

HEAT STROKE VICTIMS IN SUKKUR CITY OF SINDH – PAKISTAN

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ABSTRACT

This is a descriptive, cross-sectional study, conducted on 14 cases of heat stroke and hyperpyrexia admitted in Civil Hospital, Sukkur between 1st Jan. and 31st Dec, 2006. The objective was to evaluate the clinical presentation, socio-demographic pattern and to suggest preventive strategies for the control of this problem. Data analysis showed mean age was 32.86 with S.D. ± 17.06. 85.7 were males and 14.37 females, making a male to female ratio of 6:1 occupation wise, date showed 7.17, house wives, 28.47, labourers, 43.9% farmers and 21.4% were children. With proper and efficient management the cure rate was 100%. Study concluded that the lives of the victims of heat stroke and hyperpyrexia could be saved with proper preventive measures, first aid programmes and efficient treatment practices.

INTRODUCTION

Heat related morbidities and mortalities increase when atmosphere or climate is abnormal. Warm countries like Pakistan face heat related morbidities and emergencies more in summer. Studies show that rise in temperature will increase number of heat related deaths this is especially true in cities. Examples of heat related diseases are heat cramps, heat exhaustion and heat stroke. Sun is our chief source of heat. It has two forms of heat one is radiant heat and air heat. Radiant heat is coming from sun rays and warms human body and other objects on which it falls without warming the wind. The other form air heat is due to fall of sun rays on the earth surface. Direct heat may cause stroke and fever, indirect may cause syncope.¹ As many 14 disorders resulting from exposure to have been recognized most important is heat stroke, this is attributed to the failure of heat regulating mechanism, it is characterized by very high body temperature which may rise to 110°F, Delirium, convulsions, partial or complete loss of consciousness, while skin remains dry and hot, death may occur due to hyperpotassemia, it may be due to release of potassium from red blood cells as result of injury of heat to them. The treatment is rapid cooling of the body with ice till the rectal temperature falls to 103°F rectal temperature be recorded every ten minutes till touches to 101°F and ice cooling be stopped. Patient be kept on bed for several days till temperature becomes stable.² According to National Centre for Catastrophic Sports Injuries and Research USA has reported 103 players died due to heat stroke from 1960 to 2000. Prevention of heat stroke includes, avoidance of sun exposure, heat exposure and drinking adequate.^{3,4}

Sukkur is one of the hot district of upper Sindh adjoining Jacobabad which is the Hottest District of Sindh the founder of city Britisher Jon Jacob died of heat stroke and grave of John Jacob is tourist and archeological site. Sukkur district is north-east district of Sindh on the bank of River Indus.⁵

Rationale

Heat Stroke is public health problem and can cause sudden death and comes under medical emergencies, Sukkur is third large city of Sindh Province having Ghulam Muhammad Mehar Medical College and Teaching Hospital of 300 beds. This makes Sukkur as appropriate study area for heat stroke. In summer (May and June) temperature rises 110 degree F. are to cool off before getting in.⁷⁻⁹

OBJECTIVES

1. To collect hospital recorded data of heat stroke and high temperature cases from Civil Hospital Sukkur.
2. To record Socio-demographic profile of patients of Heat Stroke in Sukkur city.
3. To suggest remedial control and prevention measures based on this research.

MATERIAL AND METHODS

Study Design

The study is descriptive and cross sectional carried on patients who brought to Civil Hospital Sukkur an attached Teaching Hospital of GMM. Medical College Sukkur with symptoms of heat stroke and high Temperature. A total of 14 patients were admitted during 2006 in Sukkur Hospital and data

was collected on proforma for every patients, regarding age, sex, literacy, occupation and out come of patients after treatment.

Duration

Study was conducted from 1st January to 31st December 2006.

Data Analysis

SPSS version 14 computer software programme was used for data analysis.

Table 1: Age of Heat s Stroke and High Temperature Cases in Sukkur-Upper Sindh.

	Age of cases	Frequency	Percent
Valid	1 - 14 years	4	28.6
	15 - 29 years	2	14.3
	30 - 44 years	5	35.7
	45 - 60 years	3	21.4
	Total	14	100.0

Mean Age 30.86, SD: 17.06, 95% CI 21.01 to 40.71

Inclusion Criteria: Patient with history of exposure and clinically confirmed cases on basis of Temperature 104Degree and above were included in Study.

Exclusion Criteria

Patients without history of exposure to heat whose temperature was less than 103 degree and clinically unconfirmed as heat stroke were excluded from study.

Table 2: Sex of Heat Stroke and High Temperature Cases in Sukkur-Upper Sindh.

		Frequency	Percent
Valid	Male	12	85.7
	Female	2	14.3
	Total	14	100.0

RESULT

1. Table 1 Showed age of patients of heat stroke and high temperature out of 14 patients were children in the age group of 1-14 years, (28.6%), 2 (14.3%) in age 15-29 years, 5 (35.7%) in age 30-44 years this was largest age group of heat stroke patients. While 3 (21.4%) were in age 45 –60 years further data analysis showed Mean age was 32.86 SD± 17.06.
2. Table 2. Showed sex of patients suffering from heatstroke out of 14 patients the 12 (86.7%) were male and 2 (14.3%) were females making

male to female ratio 6:1. This showed females suffered more.

Table 3: Occupation of Heat Stroke and High Temperature Cases in Sukkur-Upper Sindh.

Occupation	Frequency	Percent
Child	3	21.4
Farmers	6	42.9
Housewife	1	7.1
Labourer	4	28.6
Total	14	100.0

Table 4: After treatment out come of patients of Heat and High Temperature Cases in Sukkur-Upper Sindh.

	Outcome	Frequency	Percent
Valid	Cured	14	100
	Died	00	00
	Total	14	100.0

DISCUSSION

Heat Stroke and High Temperature emergencies are common conditions in tropical countries including Pakistan. Sun rays which are essential for life become hazardous particularly pre monsoon season and whole summer sun stroke cases reach in hospitals therefore proper diagnosis, treatment and first aid and intensive care aspects of this acute emergency be watched and updated and upgraded. If in USA 103 sportsman died as reported by National Centre for catastrophic sports injuries and research from 1962 to 2000 this condition may be worst in poor and hot countries like Pakistan.^{8,9} The study indicated that at least 14 case who reported in Sukkur Civil Hospital many others may have died unreported and untreated Hence this small study over one year long will help in understanding heat stroke conditions, as mean age was 32 and male suffered more and laborer and farmers made largest lot of sufferer from Heat stroke, It was good sign that hospitals are capable to save and treat heatstroke but prevention strategies are not much emphasized by health professional and community at large. The Motility can occur within 24 to 48 hours, if untreated, there is no medicolegal importance attached to death from heat stroke except where adequate facilities for temperature regulation are not provided or the condition is accidental.^{12,13} The symptoms of heat-stroke include:

- Fever (temperature above 104°F).

- Irrational behavior.
- Extreme confusion.
- Dry, hot, and red skin.
- *Rapid, shallow breathing*
- *Rapid, weak pulse.*
- *Seizures.*
- *Unconsciousness.*

First Aid

1. Have the person lie down in a cool place. Elevate the person's feet about 12 inches.
2. Apply cool, wet cloths (or cool water directly) to the person's skin and use a fan to lower body temperature. Place cold compresses on the person's neck, groin, and armpits.
3. If alert, give the person beverages to sip (such as Gatorade), or make a salted drink by adding a teaspoon of salt per quart of water. Give a half cup every 15 minutes. Cool water will do if salt beverages are not available.
4. For muscle cramps, give beverages as above and massage affected muscles gently, but firmly, until they relax.
5. If the person shows signs of shock (bluish lips and fingernails and decreased alertness), starts having seizures, or loses consciousness, call 911 and administer first aid accordingly.⁶

Emergencies are of three types: heat cramps (caused by loss of salt), heat exhaustion (caused by dehydration) and heat stroke shock.



Do Not

- DO NOT underestimate the seriousness of heat illness, especially if the person is a child, elderly, or injured.
- DO NOT give the person medications that are used to treat fever (such as *aspirin* or *acetaminophen*). They will not help, and they may be harmful.
- DO NOT give the person salt tablets.
- DO NOT give the person liquids that contain alcohol or *caffeine*. They will interfere with the body's ability to control its internal temperature.
- DO NOT use alcohol rubs on the person's skin.
- DO NOT give the person anything by mouth (not even salted drinks) if the person is vomiting or unconscious(10)
- **Prevention;** Wear loose-fitting, light clothing in hot weather. Rest frequently and seek shade when possible. Avoid exercise or strenuous physical activity outside during hot or humid weather. Drink plenty of fluids every day. Drink more fluids before, during, and after physical activity. Be especially careful to avoid overheating if you are taking drugs that impair heat regulation, or if you are overweight or elderly. Be careful of hot cars in the summer. Allow the car to cool down.^{10,11}
- Media should also project simple message like avoidance from sun exposure in hot weather and wearing loose and light white clothes, road side tree plantation and drinking of lot of fluids, also first aid training to volunteers and health department worker be initiated.

Study **concludes** that heat stroke and high temperature cases 100% lives can be saved with hospital effective treatment. Prevention and first aid program will save many lives mostly in working age and in poor population.

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