BURNS DURING PREGNANCY - EFFECT ON MATERNAL AND FOETAL OUTCOMES

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SUMMARY. During a 5-yr period (1999-2004), of the 529 women of reproductive age admitted with burns, 44 (7.4%) were pregnant. Of these 44, 37 (84%) were in the age group 15-25 yr and 22 (50%) were in the second trimester; 33 burns (75%) were accidental and 11 (25%) the result of suicide attempts. Flame burns accounted for 42 out of the 44 cases (95.5%); two cases were due to scalds (4.5%). Maternal death occurred in 28 of the cases (63.6%) and foetal death in 29 (65.9%). The maternal complications that led to mortality were shock in 15 cases (53.6%), respiratory distress in 8 (28.6%) and sepsis in 14 (50.0%); one patient had corneal perforation.

Introduction

Pregnant women can get exposed to various hazards unrelated to pregnancy, and burns are one of them. Human physiology alters during pregnancy and adds further stress to systems that are highly modified. Mother and foetus are placed at increased risk by burn trauma, which is often associated with a high rate of both foetal and maternal mortality and morbidity. Close co-operation between the surgical and the obstetric teams and individualization of management are always necessary.[1]

Burns in pregnancy have a limited literature. A variable incidence has been reported from different centres. Of the 379 cases reported in the literature between 1958 and 2000, 129 (34%) occurred in India.[2] We report our experience with burns during a 5-yr period in a general hospital in Western India.

Materials and methods

This is a retrospective study of pregnant burn patients over a 5-yr period from January 1999 to January 2004 admitted to General Hospital, Sangli, India. The sources of information were the folders of patients presenting to our unit during that period. Data were recorded regarding age, type of burn injury, total body surface area (TBSA) burned, status of pregnancy, past medical history, medical and surgical care, complications, length of stay, and maternal and foetal outcomes. Patients were treated in the burns unit by the medical and surgical teams in consultation with the obstetric service. The outcome of the pregnancy was followed up after discharge, if possible.

Table I - Annual distribution of patients

Year	Number of women of reproductive age (15-35 yr) with burns	Number of pregnant women with burns
1999-2000	150	16 (10.6%)
2000-2001	110	6 (5.5%)
2001-2002	120	6 (5%)
2002-2003	100	8 (8%)
2003-2004	112	8 (7.1%)
Total	592	44 (7.4%)

Results

Of the 592 female patients in the reproductive age group (15-35 yr) admitted during the 5-yr period, 44 were pregnant at the time of burn (7.4%). *Table I* shows the annual distribution of patients. Maternal age at the time of admission varied from 15 to 35 yr (mean, 23 yr). The pregnancy was known to the patient on admission or detected after admission by the beta HCG blood test. Of the 44 patients, 21 were admitted within 4 h post-burn and 23 after 4 h. Thirteen patients (29.5%) were in the first trimester, 22 in the second (50%), and nine (20.5%) in the third. Thirty-three burns were accidental (75%) and 11 suicidal (25%). Flame burns accounted for 42 out of the 44 patients (95.5%); the other two (4.5%) were scald burns. Of the 42 cases of flame burns, 26 were due to stove explosion (61.9%); fire in the house was involved in five cases, and the pouring of kerosene in 11 - these last were suicide-attempt burns (26%). Of the 44 patients, 14 (32%)

had burns in less than 30% TBSA and 30 (68%) in more than 30% TBSA (68%).

Only one out of the 44 cases presented an associated factor, in the form of epilepsy, which caused the burns. All the 44 women were housewives, and the burns occurred at home.

Wound management consisted of the application of honey-impregnated gauze, changed on alternate days, as is the practice in our burns unit. The antibiotic used was ampicillin 250 mg every 6 h, without any adverse effects.

Of the three patients with less than 15% TBSA burns, two were in the second trimester and one in the first. All three had viable foetuses and returned home after discharge. In the 11 patients with 16-30% TBSA burns, all the pregnancies were viable irrespective of the trimester of pregnancy. One patient in this group received a split-thickness skin graft for the burn wound. Among the patients who survived, the hospital stay ranged from 3 to 65 days (mean, 14.5 days).

Maternal death occurred in 28 out of the 44 cases (63.6%) cases and foetal death in 29 (65.9%). All the deceased patients had more than 30% TBSA burns. Of the 30 patients with more than 30% TBSA burns, 28 died and only two survived (6.6%). Only one pregnancy was viable out of 30 (3.3%). The maternal complications that led to mortality were shock in 15 patients (54%), respiratory distress in eight (28.6%), and sepsis in 14 (50%); one patient had corneal perforation.

Discussion

Pregnant women constitute one of the most significant risk groups for burn injuries because of the typically large burn sizes involved and the often severe medical consequences to the woman and the foetus. The incidence is varyingly reported to be 6% from Israel by Benmier et al.,[3] 7% by Taylor et al.[4] and Amy et al.,[5] 7.9% by Srivastav et al.[6] and Gang et al. from Kuwait,[7] 7% by Akhtar et al.,[8] 13.3% by Jain et al.,[9] and 15% by Prasanna from India.[10] In the present study, conducted in a general hospital in Western India, the incidence of burns during pregnancy over a 5-yr period was 7.4%. The incidence of burns in pregnancy thus continues to be high in India.

Burns during pregnancy are a clinical state that demands special management and requires early and adequate resuscitation and the use of a limited choice of antibiotics and local antibacterial agents. Early surgical intervention and a special obstetric protocol are required in the management of these patients.

In our study both maternal and foetal mortality were high and comparable with those reported in the study of Akhtar et al.,[8] which showed a maternal mortality of 70% and a foetal mortality of 72%, as also with those reported from Tehran by Mehdizadeth et al.,[11] who found 62.1% maternal mortality and 72.8% foetal mortality. All patients with less than 30% TBSA burns survived and there were no foetal deaths. Maternal and foetal mortality occurred in patients with over 30% TBSA burns. The trimester of pregnancy appeared to be unrelated to maternal and foetal mortality.

Thus, in this study, it is the severity of the burn injury that appears to be responsible for poor maternal and foetal outcomes, as has been observed in other centres.[8,10,11] The maternal and foetal outcomes and the difficulties in the management of these patients point to the fact that burn prevention measures have to be taken, especially in developing countries like India, where burns are a social disease.

Conclusions

Burns during pregnancy are more common in a developing country like India, where burns are more frequent among females. Since the majority of such burns are accidental in nature, there is an opportunity for prevention by teaching pregnant women certain forms of preventive behaviour, such as not wearing synthetic clothes while cooking and avoiding the use of a kerosene stove while dressed in loose-fitting saris and gowns. Secondary preventive measures to reduce burns severity by instituting prompt first-aid methods could also be taught.

RÉSUMÉ. Pendant une période de cinq ans (1999-2004), sur 529 femmes hospitalisées d'âge reproductif atteintes de brûlures, 44 (7,4%) étaient enceintes. Sur ces 44 patientes, 37 (84%) étaient âgées de 15 à 25 ans et 22 (50%) étaient au deuxième trimestre; 33 brûlures (75%) étaient accidentelles et 11 (25%) le résultat de tentatives de suicide. Les brûlures par flammes constituaient 42 des 44 cas (95,5%); deux cas étaient dus à des ébouillantements (4,5%). La mort maternelle s'est vérifiée dans 28 des cas (63,6%) et la mort fœtale dans 29 (65,9). Les complications maternelles responsables de la mortalité ont été le choc dans 15 cas (53,6%), la détresse respiratoire dans 8 (28,6%) et le sepsis dans 14 (50,0%); une patiente présentait une perforation cornéenne.

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G. WHITAKER INTERNATIONAL BURNS PRIZE – PALERMO (Italy)
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By law n. 57 of June 14th 1983 the Sicilian Regional Assembly authorized the President of the Region to grant the "Giuseppe Whitaker Foundation", a non-profit-making organisation under the patronage of the Accademia dei Lincei with seat in Palermo, a contribution for the establishment of the annual G. Whitaker International Burns Prize aimed at recognising the activity of the most qualified experts from all countries in the field of burns pathology and treatment.

Law n. 23 of December 2002 establishes that the prize becomes biannual.

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The amount of the prize is fixed at Euro 20,660.00.

The Adjudicating Committee is composed of the President of the Foundation, the President of the Sicilian Region, the Representative of the National Lincei Academy within the G. Whitaker Foundation, the Dean of the Faculty of Medicine and Surgery of Palermo University or his nominee, a Representative of the Italian Society of Plastic Surgery, three experts in the field of prevention, pathology, therapy and functional recovery of burns, the winner of the prize awarded in the previous year and a legal expert nominated in agreement with the President of the Region as a guarantee of the respect for the scientific purpose which the legislators intended to achieve when establishing the prize.

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