**Traditional Cauterization Among Children in Bint Al-Huda Hospital in Al-Nasiriya City, Iraq**

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**ABSTRACT**

Cutaneous Cautery is a form of traditional medicine inherited in many countries. It was mentioned in the books of many ancient, pre-Islamic and post-Islamic scholars. Patients may resort to traditional medicine (cauterization in particular) for many reasons.

The aim of this study is to get more knowledge about the cautery practices, and the reasons for practicing cautery in children together with other implications from adverse events of the cautery.

This is a cross-sectional study was in which 133 children were enrolled (77 males and 56 females with age ranged from 0.5-108 months) who had been admitted to Bint Al-Huda Maternity and childhood Teaching Hospital in Nasiriya city , Thi-Qar Governorate, southern Iraq, from 1st of December 2019 – to end of July 2020).

The study found that >80% of cauterized children were of age group bellow 1 year, (53.4%) of rural residency. Parents of the cauterized children were mainly of illiterate and primary teaching constituting the highest percent, (91.6%) of cauterized children were of low per capita monthly income, the grand-mothers were the adviser in more than half of the cauterized children, vast majority of the advisor were illiterate and primary teaching , the person who do the cautery was the traditional healer in (95.5%). Cauterization was done mostly in head and abdomen, and vast majority of it was done by lightened cotton tipped application (97%).The number of cauterization points has ranged from 2-25 with mean of 8.8 cautery marks . About 59% of patients not improved or worsen, while 30% show partial improvement and 11% improved. Complications seen in 9% of cases.

There is a necessity of spreading awareness about the dangers and complications of traditional cauterization in health care centers and by health care providers. Improving the delivery of medical services to areas far from city centers as well as spreading health awareness in multimedia together with the control of illiteracy.

**Key Words:-** Traditional Cauterization, Children

**INTRODUCTION**

**Traditional Medicine**

It is the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness**(1)**. It includes, for example, acupuncture and related techniques, chiropractic, osteopathy, manual therapies, qigong, tai ji, yoga, naturopathy, thermal medicine, and other physical, mental, spiritual and mind–body therapies**(2)**.

According to the WHO which mentioned that about 70%-90% of the populations in Canada, France, Germany, and Italy have practiced complementary and/or traditional medicine in a certain form and that 110 of the 193 WHO member states reported having some type of policy in place regarding regulation and/or registration of traditional medications in 2007. Among children , cautery constitute 76.1% of the traditional methods**(3)**.The traditional medicine is also practiced by 80% of the population in the developing word**(4)**.

Traditional cautery source is controversial but it is firstly reported in Surgical Papyrus written in 1550BC by ancient Egyptians **(5-6).** Cautery causes relieve of pain followed by severe pain as reported from patients who practiced cautery and this may be explained by the fact that the cautery stimulates the release of endogenous opiods and other neurotransmitters that prevent the perception of pain **(7)**.

The ancients Egyptian surgeons used cautery to stop severe bleeding from wounds**(8)**. Agnikarma (thermal cautery) is practiced for a set of medical illnesses regarding liver, stomach, abdomen , joints , spine, sciatic nerve and back **(9-10)**. In Traditional Chinese Medicine, Cautery (Moxa cautery (475-221 BC)) has been used in many diseases from an old times **(11).** The Arabic traditional medicine was in three major topic which are herbal, Kaiy (Arabic for cauterization) and cupping**(12)**. Abul Qasim Al Zahrawi (westernized as Albucasis, 936-1013 AD) recommended cauterization with hot metals or hot oils for stopping bleeding from vessels and treatment of many ailments like epilepsy, otalgia, headache, facial palsy, backache, eye diseases, oral fistula, toothache, depression and hemorrhoids **(13)**.

The Arab uses in cautery a metal sticks or iron nails, then the sticks or nail put over a hot charcoal to the time it become red and hot, the practitioner or healer put it over a certain site in the skin for a few seconds**(14)**. The location of the cautery is according to the site of illness for example cautery scars was over the affected limbs in children with polio, in the midline of the spine or on the head in children with cerebral palsy while a round configuration around the umbilicus of the abdomin was found in many children in a study done in Saudi Arabia **(15)**. In Eastern communities , patients resort to cauterization therapy for a variety of medical ailments including backache, paralysis, facial palsy, ascites, migraine headaches , sore throat, splenomegaly, lymphadenopathy, jaundice, and glaucoma**(16)**. It is mainly used to stop bleeding and to close the blood vessels. The removal of growths such as viral warts and growth of cancerous tissues or the chronic eczema are other uses **(17)**. The newest endoscopic technique used a cathter quided cauterization and this is similar to what is mentioned by AlRazi in his book (Al-Hawi) regarding the use of catheter in the organs of the body that have a lumen like nose and anus**(18)**.

After cauterization , a wide variety of complications was reported including infection of the wound, delayed healing of the wound , formation of an abscess , septic shock, and deep skin burn. In the long-term, branding procedures can cause disfigurement from contractures (especially over joint surfaces), scars, hair loss, keloids, orthokeratotic hyperkeratosis, acanthosis and squamous cell carcinoma. Other medical complications include foreign body reaction, oral and tooth complications, aspiration and hypoxia, edema and swelling, infections and viral transmission including hepatitis and HIV**(19)**. Tetanus was one of the adverse effects of cautery in other study**(20)**.

**Aims of the study**

* The first aim was to get more knowledge about the cautery practices in children in Thi-Qar province.
* The second aim was to highlight the reasons for practicing cautery in children together with other implications from adverse events resulting from the cautery itself.

**SUBJECT AND METHODS**

**Study design and sitting**

This is a descriptive cross-sectional study was performed in Bint Al-Huda Maternity and Childhood Teaching Hospital in Thi-Qar province, south of Iraq and data were collected over an 8 month period (from December 2019 through July 2020) from patients who are admitted to Bint Alhuda Maternity and Childhood Teaching Hospital in Nasiriya city, and who have recent cautery marks in their bodies (done for the treatment of the child illness). It included 133 children of different ages who were admitted to the hospital for a variety of diseases.

**Data collection**

The data collection questionnaire was designated for the purpose of the study and was filled in the hospital by face to face method from the child care giver. It involved a personal characteristics and variables related to cautery practices, so the questionnaire involved the following information: name, sex , age of the patient which was classified into 5 group; <6months, 6months -1year, > 1-2year, >2-5 years and >5years.

The residence of the patients was taken and classified as rural, urban and semi urban. Other variables in the questionnaire including father and mother education, whether (illiterate; primary, intermediate ,secondary school ; or higher education), mother employmentand monthly income per capita (<250000, 250000-500000 and >500000 Iraqi Dinar(ID) also was taken.

It also included the person who advised for, or who do cautery, together with the education of the adviser. Is the cautery was paid or free? During the filling of the questionnaire , the site , size , shape and total number of cautery marks was reported together with any complication.

**Statistical analysis**

Statistical package for social sciences (SPSS) version (25) was used for data analysis, Descriptive statistic, frequencies, percentages, associations, tests of significance (Chi-square test or Fisher exact test ) were used for analysis of categorical variables. Means and standard deviations were used to present data of continuous variables t, ANOVA test had been used. Correlation analysis were performed to recognize the independent factors.

**Inclusion Criteria:** The children who were admitted to Bint Alhuda Maternity and Childhood Teaching Hospital who have recent cautery marks in their bodies (the cautery was done to them in a period less than 1 month before admission to the hospital and taking the information for the study).

**Exclusion Criteria:**- child who have cautery marks done to him before more than one month ago from the day of taking the information from the child.

**Ethical approval of the study:** The clinical protocol was approved by the Institutional Review Board for each participating hospital, and the Department of Health and Education. This study was conducted in conformity with the guiding principles for research involving humans. Written informed consent and assent were obtained from all parents.

**RESULTS**

This study shows that the cautery was practiced for children in Thi-Qar province for children even from the first month of their life.

Regarding the Socio-demographic Characteristics of the Study group, a total number of 133 cauterized children had been included in this descriptive cross sectional study with a mean age of 9.25+\_11.5 months with male to female ratio 1: 0.72.

**Table 1: Selected variables of cauterized patients Descriptive Statistics for quantitative determinants of cautery**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | median | Minim. | Maximum | Mean | S.D. |
| Age (months) | 107.5 | 0.5 | 108 | 9.25 | 11.509 |
| Duration Of Disease (days) before cautery | 5 | 1 | 6 | 3.8 | 1.980 |
| Duration of disease before seeking medical care ( days) | 5 | 1 | 6 | 2.1 | 1.336 |
| Total number of cautery marks | 23 | 2 | 25 | 8.8 | 3.804 |
| Sex | Number | | Percentage | |  |
| Male | 77 | | 57.9 | |  |
| Female | 56 | | 42.1 | |  |
| Total | 133 | | 100 | |  |

The number of cauterization points has ranged from 2-25 with mean of 8.8 cautery marks. The mean time before cauterization was 3.8 days while the mean time of duration before seeking medical care was 2.1 days, and more than half of the patients were male( 57.9%).

**Table 2: socioeconomic characters of the sample**

|  |  |  |
| --- | --- | --- |
| Variable | number | Percent |
| Residence |  | |
| Rural | 71 | 53.4 |
| Urban | 41 | 30.8 |
| Semi-urban | 21 | 15.8 |
| Economic state (per capita monthly income) Iraqi Dinar |  | |
| <250000 | 122 | 91.6 |
| 250000-500000 | 9 | 6.8 |
| >500000 | 2 | 1.6 |
| Mother employment |  | |
| No | 123 | 92.5 |
| Yes | 10 | 7.5 |
| Total | 133 | 100% |

More than half of the cauterized children were of rural residency (53.4%).

The mothers̕ employment was seen in only 10% of cauterized patient mothers, while more than 91% of cauterized children were of low per capita monthly income.

**Figure 1: Distribution of patients according to age group**

Most of the cauterized children were of age group below 1year (80,4%) then 1-2 years (14.3%).

**Figure 2: Distribution of patients in relation to Parental education**

More than 2/3 of parents of the cauterized children were mainly of illiterate and primary education.

**Table 3: The frequency of symptoms for which cautery was done**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Single symptom | | more than one symptoms | | Total percent | FE,  P.value |
| Number | percent | Number | percent |
| Fever | 7 | 5.26% | 21 | 15.79% | 21.1% | 126.53,  0.026 |
| Excessive crying | 2 | 1.5% | 17 | 12.78% | 14.29% |
| Diarrhea | 12 | 9% | 3 | 2.25% | 11.28% |
| Abdominal pain | 0 | 0 | 8 | 6% | 6% |
| Vomiting | 4 | 3.0% | 2 | 1.5% | 4.5% |
| Lethargy | 1 | 0.75% | 3 | 2.26% | 3% |
| Respiratory symptoms | 0 | 0 | 2 | 1.5% | 1.5% |
| Jaundice | 1 | 0.75% | 0 | 0 | 0.75% |
| F.T.T | 1 | 0.75% | 0 | 0 | 0.75% |
|  |  |  |  |  |  |
| dehydration | 0 | 0 | 1 | 0.75% | 0.75% |
| Poor feeding | 0 | 0 | 1 | 0.75% | 0.75% |
| Abdominal distension | 0 |  | 1 | 0.75% | 0.75% |
| Multiple symptoms initially | 0 | 0 | 46 | 34.6% | 34.6% |
| Total | 28 | 21.05 | 105 | 78.95 | 133 | 100% |

Fever, excessive crying , and diarrhea were the main symptoms for which cautery was practiced.

**Table 4: cautery adviser characters**

|  |  |  |
| --- | --- | --- |
| Variable | Number | percent |
| Cautery adviser | | |
| Grand mother | 60 | 51.9 |
| Grand father | 6 | 4.5 |
| Other family member | 40 | 30.1 |
| Other person | 18 | 13.5 |
| Education status of the adviser | | |
| illiterate | 80 | 60.1 |
| Primary | 36 | 27.1 |
| intermediate | 9 | 6.8 |
| Secondary | 5 | 3.8 |
| College and above | 3 | 2.2 |
| Person who did cautery | | |
| Traditional healer | 127 | 95.5 |
| Family member | 6 | 4.5 |
| Cautery payment | | |
| Yes | 98 | 73.7 |
| No | 35 | 26.3 |
| Total | 133 | 100% |

The grand-mother was the main adviser of the cautery. Majority of the advisor for the cautery were illiterate and primary education. The person who do the cautery was the traditional healer in 95.5%. In a 73.7% of parents they mentioned that they paid for the treatment

**Figure 3: Distribution according to outcome of cautery**

Most of the cauterized patient were not improved or worsen their condition .

**Figure 4: Distribution according to presence of complication**

Complications seen in 9% of the cauterized patients had complication.

**Table 5: The frequency and percent of sites of cautery.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Site | patients with single site | | patients with multiple sites | | Total percent | FE, P |
| Number | Percent | number | percent |
| Head | 21 | 15.79% | 95 | 71.43% | 87.22% |  |
| Abdomen | 10 | 7.52% | 98 | 73.68% | 81.1% | 5.367  0.368 |
| Back | 0 | 0 | 46 | 34.59% | 34.59% |
| Upper limbs | 0 | 0 | 5 | 3.76% | 3.76% |
| Chest | 0 | 0 | 2 | 1.5% | 1.5% |
| Lower limbs | 0 | 0 | 1 | 0.75% | 0.75% |

The main sites for cautery were the head followed by the abdomen and back.

**Table 6: Cautery characterization**

|  |  |  |
| --- | --- | --- |
| Variable | Frequency | Percent |
| Method |  |  |
| Lightened cotton tipped application | 129 | 97% |
| Others | 4 | 3.0% |
| Shape |  |  |
| Circular | 85 | 63.9% |
| Linear | 2 | 1.5% |
| Other | 34 | 25.6% |
| More than one shape | 12 | 9% |
| Total | 133 | 100 |

The vast majority of the cautery was done by Lightened cotton tipped application (97%), and the circular shape of cautery was the commonest shape of cautery (63.9%).

**Table 7: Outcome of cauterization in relation to selected criteria of cauterization**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | outcome | | | | Total | X2 or FE |
| Improved | Partially improved | Not improved | Worsen | P. value |
| Sex | Male | 5 | 23 | 31 | 18 | 77 | 5.763a  0.128b |
| 6.5% | 29.9% | 40.3% | 23.4% | 100.0% |
| Female | 10 | 17 | 22 | 7 | 56 |
| 17.9% | 30.4% | 39.3% | 12.5% | 100.0% |
| Residence | Rural | 7 | 24 | 28 | 12 | 71 | 2.719a  0.851 |
| 9.9% | 33.8% | 39.4% | 16.9% | 100.0% |
| Urban | 6 | 9 | 18 | 8 | 41 |
| 14.6% | 22.0% | 43.9% | 19.5% | 100.0% |
| Semi urban | 2 | 7 | 7 | 5 | 21 |
| 9.5% | 33.3% | 33.3% | 23.8% | 100.0% |
| Person do cauterization | Family member | 1 | 3 | 1 | 1 | 6 | 7.642  0.139 | |
| 16.6% | 50% | 16.6% | 16.6% | 100% |
| Traditional practitioner | 14 | 36 | 53 | 24 | 127 |
| 11% | 28.3% | 41.7% | 18.9% | 100% |
| Indication | Diarrhea | 0 | 3 | 6 | 3 | 12 | 54.209  0.056 | |
| 0.0% | 25.0% | 50.0% | 25.0% | 100.0% |
| vomiting | 0 | 1 | 1 | 2 | 4 |
|  | 25% | 25.0% | 25.0% | 100% |
| Abdominal pain | 11 | 19 | 28 | 13 | 71 |
| (15.5) | (26.8) | (39.4) | (18.3) | (100) |
| Excessive crying | 1 | 3 | 5 | 0 | 9 |
| (11.1) | (33.3) | (55.6) | (0) | (100) |
| Mixed | 3 | 17 | 18 | 10 | 48 |
| (6.25) | (35.4) | (37.5) | (20.8) | (100) |
| Site | Head | 3 | 8 | 4 | 4 | 19 | 24.12  0.501 | |
| (15.8) | (42.1) | (21.1) | (21.1) | (100) |
| abdomen | 0 | 0 | 1 | 0 | 1 |
| (0) | (0) | (100) | (0) | (100) |
| Upper limb | 1 | 2 | 6 | 0 | 9 |
| (11.1) | (22.2) | (66.7) | (0) | (100) |
| Multiple | 11 | 26 | 33 | 19 | 89 |
| (12.4) | (29.2) | (37.1) | (21.3) | (100) |
| Total | | 15 | 40 | 53 | 25 | 133 |  | |
| 11.3% | 30.1% | 39.8% | 18.8% | 100% |  | |

**Table 8: Correlation regression analysis of the determinants of the cauterization outcome.**

|  |  |  |
| --- | --- | --- |
|  | | Outcome |
| Age | Pearson Correlation | -.081- |
| Sig. (2-tailed) | .353 |
| Duration Of Disease | Pearson Correlation | -.131- |
| Sig. (2-tailed) | .134 |
| Total number of cautery | Pearson Correlation | -.128- |
| Sig. (2-tailed) | .148 |
| Duration of disease before seeking medical care | Pearson Correlation | -.296-\*\* |
| Sig. (2-tailed) | .001 |

**DISCUSSION**

This study shows that the cautery was practiced for children in Thi-Qar province for children even from the first month of their life.

Regarding the Socio-demographic Characteristics of the Study group, a total number of 133 cauterized children had been included in this descriptive cross sectional study with a mean age of 9.25+\_11.5 months with male to female ratio 1: 0.72. This result was similar to other study done in infants in the Southwestern Area of Saudi Arabia by al bilani et al**(21)** shows no statistically significant differences between both groups of control and cauterized regarding their age or gender as the male child in both groups is higher than the female child as male to female ratio was 1: 0.63 in both study and control groups.

The number of cauterization points has ranged from 2-25 with mean of 8.8 cautery marks. The mean time before cauterization was 3.8 days while the mean time of duration before seeking medical care was 2.1 days.

More than half of the cauterized children were of rural residency (53.4%), this may be explained partly by the low level of academic education in one hand and less accessibility to the health care systems in rural areas by other hand.

The mothers̕ employment was seen in only 10% of cauterized patient mothers in our study and this also support the results of Al-Binali et al study which revealed that mothers’ employment was significantly associated with less practice of cautery for infants **(21)**.More than 91% of cauterized children were of low per capita monthly income, and this may attributed to mother unemployment.

Most of the cauterized children were of age group below 1year (80,4%) then 1-2 years (14.3%). In comparison with other study in Saudi Arabia done by Watts HG (**15**), which shows that the mean age of the children who received cautery was 10.0 years and this may be explained by the fact that because the cause of cautery in our study is mostly due to (fever, diarrhea and vomiting) which is most common in the young age groups than the others so the cautery appear to be more in infants than in other age groups, and this also explained that the higher percent of cautery will be in an age group where the symptoms or disease mostly occur.

More than 2/3 of parents of the cauterized children were mainly of illiterate and primary education ( this seen partly higher regarding mothers education), and this result support what was reported by a study in Aseer region in Saudi Arabia in infants with cautery whose parents also had lower levels of education (**21**), and also the same result was in other study in Benghazi, Libya (**22**).

The grand-mother and other family member were the mainly adviser of the cautery and this result supported what obtained from a study in Libya where (90%) of cauterized patients followed their parents' or relatives' advice for cautery(**22**).

Vast majority of the advisor for the cautery were illiterate and primary education. The person who do the cautery was the traditional healer in 95.5% , while the other 4.5% were one of the family member and this about the same result what appear in other study in Saudi Arabia where the cautery done by a professional traditional healer (89.3%) (**21**).

In a 73.7% of parents they mentioned that they paid for the treatment , while the others were free , also some of the parents mentioned that the payment was not fixed and they give what they want or what they afford, this result don’t coincide with the result in other study in Saudi Arabia where 64% were free**(15)**. This difference may be explained by the time and place where the study done.

Most of the cauterized patient were not improved or worsen their condition (58.6%), while only 11% show improvement and this result coincides with the results from other studies like those done in Oman in which improvement was seen in only small percent, and also supported what has been found in a studies in Libya and Sudan **(3,22-4)**. This small percent of improvement after cautery may be attributed to the self-limited course of some diseases or the effect of the treatment which was taken before the cautery.

Complications seen in 9% of the cauterized patients (ulceration in (8.3%) or infection in (0.7%) at the sites of cautery), and the same complication was reported in different percentage in other studies like that which done in Saudi Arabia and Sudan and the difference in percentage of patients developing the complication may be related to the method by which the cautery done and also because the majority of the patients in our study were seeking the medical care before cautery and within a 6 days period after doing the cautery **(25)**.

The main sites for cautery were the head followed by the abdomen and back, while the upper, lower limbs and chest constitute the lower percentage , this differs from a result of study in Saudi Arabia where the main percent was the chest and abdomen**(26,27)**. This may be explained by the fact that the cautery site is usually on the site of symptoms which were mostly the diarrhea and vomiting in our study, while abdominal distension and prolong cough in the other study.

The vast majority of the cautery was done by Lightened cotton tipped application (97%), and the circular shape of cautery was the commonest shape of cautery (63.9%). This is in contrast to a study done in Saudi Arabia where most parents described the cautery as being done with hot metal or an iron rod which had been placed in the fire**(28)**.

**Limitation of the study**

1-This study was performed during then the period of COVID19 pandemic and because of that it include pediatric patients who are admitted to the Bint Alhuda Maternity and Childhood Teaching Hospital only, and not included patients who had visited the hospital outpatient clinic or the patients who practice cautery and visit other primary health care centers or other hospitals .

**CONCLUSION**

Low level of education of parents , low socioeconomic status , residence in the rural area and cultural familiarity of traditional cautery are the main reasons behind the continued resort to traditional medical healers with subsequent impact on the health of the population partly from the delay in medical consultation and the delay in treatment of the disease in one hand and cautery adverse events in the other hand.

I. Ethical approval:

The manuscript is written in original and all the data, results pertaining to this manuscript are original according to the research performed. The authors followed academic integrity and have not copied any content/results from another source.

II. Funding details (In case of Funding):

The authors of this manuscript did not receive any funding to perform the present research

III. Conflict of interest

The authors of the study do not have any conflict of interest

IV. Informed Consent:

The authors of the manuscript agrees to publish this research in the journal if it’s considerable by the editors of the journal. The authors provide full consent for reviewing and publishing this manuscript.

V. All the authors of this study contributed equally in terms of performing the research as well as in preparing the manuscript. All the authors of the study followed the guidelines of the corresponding author. Any query/suggestion related to the manuscript can be reached to the corresponding author

**RECOMMENDATIOS**

1. The necessity of spreading awareness about the dangers and complications of traditional cauterization in health care centers and by health care providers from all degrees to restrict the resort and practicing this tradition.
2. Improving the delivery of medical services to areas far from city centers where the practices of traditional medicine is frequently practiced as a source of treatment.
3. Spreading health awareness in multimedia is indicated together with the control of illiteracy.

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