111. Elder Toxicology: Characterizing Unintentional Pharmaceutical Exposures in the Aged Population Using the ToxIC Registry

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Background: Comprising the most medicated population in the US healthcare climate, the aged may be at the greatest risk for unintentional pharmaceutical exposures and adverse drug events.

Hypothesis: Morbidity and mortality from unintentional pharmaceutical exposures increases with age.

Methods: Data from the ACMT ToxIC database were obtained from January 1, 2010 to October 1, 2015. We performed age-specific queries with respect to unintentional pharmaceutical exposures and extracted all available clinical data points from all aged patients. For the purposes of analysis, age groups were defined as "aging" (age 66–89 years) and "elderly" (age > 89 years).

Results: Of 1383 unintentional pharmaceutical exposures, 545 occurred in patients >18 years of age. Of these, 138 (25.3 %) occurred in the ageing, while 12 (2.2 %) victims were elderly. Adverse drug reactions occurred with similar frequency between groups (11.6 vs. 16.7 %), while the frequency of medication error was doubled in the elderly group (8.7 vs. 16.7 %). Single and double agent exposures were most common and similar between age groups (ageing, 75 [54.3 %] and 37 [26.8 %]; elderly, 6 [50 %] and 4 [33.3 %], respectively). However, ICU admission and toxicological treatment were more often required in the aging population (15.9 vs. 8.3 %), despite similarity in chronicity of exposure between groups (i.e., acute vs. acute-on-chronic). Of the 238 total agent exposures, cardiovascular agents were the primary agent of concern in 64 (26.9 %) cases, followed distantly by anti-diabetic agents (22 or 10.2 %) and antidepressants (19 or 8.8 %). Digoxin was responsible for 19 (29.6 %) of cardiovascular agent toxicities. Unintentional pharmaceutical exposure resulted in death in 4 of 138 patients in the aging group. No deaths were reported in the 12 patients > 89 years of age.

Discussion: Using the ACMT ToxIC Database, we offer the characterization of the single largest bedside toxicology database with respect to pharmaceutical exposures in the aging and elderly population.

Conclusion: While limited by a small sample size, toxicity from unintentional pharmaceutical exposure results primarily from cardiovascular and anti-diabetic agents, with medication error more common in the elderly population. Although death is uncommon, toxicological treatment is often required for unintentional pharmaceutical exposures in the aged.