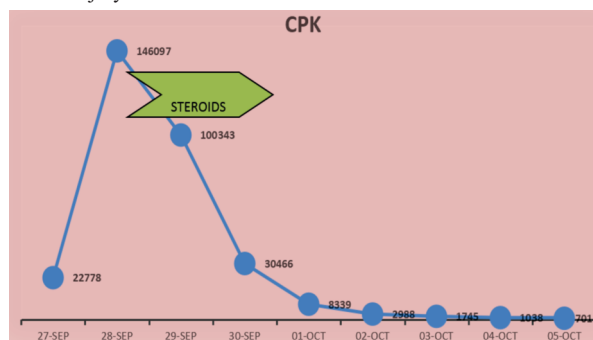
INTRODUCTION

Covid 19 is a viral infection caused by novel Corona virus SARS CoV 2, which first emerged in China and spread worldwide thereafter. Covid 19 in paediatric patient presents predominantly with mild symptoms except in those with comorbid condition¹. Rhabdomyolysis is a condition where there is breakdown of skeletal muscles, leading to release of muscle enzymes resulting in acute kidney injury². There are very few case reports representing rhabdomyolysis as a post covid complication with a highly elevated CPK levels³. Herewith we report a case of rhabdomyolysis as a post covid complication.

Case Report

A 5yr old male child presented with history of fever for 3 days, bilateral upper and lower limb pain for 2 days, with difficulty in walking. There was no history of cough, vomiting, altered bladder and bowel habits, recent trauma, drug intake. On examination, child was febrile, vitals stable, systemic examination was normal, tenderness present in all four limbs (lower more than upper). On day 4 of illness, child had dark coloured urine.

Blood investigations showed a total count of 4400 cells/mm³, metabolic profile showed altered liver enzymes AST-1764 (↑)/ALT-238 (↑) GGT-48(↑)/ALP-147. RFT, electrolytes, coagulation profile, C3 were within normal range. CPK was 22,778 IU/L on day 1 and 1,46,097 IU/L on day 2. Dengue, scrub, leptospirosis, chikungunya, COVID PCR was negative ruling out infectious causes. Thyroid function test and ammonia was normal. Since it is an acute episode, muscle dystrophy was ruled out. COVID antibody was reactive. CRP, D-Dimer, ESR was normal. Ferritin was elevated (354). ECHO was normal. In our case possibility of tropical infections, metabolic, endocrine causes of rhabdomyolysis were ruled out and since COVID antibody was positive, possible etiology could be of COVID mediated muscle injury.



Treatment for rhabdomyolysis in the form of urinary alkalinization was done with isotonic fluid of 0.9% Normal saline and sodium bicarbonate, double volume of maintenance fluid to prevent acute kidney injury and urine PH was maintained above 7. Child was treated with prednisolone (2mg/kg/day). Serial CPK values monitored and values started to decline with treatment of steroids. Pain subsided and child walked without pain.

DISCUSSION

Benign myositis occurring after a viral infection is usually a self limiting condition. But rhabdomyolysis with polymyositis is a rare but described complication of viral myositis⁴. There are many pathogenesis of viral rhabdomyolysis which includes direct invasion of muscles by the virus⁵, cytokine storm, toxin induced muscle injury, macrophage and complement activation, endothelial dysfunction. SARS-CoV 2 associated rhabdomyolysis was secondary to cytokine storm rather than direct viral invasion due to the presence of high inflammatory markers and absence of viral particles in the muscle biopsies. The decrease in CPK levels after the administration of steroids support the possibility of immune mediated mechanism similar to necrotising autoimmune myositis as described in adults. Myalgia and weakness are common symptom of covid 19⁶. Elevated CPK levels indicate the severity of myalgia, giving an early clue to rhabdomyolysis. Hence CPK levels should be measured in all suspected patients⁷. The main aim of treating rhabdomyolysis is to prevent acute renal failure by ensuring adequate fluid status. Forced alkaline diuresis with sodium bicarbonate is done to reduce renal toxicity⁸. In conclusion, rhabdomyolysis and raised CPK levels can remain an under recognised complication of covid 19 infection.

We recommend to do CPK levels in case of severe myalgia for early identification of rhabdomyolysis and thereby preventing AKI. There are no studies the need of muscle biopsy being done on SARS CoV 2 patients.

Learning Points

1. Covid induced Rhabdomyolysis should be suspected in covid positive patients presenting with severe myalgia.
2. Rhabdomyolysis in covid patients is due to cytokine storm rather than direct virus invasion.
3. Early recognition and adequate fluid therapy will prevent acute kidney injury.

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