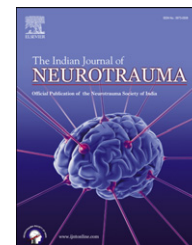


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## Letter to the Editor

# Fatal road traffic cranio-cerebral injuries: Time to act and need to study

Dear Sir,

It is well known that road traffic injuries is a global public health problem and a major cause of morbidity and mortality with disproportionate number occurring in developing countries, necessitating an in-depth analysis of fatal head injuries in road traffic accidents as many of these deaths can be potentially preventable.<sup>1–8</sup> Although many studies conclude that road traffic accidents are one of the most common cause of fatal cranio-cerebral injuries and fatal outcome,<sup>4,9–11</sup> other associated injuries particularly thoraco-abdominal and the musculo-skeletal injuries can significantly contribute and add to the fatality.<sup>4,9,12</sup> In many studies it has been concluded that intracranial hemorrhage (particularly subdural hemorrhage) is the most common finding.<sup>13–15</sup>

Most of the studies from India and many other countries have shown that overwhelming majority of the fatal cranio-cerebral injuries involve male population<sup>4,5,16–19</sup> at their most productive age group.<sup>4,5,12,17–21</sup> Greater male traffic exposure is the principle explanation for this and also the younger age group is the active phase of life both physically and socially, outnumbering the other road users.<sup>4,5,14</sup> Motorcycles make up fewer of all registered vehicles and accounts for lesser vehicle miles traveled in developing countries; however, per vehicle mile, motorcyclists are many more times to sustain fatal cranio-cerebral injuries in a traffic crash.<sup>22–28</sup> In spite of the good evidence that laws enforcing increased wearing of motorcycle helmets as an effective public health policy and may be responsible for saving many lives and preventing or reducing the severity of motorcycle-related head injuries,<sup>22–24,26–34</sup> there is still need to implement these measures more effectively.

Trimodal pattern of mortality has been identified after the injury where the first peak occurs immediately after the injury (within seconds or minutes of injury, owing to overwhelming injury to the brain, heart, or great vessels; death was inevitable and unavoidable) and the second peak occurs in the first few hours after injury in about a third of cases; brain injuries and hemorrhage are the principal causes.<sup>35</sup> In a study of 1000 deaths from injury in England and Wales, it was shown that many of the deaths in hospital might have been prevented.<sup>36</sup> In patients who die because of potentially treatable head injuries who die before they reach hospital the usual cause of death is airway obstruction causing acute hypoxia.<sup>37–39</sup> Airway patency may be compromised by loss of gag reflex in

comatose patients and the subsequent aspiration of blood or gastric contents.<sup>38,39</sup> Because of internal bleeding, victims may exsanguinate and die before they reach hospital.<sup>40</sup> If large number of public and health care personnel are aware and optimally trained in basic resuscitation techniques, first aid and pre-hospital care many lives can be saved.<sup>36,40–44</sup> Injury sustained by the occupants of a motor vehicle may involve the driver, front seat or back seat passengers<sup>45</sup> and it has been well recognized that the use of safety equipment like seatbelt, headrest, collapsible steering or airbags by passengers may modify many of the injuries.<sup>45</sup>

To prevent fatal cranio-cerebral injuries in road traffic accidents there is a need for an organized team work and multidimensional approach that should be supported by experts in multiple disciplines like education, engineering, medical, law enforcement agencies for effective prevention of road accidents and optimal public awareness. What is apparent from the available literature is that the road traffic accidents are most, common, head injuries are most common, younger males at greatest risk and systemic injuries contribute to fatalities. The wearing of helmets will prevent fatal cranio-cerebral injuries in motorcycle accidents. There is a need for organized team work and multidimensional approach supported by experts in multiple disciplines including education, engineering, medical and law enforcement agencies for effective prevention of road accidents and optimal public awareness. Further, there is a need to emphasize the importance of urban planning to reduce the need for motorized travel. This is the time to go forward with the available evidence and to take measures to reduce fatal injuries in developing countries.

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