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234. Does hepatotoxicity occur more frequently among American Indians/ Alaskan natives after acetaminophen overdose?

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Objectives: Previous research suggests that indigenous people (American Indians, Alaskan Natives, First Nations) in the United States and Canada have higher rates of acetaminophen overdose and hospitalizations than other racial/ethnic groups. Higher hospitalization rates could be due to potential disparities in healthcare access or in its delivery. To address this knowledge deficit about potential healthcare disparities, we compared the frequency of acetaminophen hepatotoxicity and n-acetylcysteine administration across 47 hospitals in the United States among non-Hispanic American Indians/Alaskan Natives to other racial/ ethnic groups.

Methods: This investigation involved a query of the Toxicology Investigators Consortium (ToxIC) registry. The ToxIC registry was created in 2010 by the American College of Medical Toxicology (ACMT). Through a consortium of clinical sites, medical toxicologists voluntarily enter de-identified cases into a nationwide surveillance registry of the bedside care of patients who sustained a variety of toxicological exposures. In this investigation, we identified registry cases for which overdose of acetaminophen was identified. All acetaminophen overdose cases regardless of age between 2015-2020 were reviewed for race/ethnicity and the outcomes of hepatoxicity (defined as aspartate aminotransferase (AST) or alanine aminotransferase (ALT) > 1000), treatment with n-acetylcysteine, organ transplantation and death. Two-sample testing of binomial proportions were used to compare non-Hispanic American Indians/Alaskan Natives to other racial/ethnic groups by frequency of hepatotoxicity and n-acetylcysteine administration.

Results: A total of 6,342 acetaminophen overdose cases were identified. Of these 6,342 patients, most were 19-65 years-old (53%), while 37% were 13-18 years-old, 4% were 66 years-old and older, 3% were 7-12 years-old, 1% were 2-6 years-old, and 1% were younger than 2 years-old. The majority of patients were female (70%), while 29% were male and 1% were transgender. Among the 6,342 patients, 44% were non-Hispanic White, 13% any race Hispanic, 10% non-Hispanic Black, 2% non-Hispanic Asian, and 1% non-Hispanic American Indian/Alaskan Native. Hepatotoxicity after an acetaminophen overdose occurred more frequently among non-Hispanic American Indians/Alaskan Natives (30.8%) than non-Hispanic Whites (18.7%; D12.1%, $p < 0.01$), any race Hispanics (10.9%; D19.9%, $p < 0.00001$), non-Hispanic Blacks (15.0%; D15.8%, $p < 0.001$, and non-Hispanic Asians (14.8%; D16.0%, $p < 0.01$). However, the proportion of patients receiving n-acetylcysteine was similar among non-Hispanic American Indian/Alaskan Natives (90.8%) and non-Hispanic Whites (81.8%; D9.0%, $p < 0.06$), any race Hispanics (81.5%; D9.3%, $p < 0.06$), and non-Hispanic Asians (81.7%; D9.1%, $p < 0.1$), yet was greater than among non-Hispanic Blacks (72.4%; D18.4%, $p < 0.001$).

Conclusions: As compared to other racial/ethnic groups in the United States, non-Hispanic American Indians/Alaskan Natives more frequently have hepatotoxicity when presenting for care after an

acetaminophen overdose, yet are not less likely to receive n-acetylcysteine treatment. Reduced access to healthcare or longer times from overdose to presentation to healthcare should be investigated as potential causes of disparity of disease severity, in addition to differences by metabolism and hepatologic disease. Lower use of n-acetylcysteine treatment among non-Hispanic Blacks also requires further study in regard to causes including disparities in treatment or longer presentations to healthcare after an acetaminophen overdose.