Head injuries in infants: the risks of bouncy chairs and car seats

T Wickham, E Abrahamson

Aims: To establish whether the incorrect use of bouncy chairs (BC) and car seats (CS) is a significant cause of injuries in babies.

Methods: Prospective study over a 12 month period. All babies under the age of 1 year, presenting to the department with a head injury were eligible.

Results: A total of 131 cases were recorded, 17 (13%) of which were associated with either BC or CS, the second largest aetiological group. All BC cases (11/11, 100%) were caused by a fall from a surface with the baby in the chair. In the CS group, 2/6 (33%) were caused by such a fall. The carer was aware in only one of the 13 cases involving a fall from a surface that there was any chance of injury from this mechanism.

Conclusion: Falls from inappropriately placed bouncy chairs or car seats form a significant proportion of head injuries in infants, resulting in unnecessary and preventable morbidity.
RESULTS
A total of 131 cases were recorded over the one year period: 71 (54%) were boys and 60 (46%) girls; mean age was 6.9 months. Figure 2 shows the range of mechanism of injury. The most common was a fall from a surface (52/131; 39.7%); in particular, 23/52 (44.2%) fell from a bed.

Injuries in 17 cases (13% of the total) were associated with either BC or CS, 13 of which were caused by a fall from a raised surface with the baby in the chair. In those involving a BC, 11/11 (100%) were caused by such a fall. In the CS group, 2/6 (33%) were caused by such a fall; the rest in the CS group were a result of having been dropped in the seat while being moved from car to house.

Table 1 summarises various outcomes when the study population is divided into the BC/CS group and the non-BC/CS group. The majority of the BC/CS group (85%) fell onto a hard surface (stone, brick, tiles, linoleum, or wood) compared to 56% in the rest of the study population; here carpet was the most common surface. This difference reached significance (p = 0.046). Despite this babies in the BC/CS group were no more likely to suffer a skull fracture than the non-BC/CS population.

A total of 114 babies underwent a skull x ray examination (the department policy at the time was to perform x ray examinations of head injuries in all children under the age of 1 year).

There was no significant difference between the two groups in relation to whether the baby had a skull x ray examination, was admitted to hospital, or showed any neurological signs or symptoms (the most common being drowsiness).

Only one carer admitted to being aware that BC and CS were not safe if placed on elevated surfaces.

DISCUSSION
This study has shown that there is a significant morbidity related to the incorrect use of BC and CS; namely putting these chairs on raised surfaces such as the kitchen worktop from which they subsequently fall. In fact this mechanism of injury formed the second biggest group in this study (table 1). This finding supports those of a recent US study.

Only six cases in our study were related to baby walkers. This is surprising given the well recognised high incidence of injury with these devices and the fact that recent data would prove more effective. We also suggest that health care promotion should include reference to this potential mechanism of injury; this could be in the form of an entry in the parent’s held record and subsequent discussion with the health visitor.

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>BC/CS group</th>
<th>Non-BC/CS group</th>
<th>Significance +/--</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard surface</td>
<td>14 (85%)</td>
<td>64 (56%)</td>
<td>+ (p=0.04)</td>
</tr>
<tr>
<td>Skull x ray</td>
<td>17 (100%)</td>
<td>97 (85%)</td>
<td>--</td>
</tr>
<tr>
<td>Fracture</td>
<td>1 (6%)</td>
<td>9 (8%)</td>
<td>--</td>
</tr>
<tr>
<td>Neurological signs/symptoms</td>
<td>1 (6%)</td>
<td>17 (15%)</td>
<td>--</td>
</tr>
<tr>
<td>Admission to hospital</td>
<td>3 (18%)</td>
<td>13 (11%)</td>
<td>--</td>
</tr>
</tbody>
</table>

Figure 3 Suggested pictorial warning of the dangers of placing these devices on an elevated surface.

injuries in those less than 6 months of age in 1997, and estimated some 8700 infants were treated in the emergency department as a result of a fall while in a car seat or baby bouncer. Over one third of cases were directly attributed to these devices being placed on an elevated surface at home.

We suggest that the manufacturer warnings are insufficient. One of our criticisms is that the warning is usually in word form; a pictorial representation such as in fig 3 may prove more effective. We also suggest that health care promotion should include reference to this potential mechanism of injury; this could be in the form of an entry in the parent’s held record and subsequent discussion with the health visitor.

REFERENCES