Research Review

Psychological, behavioural and physical changes may contribute to cardiovascular risk in bereavement

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Review of Buckley T, Bartrop R, McKinley S, Ward C, Bramwell M, Roche D, Mihailidou AS, Morel-Kopp M-C, Spinaze M, Hocking B, Goldston K, Tennant C, Tofler G Prospective study of early bereavement on psychological and behavioural cardiac risk factors. *Int Med J* 2009; 39: 370-8

Myocardial infarction and sudden cardiac death are well recognised as being associated with emotional stress. Emotional upset¹, anger²⁻⁴ and anxiety² have all been associated with an increase in cardiovascular risk. It is widely acknowledged that bereavement contributes significantly to emotional stress and requires significant psychosocial adjustment⁵⁻⁷ and an increase in morbidity and mortality has been noted in those who have lost a parent or spouse⁸⁻¹¹. While this increased risk is recognised, the mechanism by which it occurs is not well understood.

Objectives of the study

In this prospective, controlled cohort study¹² the aim was to explicate the mechanism of the increased cardiovascular risk early in bereavement. As such psychological distress (depression, anxiety and anger), behavioural changes (sleep, appetite, smoking and alcohol consumption) and physical assessment (body mass index, waist circumference, cortisol and cholesterol) in bereaved spouses and parents were evaluated prospectively.

Setting and sample

Participants were recruited from five hospitals in the Sydney metropolitan area and the final sample included 62 recently bereaved and 50 non-bereaved participants. Bereaved participants were recruited from critical care areas where their family member (spouse/partner or child) had become deceased. Non-bereaved participants were family members of hospital users (inpatients or outpatients) from areas within the hospital where the stress associated with their family member's admission was less likely to be acute.

Method

Data collection occurred at two weeks and again at six months and was extensive, included sociodemographic, physical and psychological data (Table 1).

Results

Sociodemographic data of the bereaved and non-bereaved participants were similar with the expected exception that a greater proportion of bereaved participants were living alone (55%; $P=0.001$). Compared with non-bereaved, acutely bereaved had increased symptoms of

depression (26.7 ± 1.7 vs 5.9 ± 0.7 , $P < 0.001$), anxiety (47.4 ± 2.0 vs 28.2 ± 1.4 , $P < 0.001$) and anger (median 16.0 vs 15.0, $P < 0.001$). Greater depressive symptoms were associated with being unprepared for the death, decreased sleep duration and younger age. Acutely, bereaved slept less than non-bereaved (5.8 ± 0.2 vs 7.2 ± 0.2 h, $P < 0.001$). Reduced sleep time was associated with increased anger and depression and decreased satisfaction with social support. Compared with the non-bereaved, the acutely bereaved had higher cortisol (median 306 vs 266, $P = 0.003$), reduced appetite ($P < 0.001$) and lower total cholesterol (median 4.9 vs 5.4, $P = 0.006$) and low density lipoprotein (median 2.4 vs 2.9, $P < 0.001$).

Although fewer bereaved reported drinking alcohol at the initial assessment compared with non-bereaved (68 vs 88%), those who did drink were more likely to report a change in alcohol consumption at the initial acute assessment. For those who reported a change, there was no consistent direction, in that 60% reported an increase in consumption and 40% a decrease. However, men in the bereaved group were more likely than women to report increased alcohol intake (35% of men vs 12% of women ($P = 0.04$)).

The increased cardiovascular risk associated with bereavement may be due to the increased symptoms of depression, anxiety and anger, and reduced sleep following the loss of a loved one. Early in the period of bereavement, younger individuals may have the highest psychological distress. Inability to prepare for the death of a loved one also contributed to higher psychological distress. It did not appear that increased cardiac risk in early bereavement can be attributed to changes in lipid levels. The preservation of sleep during bereavement has been associated with health benefits and this study further supports the bidirectional relationship between sleep and depressive symptoms suggesting that further research in this area, including strategies to facilitate sleep in bereaved individuals, should be considered.

Critique

This study is the first to report prospective data from the early bereavement period that demonstrates the influence of bereavement on psychological and behavioural changes that may contribute to cardiovascular risk. Understanding the way in which bereavement influences psychological and physical health has important implications for nursing practice. In the acute period of bereavement depression and anxiety were increased and although these symptoms decreased over time, at six months these symptoms were still not resolved highlighting the importance of considering the effects of bereavement longer-term. Anger was also increased in the acute phase but resolved by six months. Others have reported anger following bereavement as peaking at 5 months, suggesting further work is needed to more fully understand the ways in which anger might manifest in the bereavement period and how this might influence cardiovascular health.

In the bereavement period, social support is often considered an important intervention and nurses are instrumental in providing and facilitating such support. This study, however, was not able to demonstrate a positive influence on depressive symptoms when social support was provided and when those receiving social support were satisfied with the services. Similarly, nurses often assume that when a family member has suffered the loss of a loved one that returning to home to live alone would have a negative influence. Conversely, bereaved participants who lived alone had fewer depressive symptoms than those who returned home and were living with other family members. This might be explained by the increased

demands placed on the family member as they need to provide support to those around them whilst grieving⁶.

Physical changes, such as a sustained increase in cortisol levels in bereaved participants, has been associated with chronic stress states^{13,14} however, the data reported in this paper did not establish whether increased cortisol modifies cardiovascular risk in early bereavement. This study is the first to report changes to serum cholesterol in bereaved individuals and reported a decrease in cholesterol and LDL during the acute period with measured levels increasing during the six months following bereavement. There was insufficient data to explain why these changes occurred or the impact they might have on cardiovascular health.

Changes to sleep patterns are not uncommon following bereavement although, as this study and others¹⁵ have shown, when bereavement is uncomplicated, sleep patterns will return to normal. Ongoing sleep disturbances were associated with depressive symptoms¹⁶ and other physical changes, such as inflammatory cell activation, hypertension and adverse health¹⁷⁻¹⁹.

While this study makes an important and initial contribution to our understanding of the psychological and physical effects of bereavement, the generalisability of this data is limited because the bereaved participants were recruited solely from critical care units. Episodes of critical illness are often unexpected and this may contribute to the increase in stress experienced by those who lost loved ones. As episodes of critical illness can vary in length it is not clear whether these results would equally apply in situations of acute and chronic illness. It may be that an episode of chronic illness that results in death allows for a period of preparation for the family and loved one which may result in decreased physiological and psychological stress following the death.

Critical illness may also be associated with diagnostic and prognostic uncertainty. It is not clear whether such uncertainty was a consideration in the non-bereaved group and what influence this might have had on the results of the study. The non-bereaved group was closely matched to those who were bereaved however there the lack of data pre-bereavement (or even prior to the critical illness event itself) makes it difficult to determine changes within the individual and whether these were significant.

This paper extends our knowledge of psychological stress and behaviour change following bereavement but is unable to make a direct link between these changes and cardiovascular risk. Nevertheless, such work represents an important beginning to understanding the complex emotional, psychological and physical impact of bereavement on families of critically ill patients and emphasises an additional aspect of caring for these families that should be considered by critical care nurses and their colleagues.

Table 1 Data collected during the study

Sociodemographic data

Medical history

Lifestyle questionnaire

 Eating patterns

 Sleeping patterns

 Daily physical activity

 Time to bed

 Awakening

Social Support Questionnaire (SSQ-6)

Centre for Epidemiological Studies –Depression (CES-D)

Spielberger State Anxiety and Anger scales

BMI

Waist circumference

Plasma cortisol

Plasma lipids

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