Presented at the North American Congress of Clinical Toxicology 2023 – Montreal, Canada

Published in Clinical Toxicology 2023;61:59-60.

120. Characteristics of poisoning- associated rhabdomyolysis in various age groups

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Background: Poisoning-associated rhabdomyolysis is the breakdown of muscular tissue that may occur after exposure to many agents. Muscle damage may be caused by repeated muscular contraction, compression from prolonged sedation, or direct myotoxicity and the risks for each of these vary with age. Muscle damage may lead to elevations in serum myoglobin, creatine phosphokinase (CPK), metabolic acidosis, and renal failure. We sought to determine and compare the agents that are associated with, and the clinical characteristics of, toxicant-associated rhabdomyolysis in children, adolescents, adults, and those > 65 years.

Methods: We searched the ToxIC database for the 10-year period from 1/1/2012 to 12/31/2021. ToxIC is a database of cases that are prospectively entered into the registry after bedside consultation by a medical toxicologist. Agents that are primarily responsible for the subject's symptoms are determined by the medical toxicologist. Cases were included if they had a diagnosis of rhabdomyolysis (defined by ToxIC as CPK > 1000IU/L and had at least one agent listed as "primary agent" associated with the toxicity. Cases were excluded if there was no documented age. Pearson Chi-square test was used to test for association of dichotomous outcomes with the 19–35yo group as a comparator.

Results: There were 2450 cases of rhabdomyolysis that were related to poisoning over 10 years. 59 cases were excluded due to unknown age, leaving 2391 study cases. Subject ages ranged from 3mo to 89 yr. The majority of exposures were intentional in all age groups except < 7 yo. There were differences in primary agent in patients with rhabdomyolysis by age (1): children < 13 yo had a higher percentage of envenomation from rattlesnakes, hymenoptera, and recluse spiders; adolescents had a higher percentage of anticholinergics and serotonin toxicity as well as psychoactive substances. Subjects that are 19–50yo had high proportions of stimulants and those > 50 yo and had higher proportions of sedative/hypnotic drugs and opioids. Acute kidney injury (AKI) was present in all age groups, but was a higher percentage of cases in adults (> 19 yo) than children. Compared to adults aged 19–35 yo, the rate of AKI was lower in children < 7 yo (6.3 v. 26%, P . 0.01) and children 7–12 yo (8.0 v. 26%, P .0.045). Mortality associated with rhabdomyolysis increased with age. Compared to adults aged 19-35 yo, mortality was higher in those aged 36–50 yo (6.2 v 3.5%, P . 0.14), aged 51–65 yo (6.3 v 3.5%, P . 0.02), and age 66–80 yo (9.6 v 3.5%, P . 0.01).

Conclusion: Poisoning-related rhabdomyolysis occurs in all age groups and there were no differences in associated agents between age groups.