

Original contribution

Depression in mothers of burned children

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Summary

The treatment of burned children needs to address also their psychic state. Since the child's emotional state depends heavily on the emotional state of its parents, especially the mother's, interest should also be focused on diagnosing and treating secondary psychiatric disorders in mothers of burned children. The aim of this work was to study the prevalence of depression in mothers of burned children and its predicting factors.

Methods: The enrolment of mothers of burned children was done in the Burns Department, Ibn Rushd University Hospital in Casablanca, Morocco. Twenty-eight mothers of seriously burned children agreed to participate in this study. A psychiatric interview was conducted after informed consent was obtained. The mothers completed a questionnaire; the diagnosis was made according to DSM IV criteria using the Mini International Neuro-psychiatric Interview (MINI). The Hamilton Depression Rating Scale and the Hamilton Anxiety Rating Scale were used to evaluate respectively the intensity of depression and the level of anxiety. Social functioning was assessed by the Global Assessment of Functioning scale (GAF). The minimum time interval between the child's being burned and the interview with the mother was one month.

Results: The prevalence of depression was 35.7%, which is much higher in the mothers of burned children as compared to the general population. Several risk factors were found such as: several burned children or burn of the only child, severity and complications of burn, and the socio-economic level.

Conclusion: Depression is a common disorder in mothers of burned children. Thus early screening for depression in mothers and psychological and psychiatric support must be provided in conjunction with the treatment of the burned child.

Keywords: Burn; pediatric; mothers; psychological treatment; depression.

Introduction

Children are a high-risk population for burn injuries. Approximately one million children in the United States sustain burn injuries each year (Abdullah et al, 1994). In

many cases their injuries result in hospitalization, painful medical procedures and disfigurement. Mothers are also affected emotionally after their children's burn injuries, with over-protection and guilt feelings.

A critical factor of successful or unsuccessful life adjustment of the seriously burned child is his mother's reaction to this chronic problem, her ability to support and help him pursue the long course of treatment and its many associated problems, and manage his social interactions. The high incidence of emotional disturbance in families' victims of burn injuries makes it vital to detect psychiatric disorders early on, especially depression (Cahners & Bernstein, 1979). Major depressive disorder is twice as common in adult females as in adult males. The lifetime risk for major depressive disorder in community samples varies from 10% to 25% for women and from 5% to 12% for men (American Psychiatric Association, 1994). These rates have an upward tendency in the presence of life-events. The aim of this survey was to study the prevalence of depression among mothers of burned children and potential predicting factors.

Methods

Participants were recruited between October 1998 and September 1999, and comprised both mothers of inpatients and outpatients from Burns Department Ibn Rushd, Casablanca.

Inclusion criteria were mothers of children who had sustained a burn injury, aged between 4 and 14 at the moment of accident, and admitted to Burns Department Ibn Rushd as inpatients or outpatients during the recruitment period. Exclusion criteria

were children with additional disability, notably neurological or psychiatric disability, and suspected child abuse or neglect. Of the sample approached to be included, six subjects declined the offer to participate. Twenty-eight mothers of seriously burned children were willing to participate in this study, with a participation rate of 82.4%.

All the mothers completed a questionnaire inquiring about socio-demographic data, burn circumstances, injuries, psychological reactions and depressive symptoms. The diagnosis of major depressive disorder was made according to DSM IV criteria (American Psychiatric Association, 1994) by a trained psychiatrist using the Mini International Neuro-psychiatric Interview, MINI (Sheehan et al, 1998). The 17-item Hamilton Rating Scale for depression, HDRS (Hamilton, 1960) was used to assess the intensity of depression symptoms. The 14-item Hamilton Anxiety Rating Scale, HARS (Hamilton, 1959) assessed the intensity of anxiety symptoms. The social and professional functioning was assessed by the Global Assessment of Functioning Scale, GAF (Endicott, 1976). The minimum time interval between the burn and the interview was one month. When the diagnosis of depression was established, a treatment and follow-up was proposed to the depressive mothers in the University Psychiatric Centre Ibn Rushd, Casablanca.

Using the minor, moderate, major burn classification developed by the American Burn Association (Hartford, 1996), 80% of burned children in this study would be classified with major burn. This classification describes a major burn in a child as greater than 20% TBSA, second degree burn greater than 10% TBSA, third degree burn, and all burns involving eyes, ears, face, hands, feet, or genitalia.

Statistical analyses

The analysis of results was done on Epi-Info software, 6th version (Centers for Disease Control, 1999). The results are expressed as mean \pm SD. Differences between continuous variables and depression status were examined using two tailed t tests, and dichotomous variables were examined using Ki2 analyses. The level of significance was $p = 0.05$.

Results

The mean age of the child at the moment of burn was 8.2 ± 2.7 years (extremes: 4–13 years). The mean interval between the interview and the accident was 2.1 ± 0.6 years with extremes varying from 6 months to 5 years. The mean total body surface area (TBSA) burned was $38.3 \pm 11.2\%$ (extremes: 10–80%). The burn concerned the only child for 5 mothers (17.9%) and at least two children in 21.4%.

A complication of the burn, especially amputation or secondary infection, was found in 31.4%. Flames were the most frequent causal agent of burn (80%) followed by scald (17.1%).

The mean age of mothers was 34.5 ± 8.7 years (21–48 years). Concerning education level, 46.4% of

mothers were illiterate and 82.1% were jobless. Only 25% of the sample had a health insurance. All mothers were married, and a low socio-economic level was found in 75% of the sample (<200\$ per month). All mothers had no past psychiatric history.

Twenty mothers (71.4%) were of the impression that they were directly responsible for the accident and presented a feeling of guilt. Seventy-five per cent complained of insomnia. Diminished ability of having pleasure (anhedonia) was found in 32.1%. Fifty per cent reported serious tiredness and loss of energy after the accident. Twenty per cent of the sample reported that they cannot work as before.

The DSM-IV diagnosis of major depressive disorder was found in 35.7% of burned children's mothers. The HDRS mean score for all mothers was 15.2 ± 7.1 (extremes: 3–31), whereas it reached 22.7 ± 6.6 in the depressive ones (extremes: 20–31). Fifteen mothers (53.6%) had an HDRS score higher than 16. The HARS mean score was 13.1 ± 5.1 , whereas it reached 20.6 ± 6.7 in depressive mothers. The GAF mean score was 71.7 ± 13.9 in all mothers and 58.4 ± 11.7 in the depressive ones.

The analysis showed that there was a significant relationship between depression in mother and severity of the burn of the child. Maternal depression was found to correlate with burn of an only child or several children at the same time, to the complications such as amputation or secondary infection and to the low socio-economic level. On the other hand, depression was correlated to HDRS, HARS and GAF scores (Table 1).

Finally, no significant relation was found between depression and the other variables such as age and gen-

Table 1. Correlation between depression and other variables in mothers of burned children

	Depressive mothers	Non-depressive mothers	p
HDRS	22.7	11.2	0.007
HARS	20.6	9.1	0.041
GAF	58.4	77.4	0.044
TBSA (%)	43.1	37.0	0.047
Burn of several children or of the only child	11	0	0.027
Complication of burn (secondary infection, amputation)	11	0	0.027

HDRS: Hamilton Depression Rating Scale.

HARS: Hamilton Anxiety Rating Scale.

GAF: Global Assessment of Functioning scale.

TBSA: total body surface area burned.

der of the child, mother's age, and educational level of the mother.

Discussion

The objective of this study was to evaluate the prevalence of depressive disorder in mothers of burned children. We found that 35.7% of mothers had a major depressive disorder. Moreover, 53.6% reported HDRS score higher than 16; this means that fifteen mothers (53.6%) had several clinical symptoms of depression but only ten mothers filled criteria of major depressive disorder according to DSM IV. In the literature, the prevalence of depression varies between 18.8% and 52% (Fukunishi, 1998; LeDoux et al, 1998; Kent et al, 2000).

Some authors (Kent et al, 2000) reported that after her child had been burned, the mother appears to have a higher risk than the child himself for developing psychological sequelae, particularly depression. This could have some threatening consequences on the child's long-term development.

Several risk factors for depression in mothers of burn victims have been reported in various studies (Cahners & Bernstein, 1979; Rizzone et al, 1994; Fukunishi, 1998; LeDoux et al, 1998), notably the severity of burn, the burn of several children, low socio-economic level, and family psychiatric history.

In this study, we found a significant relationship between depression and the burn of several children at the same time or the burn of the only child. Moreover, depression was correlated with the severity of burn represented by higher burned cutaneous surface and complication notably amputation or secondary infection.

Finally, depression in mothers of burned children was bound to low socio-economic level.

Other risk factors for depression in mothers of burned children have been reported by some authors (Rizzone et al, 1994; Meyer et al, 1994; Mason & Hillier, 1993; LeDoux et al, 1998), particularly behavioural disorders in the burned child.

Rizzone et al (1994) proposed an individual or group therapy during and after the child's hospitalization in order to reduce the mother's stress and to allow her to develop a better adaptation. LeDoux et al (1998) found that work with the family to promote a better cohesion, to reduce conflicts, and to help stability must be part of the rehabilitation of the burned child. We propose psychological support for all mothers whose child was victim of a serious burn, and early detection of depression in mothers' burned children in order to be able to offer them

psychiatric and psychological treatment with follow-ups to be done in collaboration with liaison psychiatrist.

Concluding remarks

The management of burned children must be holistic and include his parents' mental health. Early diagnosis and treatment may be helpful for mothers as well as helpful for the psychological adaptation of the child. Better rehabilitation necessitates early psychological and psychiatric diagnosis, as well as treatment of depression in mothers by a pharmacological or psychological approach, or both.

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