A study of diurnal and seasonal variation of multiple injuries in childhood

Sir

One of the main aims of sound medicine is prevention and this is particularly relevant in the sphere of accidental injury in children. 'When do accidents occur in children?' seems an important question to answer in this field. The aim of a study at the Birmingham Accident Hospital was to ascertain whether there was any diurnal or seasonal variation in the incidence of accidents involving multiple injuries, as this might cast light on possible prevention.

The sample population for the study consisted of 236 admissions to the Major Injuries Unit in the Birmingham Accident Hospital between July 1977 and December 1982, of which 161 (68.2%) were due to road traffic accidents, 38 (16.1%) due to falls and 37 (15.7%) due to other causes (including burns, assault, impalings, etc.). There were 55 in the 0-5 age group, 95 in the 6-10 age group and 86 in the 11-15 age group with a consistent male to female ratio of around 2.5:1 for each age group. Of the 161 road traffic accident admissions the child was a pedestrian in 137 cases (85.1%), riding a bicycle in 17 cases (10.6%) and vehicle occupant in 7 cases (4.3%). The time of the injury was noted in all cases. The results showed that between the hours of 1200 and 2400 80.8% of all major injuries occurred and 76.25% of all injuries were due to road traffic accidents. The most dangerous period of the day was between 1500 and 1900 hours with 49.6% of all major injuries and 57.2% of all road traffic accidents sustained during this time. This was true for all age groups; however, as might be expected, the peak period amongst 11-15-year-olds occurred around one hour later (between 1700-1800) than the other age groups. In the younger age groups there seemed in addition to be a later peak between 1800-1900, perhaps explained by children playing on streets after tea. In contrast the hours between 0800-1000 accounted for only 6.4% of all major injuries and 6.29% of road traffic accidents.

For the purpose of comparing seasonal variation the 210 cases (of which 144 were due to road traffic accidents) between January 1978 and December 1982 inclusive were evaluated. Children under 5 seem to be most vulnerable during the summer, especially due to road traffic accidents, while during the rest of the year falls and burns seem to predominate. Spring and summer proved peak periods for the 6-10-year-olds, mainly due to an increased proportion of falls and injuries sustained in play, while road traffic accidents predominated throughout the rest of the year. Interestingly, in 11-15-year-olds spring and autumn (i.e. term-time) were the peak periods, accounted for mainly by the increase in road traffic accidents. Therefore, in children of school age road traffic accidents seemingly predominate during term-time (April-June and October-December).

The suggestion from this study is that going home from school is a particularly dangerous time for children due to the high risk of road traffic accidents (in which the child is the pedestrian). Expectations of parents about their child's behaviour in traffic can be undeservedly high, and it would seem that more parents taking their children to and from school would be one of the most desirable developments in the field of accident prevention.

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