Use of duvets and the risk of sudden infant death syndrome

E A Mitchell, S M Williams, B J Taylor

Abstract

**Background**—The use of duvets in infancy is not recommended in the UK and Australia because of a reported association with sudden infant death syndrome (SIDS).

**Aims**—To examine the association between the use of duvets and the risk of SIDS.

**Methods**—A nationwide case control study (393 cases, 1592 controls). The use of duvets was assessed by interview with the parent or guardian.

**Results**—The use of duvets was associated with an increased risk of SIDS (odds ratio (OR) = 1.65; 95% confidence interval (CI), 1.31 to 2.08); however, after adjustment for potential confounders there was no increased risk of SIDS (OR = 1.04; 95% CI, 0.77 to 1.38). Furthermore, subgroup analysis did not identify any group in which the use of duvets was associated with an increased risk of SIDS.

**Conclusions**—This study does not support the recommendation to avoid duvets.

(Keywords: sudden infant death syndrome; duvet; quilt; case control study)

Some infant care practices are associated with an increased risk of sudden infant death syndrome (SIDS). In the UK a recommendation was made in 1993 that duvets (quilts) should not be used for bedding in infancy. Australia followed this lead in 1997. Studies examining the association between the use of duvets and the occurrence of SIDS are conflicting. We reported previously that the use of duvets was associated with an increased risk of SIDS at the univariate level, but not after adjustment for potential confounders. A recent study from the UK reported a small, but not significant, increased risk of SIDS with duvets after adjustment, although the authors concluded that the use of duvets should be strongly discouraged in infancy. An earlier report from the Tasmanian case control study found no association between the use of duvets and SIDS, but recently they reported an increased risk of SIDS with duvets in infants sleeping supine or on the side, particularly among infants 12 weeks old. Duvets had no adverse effect if the infant slept prone.

We have re-examined our case control study to see whether duvets increase the risk of SIDS in any subgroups. The subgroups of interest suggested by the Tasmanian study are sleep position and age of infant. In addition, we examined bed sharing because we postulated that this might attenuate the risk if duvets were a risk factor for SIDS.

**Methods**

The New Zealand cot death study was a nationwide case control study (1 November 1987 to 31 October 1990). The methods have been reported in detail previously. Four hundred and eighty five SIDS cases in the postneonatal age group were compared with 1800 controls, who were a representative sample of all births in the study areas. For control infants, a nominated date and time was used to base interview questions on, which ensured a similar age distribution to that expected for the cases.

Interviews with parents or guardians were conducted for 393 (81.0%) cases and 1592 (88.4%) controls. Obstetric records were examined in 465 cases (95.9%) and 1762 controls (88.4%).

The use of duvets was obtained by interview from the question: “Was there a duvet or quilt over the baby?”.

We calculated univariate odds ratios (OR) using the method of Cornfield for confidence intervals (CI). Logistic regression was used to calculate odds ratios adjusted for possible confounders. These variables were related to socioeconomic (marital status, occupation, and age mother left school), pregnancy (age of mother at first pregnancy, age of mother at infant’s birth, months’ pregnancy when first attended antenatal clinic, attendance at antenatal education classes, and number of previous pregnancies), infant (ethnicity, sex, birthweight, and gestation), and postnatal factors (age of infant, time of day, season, maternal smoking, bed sharing, region, infant admission to a neonatal unit, sleeping position, tucked in tightly, and breastfeeding). These variables have been defined previously and the prevalence and relative risks published. We classified age as aged < 13 weeks or ≥ 13 weeks.

We assessed interactions by comparing the change of deviance brought about by including a term for the interaction with the χ² distribution.

**Results**

The use of duvets was associated with an increased risk of SIDS (OR = 1.65; 95% CI, 1.31 to 2.08) (table 1); however, after adjustment for potential confounders there was no increased risk of SIDS (OR = 1.04; 95% CI, 0.77 to 1.38).
Complete data were available for 364 cases and 1538 controls. The risk of SIDS associated with duvet use was examined by including interaction terms in the model in the following subgroups: sleep position, age of infant, bed sharing, and being tucked in firmly. The risk of SIDS associated with duvet use did not differ by sleep position (change in deviance, \( \chi^2 = 3.2; df = 1; p = NS \)); age of infant (change in deviance, \( \chi^2 = 0.03; df = 1; p = NS \)); bed sharing (change in deviance, \( \chi^2 = 0.03; df = 1; p = NS \)); or being tucked in firmly (change in deviance, \( \chi^2 = 1.5; df = 1; p = NS \) (table 2)).

The characteristics of families that used duvets were examined in the control group only. With regard to socioeconomic factors, duvet use was associated with: (1) marital status (married, 42.3%; unmarried, 55.1%; \( \chi^2 = 20.0; df = 1; p = 0.001 \)); (2) occupation (high, 38.9%; middle, 46.0%; low, 57.6%; \( \chi^2 = 26.6; df = 2; p = 0.001 \)); and (3) age mother left school (< 16 years, 52.5%; 16 years, 44.3%; 17+ years, 43.2%; \( \chi^2 = 8.9; df = 2; p = 0.012 \)).

With regard to factors related to pregnancy, the use of duvets was associated with: (1) age of mother at first pregnancy (< 20 years, 60.6%; 20–24 years, 47.5%; 25+ years, 38.4%; \( \chi^2 = 41.3; df = 2; p = 0.001 \)); (2) age of mother at infant’s birth (< 20 years, 58.5%; 20–24 years, 52.7%; 25–29 years, 42.8%; 30+ years, 41.2%; \( \chi^2 = 21.0; df = 3; p = 0.001 \)); (3) months’ pregnant when first attended antenatal clinic (0–3 months, 41.4%; 4+ months, 53.2%; \( \chi^2 = 7.4; df = 1; p = 0.007 \)); and (4) attendance at antenatal education classes (attended, 43.0%; did not attend, 48.0%; \( \chi^2 = 3.9; df = 1; p = 0.049 \)). Duvet use was not associated with the number of previous pregnancies.

With regard to factors related to the infant, duvet use was associated with ethnicity (Maori, 60.5%; Pacific Island, 51.5%; other, 41.1%; \( \chi^2 = 38.2; df = 2; p = 0.001 \)). Duvet use was not associated with sex, birthweight, or gestation.

The use of duvets was associated with the following postnatal factors: (1) age of infant (< 13 weeks, 37.9%; 13–19 weeks, 49.0%; 20–25 weeks, 53.0%; 26+ weeks, 56.3%; \( \chi^2 = 35.8; df = 3; p = 0.001 \)); (2) season (January/February, 34.1%; July/August, 55.0%; \( \chi^2 = 39.5; df = 5; p = 0.001 \)); (4) smoking (smoker, 51.6%; non-smoker, 42.9%; \( \chi^2 = 10.5; df = 1; p = 0.001 \)); (5) bed sharing (yes, 63.9%; no, 43.5%; \( \chi^2 = 24.8; df = 1; p = 0.001 \)); (6) being tucked in firmly (yes, 41.1%; no, 48.7%; \( \chi^2 = 8.6; df = 1; p = 0.003 \)); and (7) ever been found with head covered by bedding (yes, 49.9%; no, 43.7%; \( \chi^2 = 5.1; df = 1; p = 0.024 \)). Although duvet use was associated with region (\( \chi^2 = 13.1; df = 4; p = 0.011 \)), the differences were not explained by a linear trend (\( \chi^2 \) for linear trends, 0.031; \( p = 0.859 \), regions being ordered from north to south). Duvets were not associated with infant admission to a neonatal unit, sleeping position, or breastfeeding.

For cases only we have data for being found with head completely covered by bedding. Of those cases using a duvet, 18.1% were found with head covered compared with 12.6% of

### Table 1 Numbers and odds ratios (OR) for use of duvets

<table>
<thead>
<tr>
<th>Use of duvets</th>
<th>Cases</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No %</td>
<td>No %</td>
</tr>
<tr>
<td>No</td>
<td>162</td>
<td>856</td>
</tr>
<tr>
<td>Yes</td>
<td>224</td>
<td>719</td>
</tr>
</tbody>
</table>

CI, confidence interval.
Duvets and the risk of SIDS

Discussion

The use of duvets was determined by a single question. In New Zealand duvets/quilts are very varied in thickness and composition. They range from being thick, soft, and made from down or synthetic material to being thin crochet cotton covers. Thus, our results may not apply to all types of duvets.

We found that the use of duvets in the control population was strongly associated with winter and bed sharing. It was also strongly associated with socioeconomic disadvantage.

The use of duvets was found to be associated with an increased risk of SIDS at the univariate level, but after adjustment for socioeconomic and other infant care practices there was no significant increased risk. This finding is consistent with the UK study, which found a small but non-significant increased risk of SIDS with duvet use after adjustment for sleeping environment and socioeconomic factors.

We were not able to confirm the Tasmanian findings; indeed, our findings were in the opposite direction to theirs. We found a non-significant decreased risk with duvet use in infants sleeping supine or on their side (adjusted OR = 0.77; 95% CI, 0.50 to 1.19).

There are two possible explanations. Duvets in Australia differ from those in New Zealand. Australian duvets tend to be the same size as the cot mattress, thus they cannot be tucked in. In contrast, New Zealand duvets are larger than the mattress and can be tucked in. Second, the Tasmanian study did not adjust for socioeconomic factors. In contrast to the Tasmanian study, in our study the risk of SIDS with the use of duvets was not influenced by the age of the infant.

In general, bedding incorporating duvets has greater thermal insulation properties than bedding not using duvets. We and others have shown that the prone sleeping position increases the risk from excess thermal insulation. Thus, our finding of a non-significant increased risk with the use of duvets when sleeping prone is not unexpected.

We have reported previously that firm tucking reduces the risk of SIDS. In our study, duvet use among the control infants was associated with not being tucked in firmly. However, the risk of SIDS with the use of duvets did not differ with whether or not the infant was firmly tucked in.

Our study does not support the recommendation to avoid duvets. However, further studies are needed to be more precise about the characteristics of the duvet, such as its thermal properties and the potential for rebreathing expired air should the face be covered by the duvet.

Other members of the New Zealand cot death study group are DMO Becroft, AW Stewart, RPK Ford, R Scragg, JMD Thompson, DMJ Barry, EM Allen, AP Roberts, and IB Hassall. This study was funded by the Health Research Council of New Zealand (HRCNZ) and the Hawkes Bay Medical Research Foundation. We thank the research interviewers who undertook the interviews and the pathologists in the study regions for participating in the study. Finally, we sincerely thank the parents and families who participated in this study, without whom the study would have been impossible. Mrs C Everard coordinated the study and Mr J Thompson assisted with data management. Mrs S Williams, Mrs Everard, Mr Thompson, and Mr Stewart were funded by HRCNZ.

Use of duvets and the risk of sudden infant death syndrome

E A Mitchell, S M Williams and B J Taylor

Arch Dis Child 1999 81: 117-119
doi: 10.1136/adc.81.2.117

Updated information and services can be found at:
http://adc.bmj.com/content/81/2/117

These include:

References
This article cites 6 articles, 3 of which you can access for free at:
http://adc.bmj.com/content/81/2/117#BIBL

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections
Articles on similar topics can be found in the following collections

Child health (3922)
Infant health (811)
SIDS (96)
Epidemiologic studies (1818)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/