

Parental Reactions to Febrile Seizures in Malaysian Children

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Summary

The reactions of 117 parents to the febrile seizure experienced by their children; and their fears and worries were investigated. A standard questionnaire was used and clinical information was abstracted from the notes. In 88.9% of the cases, the adult present at the seizure was one of the parents usually the mother. Most of the parents (66.7%) did tepid sponging to bring the fever down but a third tried to open the clenched teeth of the child. The adults present placed the child supine in 62.9%, on the side in 9.5% and prone in 6.0%. Over half of the parents brought the child to a private clinic first before bringing to hospital. A fifth of the children were given antipyretics by the parent or the doctor and an anticonvulsant was given in 7.7% of cases. Interestingly, in 12% of children traditional treatment was given for the seizure.

Three quarters of the parents knew that the febrile seizure was caused by high fever (which we have taken as the correct knowledge of febrile seizure). However "ghosts" and "spirits" were blamed as the cause of the seizure by 7% of parents. Factors significantly associated with correct knowledge were higher parental education and higher family income. The most common fear expressed was that the child might be dead or might die from the seizure (70.9%). Fear of death was associated with low paternal education. We concluded that the majority of our parents had reacted appropriately to a febrile seizure and their knowledge of the cause of febrile seizure was generally correct. Their fears and worries were similar to those elsewhere. However, traditional beliefs and practices may have to be taken into consideration during counselling.

Key Words: Febrile seizure, Parental fears

Introduction

A febrile seizure is an alarming event in the lives of both parents and child. The parents are frequently fearful and panic stricken^{1,3} and they not surprisingly think that their child may be dying or might die as a result of the seizure as shown by studies in the United Kingdom^{1,2}, Denmark³, and Japan⁴. The initial actions of parents have been shown to be usually inappropriate, for example opening the clenched teeth of a seizing child¹. Only 16% of parents in one study did the appropriate thing in lying the child on the side¹.

Malaysia is a multi-racial country with the main ethnic groups Malays, Chinese and Indians and hence it would be interesting to study the reactions, fears and knowledge of Malaysian parents with regard to febrile seizures in their children.

We also wanted to study the factors that may have influenced the parents' fear of death in their child and their knowledge about febrile seizures. The factors that we were interested in were racial background, parental education, family income and past history of febrile seizure in the child.

Methodology

This was a prospective study in which the parents of consecutive children admitted for febrile seizure in the paediatric wards of Universiti Kebangsaan Malaysia were interviewed using a standard questionnaire. This study was conducted over nine months.

A febrile seizure was defined as a seizure which occurred with a fever in a child aged more than one month old and up to 12 years old. The seizure might be generalised or focal, single or recurrent and of any duration. There should not be evidence of any intracranial infection. Fever was deemed to be present based on parents' history or documented temperature. Children with previous history of afebrile seizures or who had neurological or developmental impairment were excluded.

We decided to include children outside the usual age range of six months to six years because children outside this range have been known to have febrile seizures. Ouelette⁵ in her review stated that one to two per cent of febrile seizures occurred in children below six months of age and one to six per cent were in those above five years old. Nelson and Ellenberg in their study included children aged from one month to seven years^{6,7}.

We excluded children with neonatal seizures from our study. Our upper age limit was 12 years as that was the upper age limit for all admissions to the paediatric wards.

We did not specify any particular height of fever or rate of rise of temperature as most of the seizures would occur at home where a thermometer was usually unavailable and parents in their panic and anxiety would not have taken the temperature anyway. Parents' history of fever was reliable.

Data collection was by interview of parents using a standard questionnaire and abstracting clinical information from ward notes. The interviews were all performed by the first author. If the mother was present she was the preferred parent to be interviewed as the mother was usually the one who knew the child better and was almost always the parent who stayed

with the child in the ward. If the mother was unavailable, the father was interviewed in a very small number of patients. The interview was conducted on the first day after admission or at the latest the second day after admission.

Statistical analysis was performed on an IBM PC compatible personal computer. Chi-square test or Fisher's exact test were done using a statistical analysis software package SASv6. A p value of less than 0.05 was considered significant.

Results

There were 117 children recruited into the study. The majority of the patients were Malays (62.4%), followed by Indians (26.5%), Chinese (8.5%) and Others (2.6%).

All of the fathers except one were gainfully employed. However, 79 out of 117 mothers were housewives.

Mothers were the most likely adult to be present at the time of the seizure in 104 (88.9%) of the children (Table I). Next were the fathers (45.3%), the grandparents (18.8%), siblings (10.3%), relatives (16.2%) and finally the childminders (2.6%). Among the "others" category were a mixture of friends, neighbours and doctors.

At the time of the seizure most of the parents (66.7%) sponged the child with tap water to try to bring the fever down, while 41.9% of adults held on to the child and 17.9% tried to shake the child out of the

Table I
Persons present at febrile seizure

Person	Number (%)
Mother	104 (88.9)
Father	53 (45.3)
Grandparent	22 (18.8)
Relative	19 (16.2)
Sibling	12 (10.3)
Child Minder	3 (2.6)

seizure. In 44 (37.6%) children, the adult present tried to open the mouth with either the fingers or a spoon (Table II).

In 73 (62.9%) of the cases, the child was put in a supine position during the seizure; 11 (9.5%) were put on the side and only seven (6.0%) were in a prone position. In the rest of the patients their posture during the seizure was uncertain.

The adults present then sought some form of medical help whether conventional or traditional. Sixty-seven (57.3%) of them brought the child to a private clinic first before bringing the child to the hospital; while 50 (42.7%) of them brought the child straight to the hospital's Accident & Emergency Department. A small percentage (3.4%) of parents (all Malays) brought their children to *bomohs* who were traditional medicine practitioners.

Table II
Parental actions during febrile seizure

Action	Number (%)
Sponge with water	78 (66.7)
Hold onto child	49 (41.9)
Tried to open mouth of child	44 (37.6)
Shake the child	21 (17.9)

Table III
Parental knowledge of febrile seizures
(causes of febrile seizures)

Parents' Answer	Number (%)
Fever	92 (78.6)
Others	10 (8.5)
- hereditary	3
- poor health	2
- poor nutrition	2
- lack of water	1
- wrong medicine	1
- eating the "wrong food"	1
Don't know	10 (8.5)
"Spirits"/"ghosts"	7 (7.0)

Various types of medicines were also given to these children. An antipyretic was given either by the parents or by the doctor in 24 (20.5%) children. In nine (7.7%) children, an anticonvulsant was given by the doctor. Traditional medicine was given in 14 (12.0%) children to treat the seizure and in 11 children (9.4%) traditional medicine was used to treat the fever. These traditional medicines were either home remedies or medicines bought from the *bomohs* or *sinsehs* (practitioners of traditional or herbal medicine).

We asked parents what they thought could be the cause of their child's febrile seizure. Most of them gave a single answer but some gave two or three answers (Table III). In 92 (78.6%) parents, they answered that the seizure was caused by fever. There were a small number (6.0%) who believed that it was caused by "spirits" or "ghosts". In the "Others" category were a variety of replies including "weak health", "poor nutrition", thirst, lack of proper care, eating the "wrong food" and taking the "wrong medicine". Three parents replied that inheritance may be important in febrile seizures. Ten parents (8.5%) had no idea at all about what caused febrile seizures (Table III).

More than half of the parents (59.0%) mentioned friends as one of their main sources of information on febrile seizures. Relatives were the next most common source of information in 47.0% of parents. The other sources of information were television (23.9%), newspapers (24.8%), magazines (25.6%), radio (17.1%) and books (13.7%). Medical personnel provided information on febrile seizures in 25.6% of parents. Interestingly 11 (9.4%) parents said that traditional medical practitioners gave them advice on febrile seizures (Table IV).

Most of our parents, 77.8% of mothers and 79.5% of fathers had secondary or tertiary education which were classified as higher education. Primary or no education were considered as lower education. The education history of four fathers were not known at the time of the study.

Parents who thought that febrile seizures were caused by fever were accepted as having the correct knowledge. Correct knowledge of febrile seizures was associated with higher maternal education, higher

paternal education and higher family income (\geq RM500.00 per month) (Table V). Parents whose child had a past history of febrile seizure were more likely to have incorrect knowledge (Table V).

Parents' fears were explored by first asking them an open question regarding what fears and worries they

had and then specifically whether they were afraid that their child might die or be dying as a result of the febrile seizure. This fear was found in 83 (70.9%) parents. Fifty-two (35.9%) parents were also worried that the child might be paralysed or might suffer some form of physical handicap later in life. Fears of mental retardation were found in 49 (41.9%) of parents. Other responses were fears of the child lapsing into coma, fears of recurrence and tetanus, non-specific fears and fear of being unable to control the seizure.

Fathers with lower education level were significantly associated with this fear of death in the convulsing child (Table VI). The other factors examined; race, mothers' education, family income and past history of seizure in the child, did not show significant association with this fear.

Discussion

A febrile seizure is usually a very alarming experience especially if parents are witnessing it for the first time¹⁻³. The majority of parents in our study tepid sponged the child to try to bring down the fever. Though tepid sponging may not be recommended⁸, this is what is usually taught to parents by doctors and is at least not causing any harm to the child. Most of the parents

Table IV
Parents' sources of information on febrile seizures

Source	Number (%)
Friends	69 (59.0)
Relatives	55 (47.0)
Medical professionals	30 (25.6)
Magazines	30 (25.6)
Newspapers	29 (24.8)
Television	28 (23.9)
Radio	20 (17.1)
Books	16 (13.7)
Traditional practitioners	11 (9.4)

Table V
Factors associated with correct parental knowledge of febrile seizures

Factor	Prevalence of factor		p value
	Correct knowledge(%) n = 92	Incorrect knowledge(%) n = 25	
Malay race	66.3	48.0	0.094
Higher maternal education@	83.7	56.0	0.003
Higher paternal education@ #	86.5	66.7	0.024
Higher monthly family income \geq RM 500.00	69.6	32.0	0.001
Past history of febrile seizure in child	11.9	36.0	0.013

@ secondary or tertiary education

The statistical calculation was based on education level of only 89 fathers in the correct knowledge category and of only 24 fathers in the incorrect knowledge category

Table VI
Factors associated with parents' fear of child dying during a febrile seizure

Factor	Prevalence of factor Fear of child dying		p value
	Yes (%) n = 83	No (%) n = 34	
Malay race	65.1	55.9	0.352
Lower maternal education@	25.3	14.7	0.211
Lower paternal education@ #	22.8	5.9	0.031
Lower monthly family income < RM 500.00	36.1	44.1	0.421
Past history of febrile seizure in child	20.4	8.8	0.128

@ Primary or no education

Statistical calculation was based on the education level of only 79 fathers in the correct knowledge category and of only - 34 fathers in the incorrect knowledge category

in the study did not have rectal diazepam at home. Some parents held on to their convulsing child. This action may protect the child from being hurt during the seizure. In Balslev's study³, 64% of the parents acted appropriately during the febrile seizure.

The inappropriate actions of parents in our study included using their fingers or other objects to prise open the child's clenched teeth. This may result in broken teeth and the subsequent risk of aspiration into the airways. Furthermore, the majority of our parents left the convulsing child in supine position increasing the risk of aspiration. In comparison, in Baumer *et al's* study², 14 out of 50 parents took inappropriate actions. Similar to our parents, some of the parents in their study put objects in the convulsing child's mouth. The other actions that the parents in Baumer's study did, which were not found in our parents, were mouth to mouth resuscitation, hitting or massaging the child's back, pouring water into the mouth and holding the child upright or upside down².

In another study of 89 children with febrile seizures by Rutter and Metcalfe¹, the parents were noted to be fearful and in panic. Twelve parents tried to prise open the clenched teeth of the convulsing child.

In Balslev's³ study in Denmark, the convulsing child was shaken vigorously in 15% of cases. Twenty-two (17.9%) of our parents also shook the child during the seizure.

In nearly 90% of the children in our study, the mother was present at the time of the seizure, as many of our mothers were housewives and thus would be the one at home taking care of the children. Rutter and Metcalfe's study also showed similar findings¹. In our study, the father was present in about 45% of the case. This information is important to us as we know that we need to teach our parents particularly the mothers how to handle a child who convulses because of fever.

More parents took their child to a private clinic first rather than straight to the hospital. This was probably because the private general practitioners' clinics are ubiquitous and it would be nearer and faster. A small but significant percentage took their child to a *bomoh* (Malay traditional medicine practitioner). This could be because of the belief that the seizures were caused by "spirits".

Most parents obtained information on febrile seizures from friends and relatives and only a quarter of parents

obtained their information from the mass media. This is similar to Balslev's study where 50% of his parents obtained their information on febrile seizures from friends or relatives.

With regard to knowledge of febrile seizure, our parents in general have the right knowledge and knew that febrile seizures are due to fever. It was expected that the parents who had higher education would be better informed about diseases and medical problems. Hence, they would be more likely to know more about febrile seizures than those less well educated. Parents with higher family income were also more likely to have the correct knowledge.

It was most surprising that the parents of those children who had a previous febrile seizure were more likely to have incorrect knowledge. We would have expected those who have children with past history of febrile seizures to have made efforts to find out the cause of the seizures.

Parental worries about febrile seizures were very understandable as they had just witnessed a very frightening and alarming event in their child¹³. Of 117 parents interviewed, 83 of them (70.9%) said that they were afraid their child might be dead or dying as a result of the seizure. This finding is similar to that of Baumer *et al*² who found that 35 (70%) out of 50 parents questioned thought that their child was likely to die or was dying or dead. Rutter and Metcalfe¹ found that the parents in their study were frightened and bewildered and 30% of them thought their child was dead or dying. They had a lower figure than those of our study and Baumer² *et al* because Rutter and Metcalfe¹ used an open ended question instead of direct questioning. Hence, in their study, some parents might have concealed their fears. In Balslev's³ study, 54% of his parents volunteered this fear and another 34% revealed this fear when specifically asked about

it. In a Japanese study⁴, 44.5% of the parents volunteered this fear. It would appear that parents, whatever their cultural or ethnic background, share this fear that their convulsing child might die.

The other fears our parents had were fears of mental retardation in 42% and paralysis/physical handicap in 35.9%. These fears are out of proportion to what we know from published studies on the generally good outcome in febrile seizures⁹⁻¹². When we looked at which parents would be likely to worry about death in their child we found one factor, fathers who have less education. We were not able to show a significant association between mothers' education level and worry of death.

In conclusion, we have found that our parents generally acted appropriately when faced with a convulsing child and that the majority of our parents have the correct knowledge regarding febrile seizures. It is interesting that a small proportion of parents thought that the febrile seizures were due to "spirits" and some of them brought their child to a traditional medicine practitioner. A large proportion of our parents share with parents elsewhere¹⁻⁴ the fear that their convulsing child might die. We need to educate our parents regarding the correct way to handle a convulsing child and the use of rectal diazepam to abort the seizure⁸. We also need to warn them against certain wrong practices. Our target group would be our mothers as they were frequently present at the seizure. We also need to allay their fears about febrile seizures and reassure them of the good prognosis⁹⁻¹².

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