Knowledge, attitude and practice of Sudanese mothers towards home management of febrile convulsions

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Abstract

Background: Febrile convulsions (FCs) are the most common symptomatic seizure disorder in children. Most studies on the knowledge, attitude and practice towards children with febrile convulsions have been done in western countries. Little is known about the knowledge, attitude and practice of mothers regarding febrile convulsions in developing counters – Sudan is no exception.

Objectives: The aim of this study is to assess the knowledge, attitude and practice (KAP) of Sudanese mothers towards the management of febrile convulsions (FCs) at home and investigate the relationship between KAP/FCs and mothers’ age and educational level.

Method: This is a prospective, observational study that was conducted in three hospitals in Khartoum Province. Mothers of children with simple febrile convulsions were interviewed in the outpatient clinics and the data were collected using questionnaire.

Results: A total of 200 mothers were interviewed. Most (56%) mothers had no response to their child’s seizure at home. The majority who were of low scores in knowledge and attitude, were illiterate. There was significant correlation between mothers’ educational level and both knowledge about febrile convulsions, (P < 0.00) as well as attitude towards febrile convulsions (P < 0.00); 66% of mothers agreed to administer rectal diazepam by themselves if trained. In 56% of mothers’, information was based on what their friends / relatives had told them and 90% of them were willing to share their experience with other mothers.

Conclusion: Majority of the mothers lack adequate information about possible cause, diagnosis and outcome of their child’s condition. Experience played a major role in those with good knowledge and training mothers on home management of febrile convulsions including giving rectal diazepam is worth trying. The willingness of almost all mothers to share experience with others provides opportunity for group therapy and formulation of support groups – not to mention the essential need for written hand outs for parents of children with febrile convulsions.

Introduction

Febrile convulsions are convulsions occurring in children aged 6 months to 5 years, associated with fever, without other underlying cause such as central nervous system infection or electrolyte imbalance. Consensus guidelines agree that axillary temperature should be >37.8°C or there is a clinical history and examination indicative of febrile convulsion. (1,2)

Febrile convulsions occur in young children at a time in their development when the seizure threshold is low. This is a time when young children are susceptible to frequent childhood infections such as upper respiratory infection or urinary tract infection, and they respond with comparably higher temperatures. Animal studies suggest a possible role of endogenous pyrogens, such as interleukin 1 beta that, by increasing neuronal excitability, may link fever and seizure activity. (3)

Viral illnesses are the predominant cause of febrile convulsions. Recent literature documented the presence of human herpes simplex virus 6 (HHSV-6) as the etiologic agent in roseola in about 20% of a group of patients presenting with their first febrile seizures. Shigella gastroenteritis also has been associated with febrile convulsions. Another study suggests a relationship between recurrent febrile
convulsions and influenza A virus.\(^{(4)(5)}\)

Febrile convulsions tend to run in families. In a child with febrile convulsion, the risk is 10% for the sibling and is almost 50% for the sibling if a parent has febrile convulsions as well. Although substantial evidence exists for a genetic basis of febrile convulsions, the mode of inheritance is yet unclear.\(^{(6)}\)

Little is known about what parents could do when their child has a convulsion. Such knowledge, however, is important because the parents are the first ones who deal with the child. In 1980, Dr Schmitt was the first to coin the term “fever phobia” to describe parents’ unrealistic fears about fever associated with numerous misconceptions about its management, and its role in illness.\(^{(7)}\). Since then, several reports described the spread of this attitude among parents and paediatricians or nurses in Europe and US.\(^{(8)(9)}\)

In a study done in India, using a prospective questionnaire based study in a tertiary care centre carried over a period of one year, 140 parents of consecutive children presenting with febrile convulsions were enrolled; 83 (59.3%) parents could not recognize the convulsion; 127 (90.7%) did not carry out any intervention prior to getting the child to the hospital; 109 (77.9%) parents did not know the fact that the convulsion can occur due to fever. The commonest immediate effect of the convulsion on 90% of the parents was fear of death.\(^{(10)}\)

Another study in Nigeria where one hundred and ten mothers aged between 21 and 65 years were recruited; 21.8%, 19.1% and 23.6% knew the cause, diagnosis and outcome, respectively while 30% had diagnosis explained. Over 70% of the mothers had negative attitude toward their children being seen in public. All the mothers expected cure and 98.2% of them were willing to share their experience with other mothers.\(^{(11)}\)

Few studies were done in Sudan in the area of febrile convulsions in children. In a study done in 1983, Abdalla found that the hospital prevalence of febrile convulsions was 1.8% and that all parents reacted with incapacitating terror to their convulsing children (12). In a more recent study by Mahgoub, he found that 93.4% of the parents had no knowledge about the nature of febrile convulsions.\(^{(13)}\)

The objectives of this study were to (a) assess the knowledge, attitude and practices of Sudanese mothers towards the management of febrile convulsions at home and (b) correlate the mothers’ age and level of education with their knowledge and attitude towards management of febrile convulsions.

**Materials and methods**

The study was a prospective, observational study that was conducted in Khartoum, capital of Sudan. The three main hospitals (with large children outpatient) were selected, namely Khartoum Teaching Hospital, Jafar Ibn Ouf Hospital and the Academy Teaching Hospital. The study population was composed of mothers of children with febrile convulsions attending the outpatient units at the three hospitals during the period January to April 2010. A total of 200 mothers were selected for the interview using simple random technique. Only mothers of children fulfilling the criteria for simple febrile convulsions were included in the study. Data were collected using a specifically designed questionnaire and was analyzed using Statistical Programme for Social Sciences version 18 (SPSS / v18).

A scoring system (from 0 to 8) was performed to assess the mother’s knowledge which was later reclassified into poor, average and good. A scoring system (from 2 to 10) was also performed to assess the mother’s attitude which was later graded into poor, average and good.

Frequency analysis for background variables was conducted. Chi square test was used to determine the association between the mothers’ age and their knowledge and attitude towards febrile convulsions. Chi square test was also used to determine the association between the mothers’ level of education and their knowledge and attitude towards febrile convulsions. Level of significance was set on an alpha level at 0.05 and 95% confidence limits are reported.

Ethical clearance and approval for conducting this study was obtained from the ethical committees of the University of Medical Sciences and Technology, Khartoum Teaching Hospital, Jafar Ibn Ouf hospital and the Academy Teaching Hospital. Informed verbal consent was obtained from the mothers participating in this study after full explanation of the study objectives.
Results
A total of 200 mothers were included in this study. The age range of 39% of the mother’s was between 21 and 29 years. Mothers less than 20 years represented 15% of the total mothers included in the study, while 27% were between 30 and 39 years of age, and 19% were 40 years and above.

Illiteracy was found among 34% of the mothers, while 32% reached primary school level, 18% were university graduates and 16% reached secondary school level. Regarding the social status of those mothers, 64% were married, 20% were divorced and 16% were widowed. The majority (64%) of the children didn’t have siblings affected by febrile convulsions, while those who had one or more sibling affected were 37%.

There were 46% of the children, who had experienced three seizures, 30% experienced one seizure, while 24% had suffered more than three seizures. Most (47%) of the children have experienced their initial attack of febrile convolution between the age of 1 to 2 years, 24% were aged below 1 year, and 29% were aged between 3 and 5 years.

Most (68%) of the mothers believed that the cause of febrile convulsions was related to the fever episode and child’s age, while 14% believed it was due to inheritance, 16% believed it was due to some supernatural spirit and 5% of them believed it was due to abnormal conduction in the brain.

Regarding the mothers practices at the time of seizures, 56% have answered no to no response and 44% have answered to yes. 11% of mothers restrained their convulsing child while 89% didn’t; 34% of the mothers practiced shaking and rousing their convulsing child while 66% didn’t. Only 6% of the mothers placed their child on his/her side, 94% didn’t. Most (91%), of the mothers didn’t remain calm during their child’s seizure, while 9% of the mothers did. None of the mothers performed mouth to mouth resuscitation for their convulsing child although 59% of the mothers thought that their child was dying during the convulsion.

About 50% of the mothers attempted to lower the child’s temperature, either by giving medication (38%) or placing child in tub (48%) or other measures (14%). On the other hand the majority (73%) of mothers rushed their child to the doctor.

There were 59% mothers who knew that febrile convulsions were not the same as epilepsy; 20% thought that it was epilepsy, while 21% of them gave no response.

Regarding immunization, 50% of the mothers thought it was safe for a child with febrile convulsions to receive immunization according to schedule; 14% responded negatively, and 36% didn’t know the answer.

With regard to investigations, 39% of the mothers thought that an EEG or CT scan is necessary for every child with febrile convulsions; 37% disagreed while 24% of the mothers gave no answer.

There were 55% of mothers who scored poor on the knowledge scale; 43% scored average and 2% of the mothers had good knowledge.

Most (62%) of the mothers believed that febrile convulsions can be outgrown, while the rest of them believed otherwise. Mothers who scored poor on the attitude scale comprised 26%; 49% scored average and 25% of them had good attitude.

There were 56% of mothers who felt confident about giving their children rectal diazepam at home, while the remainder (44%) were not sure; 66% of mothers agreed that they would administer rectal diazepam by themselves if trained while the remaining 34% thought that it is best given by someone else. When mothers were asked if they would prefer to use the new nasal Midazolam or the rectal diazepam at home; 69% preferred to use the rectal diazepam and the remaining 31% didn’t mind to give midazolam a trial.

In 56% of mother’s, information was based on what their friends / relatives had told them; 15% of them had identified the television as their main source of information. Those who had chosen the internet, magazines or school-university were 3%, 2% and 6.5%, respectively; 10% of the mothers interviewed had never heard of febrile convolution before their child has experienced it. Most (90%) mothers did not mind sharing information with other mothers and none of them ever received written handouts on convulsions after discharge from hospital.
When the knowledge score is compared to age, mothers with the poorest knowledge score were in the age range of 21-29 years (n=48), followed by age groups 30-39 years (n=28), age group 40 years & above (n=22); while the lowest being the age group of less than 20 years (n=12). Thirty mothers who scored average in the knowledge domain were within the age group of 21-29 years. The relation between mothers’ age and knowledge was found to be insignificant (P value 0.138, see Table 1).

Table 1: Cross tabulation of age group Vs knowledge score.

<table>
<thead>
<tr>
<th>Knowledge score</th>
<th>Poor</th>
<th>Intermediate</th>
<th>Good</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>12</td>
<td>18</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>21-29</td>
<td>48</td>
<td>30</td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>30-39</td>
<td>28</td>
<td>24</td>
<td>2</td>
<td>54</td>
</tr>
<tr>
<td>40 &amp; above</td>
<td>22</td>
<td>14</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>86</td>
<td>4</td>
<td>200</td>
</tr>
</tbody>
</table>

P value 0.138

When age and attitude are compared, those with the poorest attitude were in the age group of 21-29 years (n=14) as well as 40 & above (n=14), and the lowest being the age groups of 30-39 years and less than 20 years; represented equally by 12 mothers each. Most of the mothers (n=46) who scored average attitude were within the range of 21-29 years also. Followed by the age groups of 30-39 years, below 20 years and 40& above; representing 26, 14 and 12 mothers, respectively.

Table 2: Cross tabulation of age group Vs attitude score.

<table>
<thead>
<tr>
<th>Attitude score</th>
<th>Poor</th>
<th>Intermediate</th>
<th>Good</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>12</td>
<td>14</td>
<td>4</td>
<td>30</td>
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<td>46</td>
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<td>78</td>
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<tr>
<td>30-39</td>
<td>12</td>
<td>26</td>
<td>16</td>
<td>54</td>
</tr>
<tr>
<td>40 &amp; above</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>98</td>
<td>50</td>
<td>200</td>
</tr>
</tbody>
</table>

P value 0.042.

When educational level is compared with knowledge score, there were 50 mothers with the poorest knowledge who were illiterate. Mothers, who were at primary school level and secondary school level, represented 28 and 26 mothers, respectively; six of the mothers who scored poor knowledge were university graduates. The majority of mothers who scored average knowledge were at primary school level (n=36) and university graduates (n=28). They were followed by the illiterate (n=18) and those who reached secondary school (n=4). A few were rated good knowledge and they were of secondary school level and university graduates; of an equal number of 2 mothers for each. The relation between knowledge score and educational level was found to be significant (P <0.000, see Table 3).
When comparing the educational level with the attitude of mothers, those with the poorest attitude were either illiterate (n=22) or had attained secondary school level (n=24). The lowest were secondary school and university graduates, representing 4 and 2 mothers, respectively. The majority (n=44) of mothers who scored average in attitude were illiterate. This was followed by primary school, secondary school and university graduates; represented by 26, 18 and 10 mothers, respectively.

The university graduates (n=24 mothers) were the highest amongst the mothers to score good attitude. Followed by primary school, secondary school and illiterate; representing 14, 10 and 2 mothers, respectively. This relation between attitude score and educational level was found to be significant. (P < 0.000)

Discussion

Febrile convulsions are the most common symptomatic seizure disorder in childhood. For the uninformed and inexperienced mother witnessing her child throwing a fit may be a frightening experience. In this study, not surprisingly, more than half of the mothers thought that their child was dying during the convulsion.

In those mothers who had seen a convulsion in their child previously, recurrence did have a negative impact on the mind and physical health of the parent. After the acute episode, recurrence and epilepsy were the major parental concerns. Results showed that a significant proportion of the mothers knew that FC isn’t epilepsy; believed epilepsy may develop and believed that anticonvulsants were necessary.

About 10% of the mothers were unaware of the entity of febrile convulsions; most of them were from the rural areas. This is much lower than the percentages quoted in studies from other developing countries (11, 14). Of the ones who knew, 57% regarded their friends/relatives as a main source of information. It is also distressing to note that many mothers were not aware of the immediate measures that can be taken for prevention of convulsions or their complications.

In this study more than two thirds of the mothers believed that the cause of febrile convulsions was related to fever. This is different from the result of the study done in India using a prospective questionnaire based study in a tertiary care centre where only 22.1% knew the fact that the convulsion can occur due to fever. (10)

A small percentage (14%) of mothers in this study attributed the cause of fever to supernatural spirits; this is different from a Nigerian study where 75% of mothers from rural community attributed the cause to evil spirits (15).

In a recent Libyan study, most of the mothers who witnessed the febrile convolution had rushed the child to the hospital; this is similar to our result where 73% of the mothers rushed their child to the doctor. (16)

Talking to mothers about the disorder, explaining to them the relation between fever and convulsion, allaying their fears and anxieties and addressing their concerns about recurrence is an essential part of the management. But, more needs to be done. There is also a need for additional skills for mothers to be trained on. This empowerment, by itself may make the mothers feel more confident and undertake appropriate measures like tepid sponging and administering an anti-pyretic agent when a child has fever.

Table 3: Cross tabulation of educational level Vs knowledge score.

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Poor</th>
<th>Intermediate</th>
<th>Good</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>50</td>
<td>18</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>28</td>
<td>36</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>26</td>
<td>4</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>University graduate</td>
<td>6</td>
<td>28</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>110</td>
<td>86</td>
<td>4</td>
<td>200</td>
</tr>
</tbody>
</table>

P value 0.042.
Certainly, more effort will be required if mothers are expected to abort the convulsion or protect the child after a convulsion occurs. At least, they should position the child properly as the vast majority of the mothers in this study didn’t know the lifesaving procedures. The mere importance of maintaining an adequate breathing should be explained to the mothers, as 94% were unaware of this. Mothers will require much more support and training if they are to administer diazepam per rectally, as 79% don’t do so at home.

Huang et al studied the effects of an educational Programme on knowledge, attitude, concern, and first-aid measures among parents with febrile convulsive children. After education, although only a slight change in fever anxiety was found, the experimental group showed significant improvement in knowledge, attitude, concerns, and anticipatory practice of febrile convulsion compared with the control group (17).

Parents receive information about diet, nutrition, immunization, care of common illnesses, prevention of accidents and poisoning from their pediatricians and family physicians. Would the additional information about febrile convulsion overburden the parents with information or be retained by the parents? Wassmer and Hanlon have shown in their study that such information is retained very well by the parents (18). Hence, simple techniques of measurement of body temperature and treatment of fever should be told to the parents as a part of “parent-craft” teaching during the opportunities of health contacts for immunization, nutritional advice and growth monitoring.

**Conclusion**

In conclusion, we found that mothers whose children were admitted to hospital several times with FC, still lacked adequate knowledge regarding FC; they had concerns regarding the child’s health; and they were not conducting optimum first-aid practices. We also noted that although these mothers had more information and better practice, yet they had increasing concerns and still tended to believe in folk medicine. Therefore, doctors and health care providers should spend more time educating and training parents on home management of febrile convulsions including administration of rectal diazepam. Needless to mention, simple written handout instructions on how to reduce the temperature of a febrile child and manage a convulsing child will not only be beneficial to the child but also comforting to the parents.

**Acknowledgement**

The authors express their sincere appreciation to the administration and staff of the three hospitals mentioned above for giving their co-operation. Thanks are also extended to the mothers who participated willingly in the study.

**References**


