Paediatrica Indonesiana

VOLUME 48 July • 2008 NUMBER 4

Original Article

Knowledge, attitude, and practices of parents with children of first time and recurrent febrile seizures

Willy Gunawan, Komang Kari, Soetjiningsih

Abstract

Background Febrile seizure is a condition of emotionally traumatize for most parents. It is believed that parents whose children experienced febrile seizures before, have a better knowledge, attitude, and practices (KAP) in responding to the seizure. Hence the fear and emotional disruption that febrile seizures can cause in the family, prevention should be addresses.

Objective To find if there was any differences in KAP of parents of children with recurrent febrile seizures compares to parents with children of first time febrile seizures.

Methods A cross sectional study was conducted on parents who have children aged between 6 months to 5 years old with either simple febrile seizures, complex febrile seizures or recurrent febrile seizures admitted to Pediatric Neurology Clinic of Sanglah Hospital. Subjects were selected consecutively and were grouped into group of parents with children of first time seizures and parents with children of recurrent febrile seizures group.

Results Based from summated rated method, it seemed that parents of children with recurrent febrile seizures have higher KAP of febrile seizures and was statistically different ($\lambda=0.000$; $P<0.001$). Analysis of covariance (ancova) showed that education ($P=0.013$) had an influence in the KAP of the parents. Other ancova revealed that children's age and sex have significant influence.

Conclusion The KAP of parents with children of recurrent febrile seizures are higher and have statistically different compared with parents of children with first time febrile seizures. **[Paediatr Indones 2008;48:193-8]**.

Keywords*: knowledge, attitude, practices, simple febrile seizures, complex febrile seizures, recurrent febrile seizures*

Febrile seizure is a seizure attack that occurs during body temperature rise (rectal temperature > 38°C) due to an extracranial process.[1] The prevalence of febrile seizure is between 3-8% in children up to seven years of age.[2] The incidence of febrile seizures for population in other countries varies, e.g. between 6–9% in Japan, 5–10% in India and 14% in Guam.[3] In general population 3–4% children will have febrile seizures and the peak of age is 18 to 22 months.[4]

For most of parents, febrile seizure is emotionally traumatic condition and they thought that their children are dying during the seizure attack. This family may have changes in behavioral and daily activities with a settle sense of fear to fever and febrile seizures itself.[5] There is probably nothing more terrifying for parents than to see their child experiencing febrile seizures. This frightening event is magnified by an incorrect parental beliefs that seizures will cause choking, brain damage, mental retardation, learning disorders or epilepsy.[6] Parents with previous knowledge of febrile seizures took more precise action and

From the Department of Child Health, Medical School, Udayana University, Sanglah Hospital, Bali, Indonesia.

Request reprint to: Willy Gunawan, MD, Department of Child Health, Medical School, Udayana University, Sanglah Hospital, Jl. Pulau Nias, Denpasar, Bali, Indonesia. Tel. 62-361-24403. Fax. 62-361-244034.

perceptive attitude.[7] Prevention of recurrence febrile seizures should be addressed, since it cause fear and emotionally disruption in the family. Also if the recurrences are frequently more than 15 minutes, it may cause brain damage and epilepsy in the future time.[6]

The aim of this study was to know if there was any difference of knowledge, attitude and practice between parents of children with first time febrile seizure episode and parents of children with recurrent febrile seizures.

Methods

Performed a preliminary study to determine the knowledge, attitude, and practices (KAP) of febrile seizures in 45 parents who had children with history of febrile seizures. Parents were given questionnaire about KAP of febrile seizures to fill in. In order to find the validity and reliability of this questionnaire, a summated rating method was used; hence, the outcome will be more precise and stable in scaling the score. Having a valid and reliable standard questionnaire for febrile seizures, a validity and reliability test using a computerized internal consistency method was conducted. This preliminary study was to find a mean (X) and standard deviation (SD) of this study as well.

The next step was conducting a cross sectional study in Pediatric Neurology Division, Department of Child Health, Sanglah Hospital from June 2007 until August 2007. The study protocol was approved by the local Committee for Research Ethics, Medical Faculty, Udayana University Denpasar. Written informed consent was obtained from parents.

We defined first attack of febrile seizure as seizure attack in children aged between six months to five years old with no previous febrile seizure; the group of parents with children who had first attack of febrile children was called Group A. Recurrent febrile seizure was defined as seizure attack in children aged six moths to five years old with a history of febrile seizures; the parents with these children was called Group B. We excluded parents who have children with history of febrile seizures with electrolyte or metabolic imbalance and children with febrile seizures on prophylactic anticonvulsants.

Subjects were selected consecutively until number of subjects was fulfilled. The sample size needed for each group of study was 31 ($\alpha = 0.05$, power = 80%). The preliminary results are presented text and tables. Analysis of covariance (ancova) was performed to find the contribution, relation and interaction of each dependent variable. The level of significance was set at $P<0.05$.

Results

A total of 45 parents who had children with history of febrile seizures participated in a preliminary study; this consisted of 33 questions regarding febrile seizures KAP. The score were recounted using a summated rating method to get more precise and stable answers in the questionnaire scaling, followed by conducting a computerized internal consistency method to find a standardized valid and reliable febrile seizures questionnaire. Item analysis showed the reliability and validity for knowledge (12 items), attitude (10 items), and practices (11 items) were 0.8214 and 0.5638, 0.6383 and 0.3805, and 0.6269 and 0.3899, respectively.

Classification of KAP variables and the total score was resulted from mean and standard deviation calculation based from normal curve categorization. The results are depicted in **Table 1**.

Table 1. Variable classification results of KAP of parents to febrile seizures

Variable	Classification		
	Good	Fair	Low
Knowledge	6.72 – 10.12	3.14 – 6.71	0 – 3.13
Attitude	19.81 – 24.41	14.20 – 19.8	0 – 14.19
Practices	21.49 – 25.9	17.10 – 21.48	0 – 17.00
Total score of KAP, Group A	45.70 – 55.00	36.2 – 45.60	0 – 36.10
Total scores of KAP, Group B	47.6 – 59.10	35.9 – 47.50	0 – 35.80

During the study period there were 73 children with febrile seizures. From that number, 62 children fulfilled the inclusion criteria, 11 children were excluded due to febrile seizures with electrolyte imbalance (3 children), febrile seizures with metabolic imbalance (1 child) and under treatment of either short term or long term anti convulsion medication (7 children).

The number of boys who experienced febrile seizures were almost equal in first time febrile seizures group (Group A, i.e. 20 = 65%) and recurrent febrile seizures group (Group B, i.e., 19 = 61%). Mean (X) age of children was 30.8 months in Group A and 33.3 months in Group B. The characteristics of children in both groups are shown in **Table 2**.

From a total of 62 parents in this study revealed that 38 parents (61%) from both subject of population claimed to know how to use a thermometer the right way, however only 31 parents (50%) provided it in their home.

Parents of Group A claimed that 9 (29%) and 8 (26%) of them have had information of febrile seizures that mainly addressed by medical doctor and from family or neighbors respectively, while parents of Group B said that 12 of them (39%) have had information from medical doctor as well and from paramedic staffs (22.5%).

Based from summated rating method calculation for total score, knowledge, attitude and practice, parents in Group A had a total score of 40.9 while of parents in Group B the total score was 41.7 (P=0.57; 95%CI 3.47;1.92). No significant difference was found when the scores were broken into knowledge, attitude, and practice. See **Table 3**.

However, when the total score was categorized into 3 grade (good, fair and bad), the resul was statistically significant. See **Table 4**.

However, when analyzed separately according to knowledge, attitude, and practices, there are neither clinical nor statistical difference between Group A and Group B (data not shown).

Table 4. Calculation results for total score of KAP in Group A and Group B using Method of Summated Rating

	Group A (n=31)	Group B (n=31)
Good	1	7
Fair	28	20
Low	2	4

Significant difference $\lambda = 0.000$; df = 2; P<0.001

Table 2. Characteristics of children in Group A and Group B

Characteristic	Group A (n = 31)	Group B (n=31)
Gender		
Male	20 (65%)	19 (61%)
Age (months), mean (SD)	30.8 (6)	33.2 (6)
Age of first episode of febrile seizures		
6 - 12 months	9 (29%)	17 (55%)
13 - 23 months	13 (42%)	11 (35%)
24 – 59 months	9 (30%)	3 (10%)
Number of children in family)		
1	18 (58%)	14 (45%)
2	5 (16%)	11 (36%)
>3	8 (28%)	6 (20%)
Parents education		
Elementary	3 (10%)	3 (10%)
Junior High School	8 (26%)	8 (26%)
Senior High School or more	20 (58%)	20 (45%)
Mean Income Parents (Rp)/month	1,480,526	1,121,250

Table 3. Result of summated rating calculation for total score of KAP of parents in Group A and Group B

Variable	Group A	Group B	Difference	P	Mean 95%CI
Total Score	40.9	41.7	-0.77	0.57	-3.47; 1.92
Knowledge	2.1	1.97	0.13	0.40	-0.17; 0.43
Attitude	1.97	2.06	-0.97	0.52	-0.39; 0.20
Practices	1.90	1.94	-0.32	0.83	-0.33; 0.26

Factors like education, religion, ethnic and media that influenced KAP were analyze with ancova method. Apparently it was only education which have influenced to KAP. On the other covariate analysis revealed that age and sex have influenced as well to KAP as seen in **Table 5**.

Discussion

Our data support the hypothesis that KAP of parents of children with recurrent febrile seizures which was measured by summated rating method was higher than parents of children with first time febrile seizures. Several aspect have already been discussed in relation with parental reaction and anxiety regarding febrile seizures however particular reference that discuss specifically of parental KAP to febrile seizures was just written by Palmar *et al*[8] but he did not compare both parents population like this study did.

In this study boys who experienced febrile seizures were 69 (63%).This predominance may be explained that boys (males) are predisposed to infection for in males have an XY chromosome and in general condition X chromosome is strongly related to the production of immunoglobulin.[9] Mean age of first episode of febrile seizures was 30.8 (SD 5.6) and this was due to brain immaturity, Ca+ and Na+ channels which mediate of neuronal excitation is developed relatively early and excitatory synapses tend to form before inhibitory synapses.[10] In this study 12 (39%) parents of children with first time febrile seizures, the immediate reaction being done when febrile seizures occurred was administering of antipyretic suppository while with the same number of parents of children with recurrent febrile seizures administered anticonvulsion suppository. Even if more than half of the parents (77% = 47 parents) do realize that febrile condition may cause febrile seizures. Information of febrile seizures of 29 parents (47%) were from health personals (doctor, nurses or paramedic) and 5 parents (8%) from their neighbors or close friends.

Study result by Palmar *et al*[8] revealed that from 140 children there were 77 (55%) boys experienced febrile seizures, mean age was 27.6 months. Ninety-one percent of parents did not take any action right after febrile seizures episode in their children, 3 (2.1%) parents were shaking their child while 6 (4.3%) other parents closed their children mouth forcefully or even rubbing red onion in their nostrils and 109 (77.9%) parents did not know that febrile condition may cause febrile seizures episode. The same study showed that from 31 parents who were aware of febrile seizures that particular information in 8 (25.8%) parents knew from their neighbors and 6 (19.4%) parents from health personals.

In another study conducted in Malaysia from 117 parents 66.7% (78 parents) did a tepid sponge bath to lower down the fever, 33% were trying to open their children mouth while seizures episode was occurred and 75% parents do know that febrile seizures may be due to high grade fever.[11] Theoretically we expected that KAP of parents of children with recurrent febrile seizures should be more correct, better and more precise since they already have experienced before to deal with febrile seizure, however, in this study parents of children with recurrent febrile seizure have better and more precise attitude. Unfortunately up to this present time there is no study in other places conducted a direct comparison on both population of parents like this study did. In this study 38 (61.3%) parents have a correct knowledge how to use thermometer however only 31 (50%) parents provide it in their home. While in study by Palmar *et al*[8] 85% (119 parents) did not provide thermometer in their home and only 15% did provide the thermometer, 5 (23.8%) parents did not know how to use it correctly. This study also showed that 50 (80%) parents immediate action right after

Table 5. Result of Ancova analysis which influenced of parents KAP to febrile seizures

Variable	DF	Meansquare	*f*	P
Age	1	136.984	7.552	0.010
Education	1	125.470	6.918	0.013
Gender	1	76.575	4.222	0.049
Income	1	3.062	0.169	0.684
Information Media	1	5.398	0.298	0.589
Religion	1	1.374	0.076	0.785
Ethics	1	7.140	0.394	0.535
Seizures episode	1	0.157	0.009	0.926

febrile seizures episode occurred was brought their children to hospital or emergency department while 60 (42%) parents in India took this same action, however more than 50% parents in Malaysia took their children to private clinic right after the episode.[11]

For parents who watched this febrile seizures episode before by themselves, a recurrence of episodes give them a negative insight and affected their physical health status. After this acute episode the main worries of parents is the recurrence itself and epilepsy.[8]

Higher education and income are an obvious factors that influenced a precise knowledge in the management of febrile seizures,[11] while in this study good knowledge of febrile seizures was more on parents of children with recurrence than the first time (23% vs 3%) and 20 (65%) parents have fair knowledge of febrile seizures on both study population. On both population of study most of the parents are senior high school (52%) and their knowledge while dealing with febrile seizures were fair (37%) and 8% of them are good.

From 62 parents in this study severe anxious was found in 4 (7%) parents, anxious was found in 17 (27%) parents, some anxious was found in 17 (27%) parents and 10 (16%) parents were not anxious, while study by Tanja[12] on 134 parents who faced first time febrile seizures showed that 92 (69%) parents felt severe anxious, 29 (22%) parents felt some anxious and 4 (3%) parents were not anxious. Apparently a strong level of anxiety are closely related with knowledge of febrile seizures (79%) and low education status (95%). The differences on both study above are influenced by their different of population, place of study, back ground of education, social and even culture setting as well. In this study 57% parents who had severe anxious and anxious more on them who did not know about febrile seizures with 55% have an elementary and junior high school education back ground. Both study results as discussed above revealed an opposite point of view with medical doctor who think that in general febrile seizures is a common and harmless condition.[8] This opposite perception might be due to lack of communication, ineffective to address information and appropriate instruction for parents. In one hand a strong wish to be informed about the examination result from doctor in a 83% parents and in the other hand a demand for more written or verbal information in a 33% parents, indicate the intense interest of concerned parents what is happening and facing presently.[12] Although better information has been provided in the last years, socio-economic and educational levels have increased the level of anxiety due to febrile seizures appears to have remained constant at a very high level.[12,13] In this study level of anxiety can be reflected that 38 (62%) parents keep awake or watch over or even 24 (38.2%) parents sleep on their children side. Other study showed that 24% parents sleep in the same room and 13% of them were stay awake during the whole night,[13] while in Bolslev[14] study revealed 60% parents did not sleep well, 13% parents stay awake and 29% have signs of dyspepsia.

From covariate analysis factors that influenced KAP is level of education only while other factors for instance like religion, ethnic, media have no significant influenced. Another covariate analysis showed that age and sex of the children have influenced to KAP.

From medical personel point of view all issues above can be accommodated by explaining to parents what is happening at this moment, what should be done and will be done for the next step.

The weakness of this study was it did not specifically specify whether father or mother as a respondent, whereas if do so, we might have different data and results of this study. Secondly, in this study we did not differentiate whether these particular parents have children with febrile seizures episode before.

We conclude that KAP of parents of children with recurrent febrile seizures is higher and statistically significant compared to parents of children with first time febrile seizures.

Acknowledgments

Our highest gratitude to I Gde Raka Widiana, MD for his support, assistance in constructing the methodology and statistical analyses in this study and to Supriadi, Drs, MSi for his assistance, guidance in making and analyzing this study questionnaire.

References

1. Soetomenggolo ST. Kejang Demam. In: Soetomenggolo ST, Ismail S, editors. Buku Ajar Neurologi Anak. Jakarta: BP IDAI; 1999. p. 248-51.

2. Sadler LG, Scheffer IE. Febrile Seizures. BMJ 2007;334:307-11.
3. Tsuboi T. Epidemiology of febrile and febrile convulsions children in Japan. Neurology 1984;43:175-81.
4. Camfield C, Camfield P, Shellhass R. Febrile Seizures. International League Against Epilepsy 2004 (cited 2007 February 28). Available from: url: http//www/ILAE.Com.
5. Wirell E, Turner T. Parental anxiety and family disruption following a first febrile seizure in childhood. Paediatr Child Health 2001;6:139-43.
6. Anonymous. Febrile Convulsions frightening not Dangerous (cited 2007 February 28). Available from: url: http//www/KidsGrowth.Com.
7. Bolslev T. Parental reactions of a child's first febrile convulsion. A follow-up investigation. Acta Paediatr Scand 1991;80 Suppl 4:466-9.
8. Parmar RC, Sahu DR, Bavdekar SB. Knowledge, attitude and practices of parents of children with febrile convulsion. Journal of Postgraduate Medicine 2001;27:19-23.
9. Washburn TC, Medearis Jr DN, Childs B. Sex differences in susceptibility to infections. Pediatrics 1965;35:57-64.
10. Stafstrom EC. The pathophysiology of epileptic seizures: A primer for pediatricians. Pediatrics in Review 1998;19:342-51.
11. Deng CT, Zulfikli HI, Azizi BH. Parental reactions to febrile seizures in Malaysia Children. Med J Malaysia 1996;51 Suppl 4:462-8.
12. Flury T, Aebi C, Donati F. Febrile seizures and parental anxiety: does information help?. Swiss Med Wkly 2001;131:556-560.
13. Van Stuijuenberg M, De Vos S, Tjian GC, Steyerberg EW, Derken LG, Mool HA. Parents fear regarding fever and febrile seizures. Acta Paediatr 1999;88:618.
14. Bolslev T. Parental reactions of a child's first febrile convulsion. A follow-up investigation. Acta Paediatr Scand 1991;80 Suppl 4:466-9.