

## Preliminary report on the Burn in Pre-School Children in the Specialized Burn Hospital

Tawfeeq Waleed Tawfeeq\*, Dr.Ahmed Miri Saadoon\*\*

\*Burn center Baghdad \*\*College of Medicine, Al-Qadisia University

Email:ahmedalmrsool@yahoo.com

(Received 20 / 8 /2013 , Accepted 11 / 2 / 2014)

### الخلاصة:

شملت هذه الدراسة 27 طفلا ممن ادخلوا في المستشفى التخصصي لعلاج الحروق في بغداد من الفترة (أيلول 2010 الى حزيران 2011) موزعين على 18 ذكر و 9 أناث وقد تبين من النتائج ان أكثر النسب كانت في عمر 3 سنوات 12 طفلا، ثم 7 حالات بعمر سنتين ، 5 حالات بعمر 4 سنوات ،حالتين بعمر 5 سنوات وحاله واحدة أقل من سنه واحدة. أما ما يتعلق بسبب الحرق فوجد انه 17 طفلا اصابوا بحروق سمطيه (سوائل حارة) ، 9 أطفال اصابوا بحروق اللهب وطفل واحد بسبب الكهرباء. وتم ايضا تسجيل حالات الوفاة وكانت 5، اربع منهم بسبب الحروق السمطية وواحد بسبب اللهب. وجدت النتائج مقاربه ومساوية في بعض الاحيان للنتائج التي تم تسجيلها في بلدان العالم الاخرى من ناحية نسب جنس المرضى المصابين واسباب الحروق.

### Abstract:

Back ground: A retrospective preliminary study was undertaken to estimate the most common causes of Burn in infantile and pre-school children.

Patients and method: children aged between 1 to 5 years were included in this study who had admitted in burn specialized center in Baghdad from September 2010 to June 2011, reviewed by their age, sex, time of presentation, causes and mechanism of burn injury.

Result: scald burn is the most common cause of burn in children bellow five years of age (19 cases), male patient more predominance in this age group (66.7%), the age distribution , 1,2,3,4,5 years was 1,7,12,5,2 cases respectively .

### Introduction:

Burns are one of the most physically and psychologically devastating forms of injury in children and as one of the most common household injuries are an important cause of morbidity and mortality<sup>1,2,3</sup>. In both developed and developing countries, children under the age of 5 experience greater mortality from burns than any other age group<sup>1,2,3</sup>. Burn epidemiology is a useful tool to identify causes that lead to extensive burn in children, upon whom interventions to decrease the incidences of such injuries can be targeted and family education can be undertaken<sup>[4]</sup>.

### Materials and methods:

A retrospective preliminary study was undertaken to estimate the most common causes of Burn in infantile and

pre-school children, between 1 month and 5 years of age who were admitted to the Iraqi Specialized Burn Hospital Baghdad Iraq, from September 2010 till June 2011 and compare it with worldwide data.

Patients included in the study (n=27) were aged 1- 5 years. Information about patient age and sex; severity of burn (anatomic site, per cent of total body surface area (TBSA) burned and depth of burn); period of hospitalisation; management of the burn injury, circumstances of the incident, including date and place of occur-rence; and type of injury (scald, flame, contact, electrical, chemical, radiation, friction, or flash burns); were collected from the medical records where possible. In the literature, three different categories are used to define severe

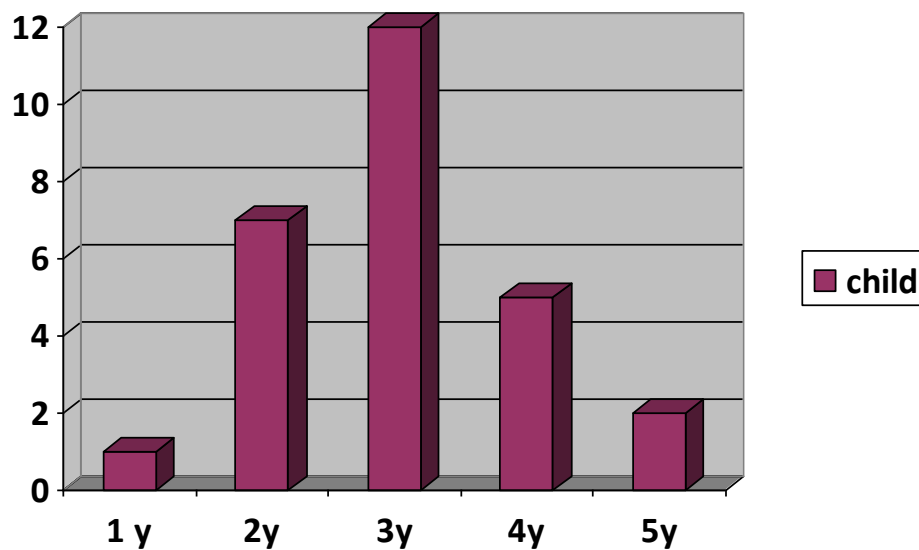
burns: those in which more than 10% of TBSA is affected; the anatomic site affected (for example head, neck, face); and the burn depth (that is superficial, partial, or full thickness).

### Results:

There were 27 children admitted in our center, the sex distribution was clearly shown male predominance (2 to 1 ratio). The most affected age group was those within 3

years (12 cases), followed by 2 years (7 cases), 4 years (5 cases), 5 years (2 cases), and finally below 1 year (1 case).as shown in fig 1

Treatment was initiated locally and systematically, unfortunately 4 of the patients suffering from scald burn and one patient with flame burn were died due to Adult Respiratory Distress Syndrome (ARDS), septic shock and multiple organ failure, fig.(3).



(Fig.1) No. of Patient according to Age.

The scald burn constitute the major cause of burn(19 cases) whether it was hot water, milk or even soup, followed by flame burn( 7 case ) and a single case of electric burn, as shown in Fig. 2.

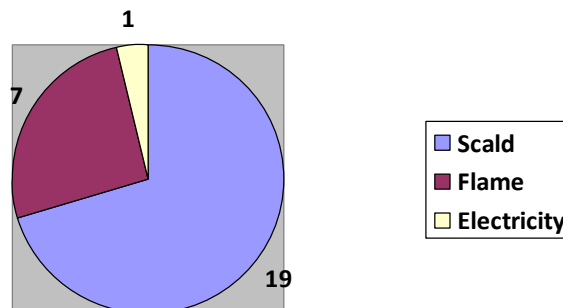
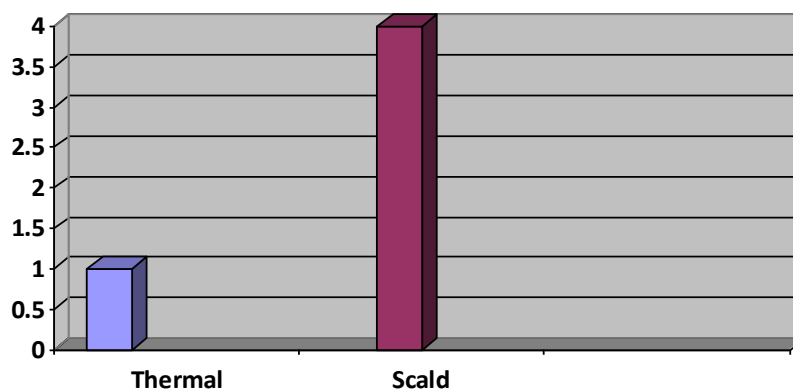


Fig.2. Causes of Burn.

The patients suffering from high percentage total body surface area burn needed the most intensive care with daily wash and aggressive Antibiotics



**Fig.3 No. of Death**

### Discussion:

Scald burn still the most common cause of burn in both developed and developing countries<sup>5,6</sup>. In Iraq the use of boiling water for washing and drinking, the hot milk, Tea and hot soup are also regarded as the main cause of burn, while hot oil is still another cause of mortality and morbidity because it is more viscous than water by 20 time so higher viscosity means longer contact with skin and more damage to skin and soft tissues<sup>5</sup>. Toddlers are characterized by their natural curiosity of their environment and an increased, but still evolving and unstable physical ability to explore it. It is during this developmental period that children learn to walk but are still very unsteady on their feet and are prone to grabbing objects, such as table cloths or kettle or hot cooking pans, to steady themselves<sup>8</sup>, and we should not forget the family neglect when mothers carry their babies during work in the house to prevent them from crying and therefore accident happens and that is true mostly in developing country and 3rd world countries. In general, a delay in presentation was found between the time of injury and the patients' arrival at the hospital due to transportation difficulties

caused by the presence of check points, road blocks and travelling from other Province, with only small percentage of the patients gaining access to medical care within 6 h of the burn. Most of the patients presented with grossly contaminated injuries. They arrived still dressed in dirty coats and clothing remnants.

Burn injury incidence is also significantly greater for boys in infancy, toddlers and a school-aged group which is clearly similar to other studies in South Africa, Nigeria and in Egypt,<sup>7, 8, 12</sup> and that is might be due to hyperactivity of male children over female children.

The socioeconomic status also plays a major role because overcrowded houses with many children and using of kerosene stove to prepare food and boiling water are one of the main causes of childhood burn.

One of the goals of this retrospective study was analysis of causes of death following burn. According to the literature, Multiple Organ Failure (MOF) is the leading cause of death<sup>9, 10</sup>. However, recent studies of the distribution of causes of death are lacking, and therefore we have attempted to categories causes of death, despite intense investigation the etiology of (MOF) remains largely unclear, although

all cases seem to exhibit episodes of an uncontrolled inflammatory response, A variety of conditions can lead to this response after burn, and underlying causes can be infectious as well as non-infectious<sup>9</sup>. Infectious causes include sepsis, bacteraemia following manipulation of colonized wounds, small repetitive infections and bacterial translocation from the gut<sup>11</sup>. In non-infectious etiology the crucial pathophysiological event is thought to be the tissue damage itself<sup>12</sup>.

In conclusion, children constitute a vulnerable group for burns. Most injuries occur in the home setting where effective control measures can be adopted. Toddlers should be left all by themselves only in controlled play rooms where all health hazards have been screened for and excluded. A little more care and safety consciousness on the part of adults will also lead to some reduction in incidence. The availability of burn units and stimulation of interest in burn surgery will impact positively on outcome.

### References:

- 1- Morrow SE, Smith DL, Cairns BA, Howell PD, Nakayama DK, Peterson HD. Aetiology and outcome of paediatric burns. *J Paediatric Surg.* 1996;31(3):329–33.
- 2- Delgado J, Ramirez-Cardich ME, Gilman RH, Lavarello R, Dahodwala N, Bazan A, et al. Risk factors for burns in children: crowding, poverty and poor maternal education. *Injury Prev* 2002;8:38–41.
- 3- Dai Q.A. Nguyen , Sean Tobin, William A. Dickson, Tom S. Potokar. Infants under 1 year of age have a significant risk of burn injury. *Burns* 2008; 34: 863–867.
- 4- McLoughlin E. A simple guide to burn epidemiology. International Society for Burn Injuries in collaboration with the World Health Organization. *Burns* 1995;21(3): 217–20.
- 5- Akin Tarim, Tarik Zafer, Ozgur Basaran, Sedat Yildirim, et al . Scalding in Turkish Children . *Burns.* 2006 : 32 : 473-476.
- 6- Tarim A, Nursal TZ, Yildirim S, Noyan T, Moray G, Haberal M. Epidemiology of pediatric burn injuries in southern Turkey. *J Burn Care Rehabil* 2005;26:327–30.
- 7- Iregbulem LM, Nnabuko BE. Epidemiology of childhood thermal injuries in Enugu, Nigeria. *Burns* 1993;19:223–6.
- 8- A. Van Niekerk, H. Rode, L. Laflamme. Incidence and patterns of childhood burn injuries in the Western Cape, South Africa. *Burns.* 2004 : 30. 341–347
- 9- Wolf SE, Prough DS, Herndon DN. Aetiology and prevention of multisystem organ failure. In: Herndon DN, editor. *Total burn care.* 2nd ed., New York: Saunders; 2002. p. 399–417.
- 10- Sheridan RL, Ryan CM, Yin LM, Hurly J, Tompkins RG. Death in the burn unit: sterile multiple organ failure. *Burns* 1998;24:307–311
- 11- Fry DE, Pearlstein L, Fulton RL, Polk Jr HC. Multiple system organ failure. The role of uncontrolled infection. *Arch Surg* 1980;115:136–40.
- 12- Ahmed El-Badawy, Amr R. Mabrouk. Epidemiology of childhood burns in the burn unit of Ain Shams University in Cairo, Egypt. *Burns* 1998. 24 :728-732