A Study of Burns Cases, Microbiological Profile in Burn wounds and Cause of death among burn victims in Bijapu

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ABSTRACT

Objective: This study was to study burn cases, microbiological profile of burn wounds,manner and cause of death among burn victims.

Materials and Method: This study was undertaken at Al-Ameen Medical College hospital and District Hospital, Bijapur between 1.1.2008 to 31.12.2008.

Result: Total 89 Cases of injuries due to dry heat were examined. Out of the total 31(34.83%) were Males and 58(65.17%) were Females. Maximum cases 34(38.20%) belonged to the age group of 21-30 years followed by 19(21.35%) belonging to 11-20 years of age group. Among 89 cases studied 42(47.19%) victims were married females while 22(24.72%) were married males, remaining 25(28.09%) were unmarried. In this study 66(74.16%) cases were accidental, 19(21.35%) cases were suicidal and 4(4.49%) were homicidal. Kerosene was the most common causative agent accounting for burns among 72(80.90%) cases. Pseudomonas aeruginosa was the common microorganism isolated among burns cases followed by Staphylococcus aureus,Klebsiella species, Escherichia coli, Proteus species.41 autopsies were done on the bodies of fatal burn victims reporting Septicemia as the most common cause of death, followed by shock.

Conclusion: Planning the burn ward separately, restriction in the misuse of antibiotics, supportive measures in the form of good nutrition and physiotherapy will increase the survival rate in burn cases.

Keywords: *Burns, Manner of Death, Microorganisms, Causative Agent, Cause of Death*

INTRODUCTION

Heat is a source of energy, without which existence of human life is not possible, careless in handling, if misused intentionally life will be endangered. In India suicidal burns are a common mode adopted to get rid of the stress, especially by married females due to dowry harassment - Bride Burning. Unlike in developed countries, the prognosis of a burn victim is very poor in India. The reasons are many; this study was an attempt to make the things better for the burn victims as the dictum "Prevention is better than cure" most appropriate for burns than for any other ailment.

The present study was undertaken

1. To know the age and sex of victims involved.
2. To know the marital status of the burn victims.
3. To study the extent and degree of burns.
4. To know the causative agent and manner of burn injuries.

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5. To know the common microorganisms isolated in burns cases.
6. To know the autopsy findings in relation to cause of death.

MATERIAL AND METHOD

All the cases of injuries due to dry heat which were admitted, treated and autopsied in the District Hospital, Bijapur and Al-Ameen Medical college hospital, Bijapur from 1.1.2008 to 31.12.2008 were studied. The detailed history and circumstances in which the patient sustained burn injuries due to dry heat was taken, extent and degree of burns were assessed. The swabs were collected from the burnt areas within 48 hours and after 48 hours for culture and sensitivity which was done at department of Microbiology Al-Ameen medical college, Bijapur. The treatment given was recorded and followed up. In case of death police were informed. Autopsy was conducted at Al-Ameen Medical College or District hospital, Bijapur.

OBSERVATIONS AND RESULTS

Table 1: Showing Number of Burn cases in relation to sex.

Sex	Number	Percentage
Male	31	34.83%
Female	58	65.17%

The present study demonstrated preponderance of female 58(65.17%) victims over male 31(34.83%) victims [Table 1].

Table 2: Distribution of cases Age-Sex Wise.

Sl.no	Age	MaleNumber	Percentage	FemaleNumber	Percentage	TotalNumber	Percentage
1	Less than 10yrs	4	44.44%	5	55.56%	9	1.11%
2	11-20yrs	5	26.32%	14	73.68%	19	21.35%
3	21-30yrs	7	20.59%	27	79.41%	34	38.20%
4	31-40yrs	6	42.86%	8	57.14%	14	15.73%
5	41-50yrs	4	80%	1	20%	5	5.62%
6	51-60yrs	3	75%	1	25%	4	4.49%
7	More than 60yrs	2	50%	2	50%	4	4.49%

Age group 21-30 years was most commonly affected 34(38.20%) followed by 19(21.35%) among 11-20 years of age group [Table2].

Table 3: Cases according to Marital Status.

Marital Status	Sex	Total	Percentage
Married(n=64)	FemaleMale	4222	47.19%24.72%
Unmarried(n=25)	FemaleMale	169	17.97%10.11%

Married females 42(47.19%) most common victims of present study followed by married males 22(24.72%) [Table 3].

Table 4: Showing percentage of Burns sustained in relation to Sex and Fatality.

Sl.no	Percentage of Burns	MaleNumber	Died	FemaleNumber	Died	TotalNumber	Percentage
1	<10%	2	0	3	0	0	-
2	11-20%	6	0	2	0	0	-
3	21-30%	6	0	7	0	0	-
4	31-40%	3	0	5	2	2	4.88%
5	41-50%	2	2	2	0	2	4.88%
6	51-60%	1	0	8	5	5	12.19%
7	61-70%	3	2	6	2	4	9.76%
8	71-80%	1	1	1	0	1	2.44%
9	81-90%	1	1	2	2	3	7.31%
10	91-100%	6	1	22	20	24	58.54%

Out of total 89 victims of dry heat death occurred in 41(46.07%) cases [Table 4].

Table 5: Showing Number of Burn cases in relation to the causative agent.

Sl.no	Causative agent	NumberMale	Female	Total	Percentage
1	Kerosene	23	49	72	80.90%
2	L.P.G	1	5	6	6.74%
3	Petrol	1	0	1	1.12%
4	Diesel	1	0	1	1.12%
5	Others	5	4	9	10.11%

Kerosene was the most common causative agent in 72(80.90%) of the total cases [Table 5].

Table 6: Cases according to Manner of Death.

Sl.no	Manner of death	No of cases	Percentage
1	Accidental	66	74.16%
2	Suicidal	19	21.35%
3	Homicidal	4	4.49%

In this study 66(74.16%) were accidental, 19(21.35%) were suicidal and 4(4.49%) were homicidal [Table 6].

Table 7: Types of Organisms cultured from Burn Wounds.

Sl.no	Organisms	< 48 hrsNumber	Percentage	>48hrsNumber	Percentage
1	*Pseudomonas aeruginosa*	16	30.76%	36	40.44%
2	*Staphylococcus aureus*	7	13.46%	27	30.33%
3	*Klebsiella species*	-	-	8	8.98%
4	*Escherichia coli*	-	-	3	3.37%
5	*Proteus species*	-	-	1	1.12%
6	No growth	29	55.76%	14	15.73%

Our study shows *Pseudomonas aeruginosa* as the causative microorganisms in burn cases followed by *Staphylococcus aureus*,*Klebsiella species, Escherichia coli* and *Proteus species* [Table 7].Out of 41 deaths occurred, Septicemia was the most common cause of death 20(48.78%) and 19(46.34%) due to shock.

DISCUSSION

The present study demonstrated preponderance of female 58(65.17%) victims over male 31(34.83%) victims same is also reported by other researchers.[1, 2, 3 ,4, 5, 6.] Probably due to cooking on open fire, explosion of pressure stoves, instability of small stoves, use of open fires to keep warm in winter. These findings are similar to as quoted by K.Park.[7] Out of total 89 cases maximum cases 34(38.20%) belong to the age group of 21-30 years, among them 27(79.41%) were females while 7(20.59%) were males. The reason for female predominance is probably due to lack of education, dowry related, working near fire and unemployment. [1, 2, 3, 4, 5] among 89 cases studied 42(47.19%) victims were married females while 22(24.72%) cases were married males. This is similar to observations made in other studies.[2, 8]Out of 89 cases, death occurred in 41(46.07%), 10 males and 31 females.[9]It was commonly observed that the duration of survival among the fatal cases was more if the percentage of burns was less than 70% and more the percentage (81-100%) of burns lesser the duration of survival. Kerosene was the most common causative agent in 72(80.90%) of the total cases probably because of the easy access, use as a fuel in the kitchen, other causative agents were L.P.G, Petrol, Diesel etc.These finding are almost similar to the study findings made by N.P.Zanjad and H.V.Godbole.[10] Most common manner of death was accidental 66(74.16%) cases accounting for more than 2/3rd of total cases, 19(21.35%) were suicidal and 4(4.49%) were homicidal. These findings are almost in consistent with the study findings by others.[10, 11]Total 89 swabs were collected after 48 hours, the culture showed growth of *Pseudomonas aeruginosa* in 36(40.44%), *Staphylococcus aureus* in 27(30.33%), *Klebsiella species* in 8(8.98%), *Escherichia coli* in 3(3.37%), *Proteus mirabilis* in 1(1.12%) and 14(15.73%) samples showed no growth. This is in consistent with other studies.[12, 13, 14, 15, 16, 17, 18.] Out of 41 deaths occurred, septicemia was the most common cause of death 20(48.78%).[10, 19] the extent of burns in these cases ranging from 30-60%. The fatal cases with more than 60% burns died due to shock 19(46.34%). The move towards earlier mobilization of the patient reduces this as per the study.[20]

CONCLUSION

Among autopsied, maximum deaths were caused due to Septicemia, it can be reduced by maintaining sterile environment, aseptic precautions, early excision of the burnt tissue and covering the area with split skin grafts and appropriate antibiotic coverage. Shock was the second most important cause of death. Can be prevented to some extent if hypovolemia is effectively treated by plasma expanders, blood transfusion on emergency basis. Planning the burn ward separately and at a distance from the general hospital premises can be one of the effective measures in controlling secondary infection. Restriction in the misuse of antibiotics on the empirical basis, establishment of proper infection control measures and supportive measures like psychological support, physiotherapy and protein rich diet will help lower the incidence of infection and hence will increase the survival rate in burns cases.

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