

**BURNS IN PREGNANCY : AN EXPERIENCE OF A DECADE**

PANKAJ DESAI

**SUMMARY**

293 mothers who suffered burns in pregnancy between Jan. 1983 to Dec. 1992 were studied. It was found that flame burns was the most common type of their burns which on most occasions was accidental. Maternal survival depends squarely on the percentage of burns and not on the trimester in which she contracts burns. Fetal outcome remains adverse in a staggeringly higher percentage of about 50% mothers and was independent of whether the mother survived or died.

**INTRODUCTION**

At any large institution catering to patients of burns, pregnancy complicating burns and vice-versa are a frequent occurrence. Interest in this aspect was generated as early as in the first and second decades of this century. Werskotten (1917) tried to investigate the pathology of burns in pregnancy and concluded that most profound changes in patients with burns and pregnancy, take place in the adrenals. Taylor et al (1976) in his study concluded that maternal outcome is not altered after a thermal injury. More recently Mathews et al (1982) found that fetal outcome in the form of abortions or prematurity are more common in pregnancies complicated by burns.

*Dept. of Obst. & Gyn. Medical College & SSG Hospital, Baroda.*

*Accepted for Publication on 20.10.1993.*

In this present study it is aimed to find out the effect of burns on maternal and fetal outcome over a reasonably long period of time - a decade.

**MATERIALS AND METHODS**

The study was carried out in the Dept. of Surgery (burns Ward) and Obstetrics & Gynaecology, Medical College and SSG Hospital, Baroda over a period of ten years from Jan. 1983 to Dec. 1992. All burns patients are made medico-legal at our institute and invariably an obstetric opinion is sought in those subjects having pregnancy along with burns.

The records of all these cases were analysed carefully for maternal and fetal outcome including events culminating in adverse outcomes and conclusions drawn therefrom on basis of available literature.

**RESULTS**

During the decade studies there were 4984 admissions in burns ward of the hospital of which 75.36% were females and 5.88% of these were pregnant. Whatever be the cause of burns, flame burns were the maximum, to the tune of 96.25%. Most of these were accidental burns.

As shown in this table, the trimester of pregnancy in which the patient got burns had no bearing on the maternal survival. In fact the % of burns had a direct effect on this. The percentage of maternal survival

plummetted from 68.29% in mothers with less than 20% burns to 11.52% in mothers with more than 40% burns.

This table shows the result of adverse fetal outcome amongst those mothers that survived and those that died. The adverse fetal outcome included abortions, preterm labours and the like. Interestingly percentage of burns in the mother does not seem to have a bearing on adverse fetal outcome. However, very clearly and consistently in the survivors as well as the mothers that died fetal outcome continues to be unfavourable

Table I

## Admission - Burns characteristics

Total number of admissions in burns ward	:	4984		
Total number of females admitted with burns	:	3766	..	75.56%
Total number of burns with pregnancy	:	293	..	5.68%
Accidental burns - Flame burns	:	251	..	85.67%
- Chemical burns	:	04	..	1.37%
- Electrical burns	:	07	..	2.39%
Homicidal burns - All Flame burns	:	05	..	1.71%
Suicidal burns - All Flame burns	:	26	..	8.87%

Table II

## Burns and Maternal Mortality

Trim. of preg. in which burns Occured	← 20% burns →		← 21-40% burns →			← 40% burns →			
	Survived	Died	Survival %	Survived	Died	Survival %	Survived	Died	Survival %
I	08	01	88.89	13	20	42.86	08	74	9.76
II	12	00	100.0	10	14	41.67	05	43	10.42
III	08	12	40.00	13	15	46.43	06	29	17.14
Total	28	13	68.29	38	49	43.68	19	146	11.52

Table III

## Fetal Outcome and Burns

% Burns	Survivors	AFO+	AFO+ %	Died	AFO+	AFO+ %	Died undelivered or unaborted.
> 20	28	22	78.57	13	03	23.08	—
21 - 40*	38	24	63.15	49	32	65.71	17*
< 40*	19	07	36.54	146	56	38.35	90*

\* 1 mother in this group delivered vaginally a full term live child and died subsequently.

+ AFO - Adverse fetal outcome.

of the total 293 mothers with burns in pregnancy. 144 had an adverse fetal outcome and 107 died undelivered or unaborted. This brings the overall adverse fetal outcome percentage in burns to a staggering 47.14%. Also, the incidence of adverse fetal outcome, though high was not affected by the fact that whether the mother survived or died.

#### DISCUSSION

Amongst many features that emerge from this study, the pertinent ones are : Amongst the patients getting burnt, women are affected to the tune of 75.8%. Expectedly then, of these, an unignorable number is likely to be pregnant. Some workers (Dilits et al - 1969 and Karlson - 1974) suggested that subtle alternations in posture and clumsiness of movements of the mother during pregnancy makes her more susceptible to burns.

In the present study the trimester in which the mother catches burns had no bearing with her chances of survival if percentage of burns was kept constant. Mathews et al (1982) found that maternal survival is better in I trimester. However, no such trend emerges from the present study. However, percentage of burns had a clear bearing on maternal survival. The sur-

vival percentage dropped precipitously from mothers with less than 20% of her body getting burnt to those more than 40% burns.

Fetus bears a heavy burnt of maternal burns. Upto 49.14% fetuses were either aborted or died as they were born premature. 36.51% mothers died without aborting or delivering. Dietch et al (1983) concluded that fetal survival was squarely dependant on the weeks of gestation and the same held true even in the present study. Fechter et al (1980) attributed these high rates of adverse fetal outcome to the effect of impaired oxygen transport across the placenta a significant amount of which was attributable to the high levels of circulating carbon monoxide especially in flame burns.

As the number of chemical and electrical burns in pregnancy in this study was too small (11 out of 293) they have not been separately studied.

#### CONCLUSION

Pregnancy with burns is a high risk pregnancy with poor fetal outcome and high mortality rates of the mother. However, the percentage of burns is the most important factor in deciding the maternal survival.

ACKNOWLEDGEMENTS

The author is thankful to the Dean, Medical College and the Superintendent, SSG Hospital, Baroda for permitting the use of hospital records and carrying out this study.

REFERENCES

1. Dietch E. A., Clothier J. : *J. Trauma* : 23;89;1983.
2. Dilits P. V., Brinkman I. I., Kirschbaum T. H. : *Am. J. Obstet. Gynec.* : 103;138;1969.
3. Fechter L. D., Thakur M., Miller B. : *Toxicol Appl. Pharmacol.* : 56;370;1980.
4. Karlsson K. : *J. Perinat Med.* : 2;176;1974.
5. Mathews R. N., Turner S. T. : *Brit. J. Obstet. Gynec.* : 89;603;1982.
6. Taylor J. W., Plunkett E. D., McManus W. F. : *Obstet. Gynec.* : 470;434;1976.
7. Werskotten H. G. : *J. A. M. A.* : 776, 1977.