MINI ORAL 6 [ID#159]

An Occupational Inhalation Injury Induced Rhabdomyolysis

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INTRODUCTION: Occupational inhalation injury (II) is a common presentation but under reported in Malaysia. We present a case of II which resulted in rhabdomyolysis after a prolonged period of inhaling thinner in a closed confined space. It is a common solvent that usually consists of acetone, turpentine, glycol ethers and toluene.

CASE REPORT: 52-year-old male construction worker was found unconscious in an elevator by fellow co-workers. He was last seen painting the interior of the elevator the night before. On examination, patient was agitated with a distinct smell of thinner was detected on the patient's breath. His respiratory rate was 24 per minute and crepitation was heard on bilateral lungs. Calculated P/F ratio obtained was 170. The creatinine worsens from 52umol/L to 91umol/L within a few hours, 1.9mmol/L potassium level and a compensated metabolic acidosis blood gas result (pH 7.423, paCO2 18.9 mmol/L and HCO3- 12.1mmol/L). Creatine kinase was 9016 U/L.

DISCUSSION: Toluene is a lipophilic substance component in thinner which rapidly absorbed in respiratory, gastrointestinal tract and skin. Rhabdomyolysis and hypokalemia are the unique features of toluene toxicity, and the treatment for these conditions are aggressive fluid therapy and electrolyte correction. Nonetheless, evidences on urinary alkalization and diuretics remains poor. In this patient, he developed moderate acute respiratory distress syndrome (ARDS) with hypokalemia, therefore other than oxygen therapy, administrating these therapies might worsen his condition. Early involvement of multi-disciplinary team to co-manage this condition will improve his prognosis in view of high risk of intubation with acute kidney injury.

CONCLUSION: Fluid therapy remains the sole treatment for rhabdomyolysis, however administration of such therapy must be rendered using 'personalized medicine' concept. Physicians also need to be aware of varied presentation of occupational hazards toxicity and its antidote.(Text)