

138. Toxic exposures in young children resulting in tracheal intubation

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Objective: To determine the toxic exposures most frequently resulting in tracheal intubation in children.

Methods: The Toxicology Investigators Consortium (ToxIC) Registry contains case details on all clinical consults seen by medical toxicologists via an international network. A search of the ToxIC Registry was performed for all cases 2010-2014 with a treatment recorded as 'intubation' and age categories of ≤ 2 and 2-6 years. The 5 most frequently reported exposures for both single and multiple substance cases were reported.

Results: In total 122 intubations in patients age 0-6 were identified (<2 years 60; 2-6 years 62). Of these 95 (78%) intubations were associated with single agent exposures. The 5 most common single agent exposures identified were alpha-2 agonists (n=12), opioids (n= 12), detergents (n=9), caustics (n= 8) and envenomations (n=8). Most of the alpha-2 agonist single agent exposures (11/12) involved clonidine. The other was brimonidine. Laundry pods were involved in 8/9 detergent exposures. Caustics identified were sodium/potassium hydroxide (n=3), lye (n=1), ammonia (n=1), hydrochloric (n=1) and sulfuric (n=1) acid, and an unspecified caustic (n=1). Envenomations associated with intubation were Centruroides scorpion (n=4), Loxosceles spider (n=3), and crotalid snake (n=1). Multiple agent exposures were associated with 14 (11%) of intubations. The 5 most common multiple agent exposures were alpha-2 agonists (n = 4, clonidine 2, guanfacine 1, tetrahydrozoline 1), sedative-hypnotics (n=4, zolpidem 2, buspirone 1, diazepam 1), opioids (n=4), antidepressants (n=3, bupropion 1, trazodone 1, venlafaxine 1), and cardiovascular medications (n=3, beta-blockers 2, digoxin 1). An unknown agent was associated with 13 (11%) intubations.

Conclusion: The agents most frequently associated with intubation in young children were alpha-2 agonists and opioids. This was seen in both single and multiple agent exposures. Given the widespread availability of prescription opioids and associated respiratory depression/central nervous system depression, the prominence of opioids is expected. However, the severity of alpha-2 agonist may not be well recognized. This data is consistent with an unpublished analysis of the US National Poison Data System (NPDS) from 2000-2013 which found that clonidine was the leading agent associated with intubation in children <6 years in both single substance ingestions (856/5517; 15.5%) and polysubstance ingestions (1052/6491; 16.2%). An additional published analysis of NPDS data revealed a recent trend of an increasing number of symptomatic pediatric exposures to alpha-2 agonists. 1 This effect is presumably due to the increased use of alpha-2 agonists in the treatment of attention deficit (hyperactivity) disorder in young children.

Reference:

1. Wang GS , Le Lait MC , Heard K . Unintentional pediatric exposures to central alpha-2 agonists reported to the National Poison Data System . J Pediatr 2014 ; 164 : 149 – 52 .