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Fracture rate similar among young women with, without Turner syndrome

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Young women with Turner syndrome did not incur fractures more frequently than those without the disease; however, fracture location differed between the two groups, according to study results.



Halley M. Wasserman, MD, assistant professor at Cincinnati Children's Medical Center, and colleagues recruited girls and women with Turner syndrome to complete an anonymous electronic survey between November 2016 and March 2017. The Turner syndrome participants recruited non-Turner syndrome control patients from among their family members and friends.

The 92-item survey included questions about demographics, medication use, Turner syndrome diagnosis, other diagnoses, age at puberty onset, calcium and vitamin D consumption, physical activity, and personal and family history of fracture.

The researchers used bivariate analysis (Chi-Square, analysis of variance or Wilcoxon rank sum) to compare descriptive characteristics between the groups by age. Estimates of fracture prevalence were made for both Turner syndrome and control groups, and the researchers used multiple logistic regression analysis to evaluate risk factors and age-adjusted differences in fracture risk between groups.

The final analysis consisted of 942 surveys (75.5% for Turner syndrome participants); 522 were self-reported, and 420 were filled out on behalf of a child.

The researchers found that 41.8% of participants with Turner syndrome experienced at least one fracture vs. 39.4% in the control group. In participants aged 25 years or older, those with Turner syndrome were more likely to report at least one fracture during their lifetime compared with controls ($P = .03$). No differences were observed in fracture prevalence between Turner syndrome participants and controls during childhood (ages 0-12 years), adolescence (ages 13-25 years) or young adulthood (ages 26-45 years). The two groups had comparable prevalence of recurring fracture.

Adolescents with Turner syndrome were more likely to report upper extremity fractures (34% vs. 17%; $P = .03$), whereas controls were more likely to experience phalangeal fractures, according to researchers.

Among women aged 45 years and older, the Turner syndrome participants had a higher likelihood of fracture vs. controls ($P = .01$). The participants with Turner syndrome aged 25 years and older had a greater likelihood of osteoporosis in their family history vs. controls.

Turner syndrome participants experienced balance problems more frequently than controls (26.5% vs. 14.8%; $P = .0006$), and those with balance problems were 54% more likely to have a history of fracture vs. those without balance problems (OR = 1.54; 95% CI, 1.03-2.30). This result remained even after controlling for age. In the control group, balance problems and fractures were not significantly associated.

Compared with controls, Turner syndrome participants reported fewer days of physical activity per week (median, 3 days vs. 4.5 days; $P < .001$).

“This national survey found higher fracture rates in girls and women with Turner syndrome in the United States compared to non-Turner syndrome peers due to an increased prevalence of fractures in those [up to] 45 years of age,” the researchers wrote. “Balance problems were associated with prior fracture and may be an unrecognized risk factor for fracture in all individuals with Turner syndrome regardless of age or other comorbidities.” – *by Jennifer Byrne*

Disclosure: The researchers report no relevant disclosures.



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