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The incidence of fall-related intracranial bleeding in older adults taking anticoagulants, antiplatelets and neither medication: a meta-analysis

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Introduction: It is unclear whether anticoagulant or antiplatelet medications increase the risk for intracranial bleeding in older adults after a fall. Our aim was to report the incidence of intracranial bleeding among older adults presenting to the emergency department (ED) with a fall, among patients taking anticoagulants, antiplatelet medications, both medications and neither medication. **Methods:** This was a systematic review and meta-analysis, PROSPERO reference CRD42019122626. Medline, EMBASE (via OVID 1946 - July 2019), Cochrane, Database of Abstracts of Reviews of Effects databases and the grey literature were searched for studies reporting on older adults who were evaluated after a fall. We included prospective studies conducted in the ED where more than 80% of the cohort were 65 years or older and had fallen. We contacted study authors for aggregate data on intracranial bleeding in patients prescribed anticoagulant medication, antiplatelet medication and neither medication. Incidences of intracranial bleeding were pooled using random effect models, and I² index was used to assess heterogeneity. **Results:** From 7,240 publication titles, 10 studies met inclusion criteria. The authors of 8 of these 10 studies provided data (on 9,489 patients). All studies scored low or moderate risk of bias. The pooled incidence of intracranial bleeding among patients taking an anticoagulant medication was 5.1% (n = 5,016, 95% Confidence Interval (CI): 4.1 to 6.3%) I² = 42%, a single antiplatelet 6.4% (n = 2,148, 95% CI: 5.4 to 7.6%) I² = 75%, both anticoagulant and antiplatelet medications 5.9% (n = 212, 95% CI: 1.3 to 13.5%) I² = 72%, and neither of these medications 4.8% (n = 1,927, 95% CI: 3.5 to 6.2%) I² = 50%. A sensitivity analysis restricted to patients who had a head CT in the ED reported incidences of 6.1% (n = 3,561, 95% CI: 3 to 8.3%), 8.4% (n = 1,781, 95% CI: 5.5 to 11.8%), 6.7% (n = 206, 95% CI 1.5 to 15.2%) and 6.6% (n = 1,310, 95% CI: 5.0 to 8.4%) respectively. **Conclusion:** The incidence of fall-related intracranial bleeding in older ED patients was similar among patients who take anticoagulant medication, antiplatelet medication, both and neither medication, although there was heterogeneity between study findings.

Keywords: antithrombotics, falls, intracranial bleeding

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Unhelmeted injured cyclists in the emergency department: demographics, cycling behaviour, and attitudes towards helmet use

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Introduction: We seek to characterize unhelmeted injured cyclists presenting to the emergency department (ED): demographics, cycling behaviour, and attitudes towards helmet use. **Methods:** This was a prospective cohort study in a downtown teaching hospital, from May 2016 - Sept 2019. Injured cyclists presenting to the ED were recruited if they were not wearing a helmet at time of injury and over age 18. Exclusion criteria included intoxication, inability to consent, or admission to hospital. A standardized survey was

administered by a research coordinator. Descriptive statistics were used to summarize the data, and survey responses reported as percentages. **Results:** We surveyed a convenience sample of 68 unhelmeted injured cyclists (UICs) with mean age of 33.6 years (range 18 to 68, median 29.5 years). Ratio of males to females was 1:1. The majority of UICs cycled most days per week or every day in non-winter months (89.6%, n = 60). Cycling in Toronto was perceived as somewhat dangerous (45.6%, n = 31) or very dangerous (5.9%, n = 4) by most, and very safe (2.94%, n = 2) or somewhat safe (19.12%, n = 13) by few. Almost a third (29.4%, n = 20) had been in a cycling accident in the prior year, some of these (15.0%, n = 3) prompting an ED visit. All cyclists were riding their personal bike (100%, n = 68) at time of injury, and most (98.5%, n = 67) had planned to cycle when they departed home that day. Purpose of trip was primarily for commuting to work (50%, n = 34), social activities (19.1%, n = 13), school (7.4%, n = 5), and recreation (7.4%, n = 5). Bicycle helmet ownership was low (41.2%, n = 28). UICs reported rarely (10.3%, n = 7) or never (64.7%, n = 44) wearing a helmet when cycling. Reported factors discouraging helmet use included inconvenience (33.8%, n = 23), lack of ownership (32.4%, n = 22), discomfort (29.4%, n = 20), and 'messed hair' (14.7%, n = 10). Few characterized helmets as unnecessary (10.3%, n = 7) or ineffective (1.5%, n = 1). The majority had a college diploma or more advanced education (77.9%, n = 53), and spoke English at home (85.3%, n = 58). **Conclusion:** Unhelmeted injured cyclists surveyed were frequent commuter cyclists who do not regard cycling as safe, yet choose not to wear helmets for reasons largely related to convenience rather than perceptions regarding safety or necessity. Initiatives to increase helmet use in this subgroup should address the reasons given for not wearing a helmet, potentially using principles of adult education and behavioral economics.

Keywords: bicycle, health promotion, injury prevention

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Lack of association between four biomarkers and the presence of persistent post-concussion symptoms after a mild traumatic brain injury

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Introduction: Mild Traumatic Brain Injury (mTBI) is a common problem: each year in Canada, its incidence is estimated at 500-600 cases per 100 000. Between 10 and 56% of mTBI patients develop persistent post-concussion symptoms (PPCS) that can last for more than 90 days. It is therefore important for clinicians to identify patients who are at risk of developing PPCS. We hypothesized that blood biomarkers drawn upon patient arrival to the Emergency Department (ED) could help predict PPCS. The main objective of this project was to measure the association between four biomarkers and the incidence of PPCS 90 days post mTBI. **Methods:** Patients were recruited in seven Canadian ED. Non-hospitalized patients, aged ≥14 years old with a documented mTBI that occurred ≤24 hrs of ED consultation, with a GCS ≥13 at arrival were included. Sociodemographic and clinical data as well as blood samples were collected in the ED. A standardized telephone questionnaire was administered at 90 days post ED visit. The following biomarkers were analyzed using enzyme-linked immunosorbent assay (ELISA): S100B protein, Neuron Specific