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Bicycle trauma

Early results suggest a greater relative incidence of serious trauma and an alternative pattern of injury among Electric Scooter users compared with bicycles.

Trial registration number: TARN210101¹⁾

Cycling is associated with a greater risk of traumatic brain injury (TBI) than other recreational activities, and is more common in children, adolescents, and elderly people than young adults ^{2) 3)}.

It is responsible for an increased need for hospitalization and eventually imposes significant healthcare costs on individuals and society ⁴⁾.

In bicycle-related head injuries, collision with motor vehicle is one of the most important risk factor for high grade of head injury severity and outcome. In addition, bicycle-related head injuries are often accompanied by injuries of other parts of the body ⁵.

Over half a million injuries related to bicycle crashes were seen in U.S. hospital emergency rooms in 1982. The data reviewed show a strong link between bicycle/motor vehicle collisions, head injury, and serious morbidity and mortality ⁶.

Population-based incidence rates for head injuries and total injuries resulting from bicycle crashes were calculated in a Seattle, Washington health maintenance organization population. Overall rates were 163 per 100,000 for all injuries and 42/100,000 for head injuries. Individuals between 5 and 14 years of age are at highest risk for bicycle-related injuries. The data are presented for their potential utility in program planning ⁷⁾.

During 25,971 days of cycling, 198 crashes were reported, comprising approximately equal numbers of falls and collisions. The overall crash rate was 0.290 (95% CI, 0.264-0.319) per 1000km or 6.06 (95% CI, 5.52-6.65) per 1000h of travel. The rate of crashes causing any injury (self-treated, or medically attended without overnight hospital stay) was 0.148 (95% CI, 0.133-0.164) per 1000km or 3.09 (95% CI, 2.79-3.43) per 1000h of travel. The rate of crashes causing a medically attended injury (without overnight hospital stay) was 0.023 (95% CI, 0.020-0.027) per 1000km or 0.49 (95% CI, 0.43-0.56) per 1000h of travel. No injuries requiring an overnight stay in hospital were reported on days meeting the inclusion criteria. After adjustment for exposure in hours, or for the risks associated with different infrastructure utilisation, the rates of crashes and medically attended injuries were found to be greater for females than males, less experienced than more experienced cyclists, and for

those who rode mainly for transport rather than mainly for recreation. Comparison of estimated crash and injury rates on different infrastructure types were limited by the small number of events, however findings suggest that the separation of cyclists from motorised traffic is by itself not sufficient to ensure safe cycling⁸⁾.

A Dutch study showed that in 2012, 31% of the lethal traffic accidents and 59% of the traffic accident victims treated in the emergency room were cyclists 9

Bicycle helmet

Bicycle helmet.

Dentoalveolar injuries are fairly common in trauma patients admitted to a trauma center following bicycling accidents. Bicycling helmets are associated with an increased risk of dentoalveolar injuries ¹⁰.

Electrically Assisted Pedal Cycles

Electrically Assisted Pedal Cycles.

Spinal cord injury

Automobile, motorcycle, and bicycle related SCIs occur primarily in the cervicothoracic region. SCIs due to motorcycle accidents have a higher predilection for the thoracic region, and there is a statistically higher percentage of motor complete injuries. A higher percentage of cervical SCIs occur as a result of automobile and bicycle accidents. Extrapolations from motor vehicle usage data suggest that the relative rate of occurrence of SCI for motorcycles is higher than for automobiles¹¹.

Case series

Bicycle trauma case series.

Case reports

A 46-year-old man who experienced orthostatic headache after a bicycle accident at age 45. Computed tomography (CT) myelography revealed Cerebrospinal fluid fistulas at the C1-2 level. He underwent epidural blood patch therapy, but it was unsuccessful. Next, we performed direct surgery 1)

2)

3)

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