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Body Temperature Measurement Skills and Fever Knowledge of Caregivers with a Child Having Cancer

Kanserli Çocuğa Sahip Ailelerin Ateş Konusundaki Bilgi ve Ölçme Yetenekleri

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ABSTRACT

Purpose: We did not encounter a study dealing with the knowledge of fever and attitudes of caregivers having children with a diagnosis of malignant disease toward fever in English literature.

Materials and Methods: Caregivers of 124 pediatric oncology patients and 72 patients without any malignant disease were recruited and interviewed using a 26-item questionnaire about fever and its management in two hospital clinics in Diyarbakır, Turkey.

Results: Seventy point one percent of the mothers in oncology group were illiterate and in 75% of the cases, caregiver was the mother of the patient. Most of the caregivers in control group (72.2%) knew at least one harmful effect of high fever (p=0.001). The primary method of measurement however was palpation in both groups. 41.9% of the caregivers in oncology group knew the correct measurement of fever, but only 2.7% in control group (p=0.001). Resources of fever konowledge was mainly doctors and nurses in oncology group (p=0.001).

Conclusion: Pediatric health care providers must have more initiative and exploit oppportunities on parental understanding of fever and its management. Educational interventions are needed to correct caregivers' misconceptions about fever and to promote appropriate management of febrile pediatric oncology patients.

Key Words: Temperature measurement, fever, management, caregiver, pediatric oncology

ÖZET

Amaç: Ateş ailelerin çocuklarını hastaneye götürme, tıbbi yardım alma veya müdahalede bulunma gereği duydukları en önemli nedenlerden biridir. Çocuk hekimleri tarafından görülen hastaların üçte birinin esas yakınmasının ateş olduğu tahmin edilmektedir. Bu çalışmada pediatrik onkoloji hastalarına bakım veren aile bireylerinin vücut sıcaklığını ölçme konusundaki bilgilerinin değerlendirilmesi amaçlanmıştır.

Materyal ve Metod: Ocak- Temmuz 2010 arasında Diyarbakır Çocuk Hastalıkları Hastanesi ve Dicle Üniversitesi Tıp Fakültesi Çocuk Onkolojisi ünitelerinde, çocukları kanser nedeniyle tedavi alan ailelerin ateş konusundaki bilgileri çoğunluğu kapalı uçlu sorulardan oluşan 26 soruluk bir anket ile birebir görüşme yöntemi ile uygulanarak değerlendirilmiştir.

Bulgular: Çocukluk çağında santral sinir sistemi tümörü, lenfoma ve diğer solid tümörler nedeniyle izlenmekte olan yaşları 4 ay ile 18 yıl arasında değişen 124 hasta ve kontrol grubu olarak malign bir hastalığı olmayan 72 çocuk çalışmaya alındı. Onkoloji grubunda annelerin % 70.1'i okur-yazar değildi ve hastaların %75'inde bakım veren aile bireyi anneydi. Kontrol grubunda bakım verenlerin % 72.2'si yüksek ateşin en az bir zararlı etkisini bilmekte idi (p=0.001). Her iki grupta da ebeveynlerin çoğu çocuklarının ateşini dokunma yöntemi ile değerlendirmekteydi. Onkoloji grubunda termometre kullanım oranı % 41.9, kontrol grubunda % 2.7 idi (p=0.001). Onkoloji grubunda ebeveynlerin ateş konusundaki bilgilerini genellikle sağlık çalışanlarından elde ettiği görüldü (p=0.001) .

Sonuç: Vücut sıcaklığı ölçümü tüm ebeveynlerin bilmesi gereken bir konu olmakla birlikte ateş ve nötropeninin sık rastlandığı ve önemli sonuçlara neden olduğu pediatrik onkoloji hastaları için çok daha fazla önem taşımaktadır. Bu çalışma sonucunda da ülkemizin daha kısıtlı imkanlara sahip bir bölgesinde kanser tanısı ile izlenen çocuk hastaların ebeveynlerindeki ateş ölçme becerileri sorgulanarak eksik olan bilgiler ateş ölçümünün öğretilmesi ve ateşin bu çocuklarda ilişkili olabileceği durumlar anlatılarak tamamlanmaya çalışılmıştır.
Anahtar Kelimeler: Vücut sıcaklığı ölçümü, ateş, yaklaşım, ebeveynler, pediatrik onkoloji

INTRODUCTION

Fever is one of the most common reasons that caregivers bring their children to the hospital or seek medical attention for them. It is estimated that fever is the chief complaint for 30% of patients seen by pediatricians[1]. Faulty konowledge and beliefs of caregivers might be harmful and dangerous for the children. Knowledge of fever and body temperature management by caregivers are extremely important for pediatric oncology patients in whom fever and neutropenia are common. Although there are studies dealing with fever knowledge of doctors, health-givers and families of pediatric patients, we could not find a study investigating body temperature skills and fever knowledge of caregivers who have a child with cancer. In this study, we aimed to explore the knowledge of fever and attitudes of caregivers having cancer child toward fever.

MATERIALS and METHODS

Between March-October 2010 caregivers of 124 pediatric oncology patients and 72 patients without any malignant disease were recruited and interviewed in pediatric oncology and pediatrics clinics in Diyarbakır, Turkey. Caregivers were administered a questionnaire composed mostly of closed-edge questions., The caregivers who consented to be in study were included in this cross-sectional analysis. Pediatric oncologists in two hospitals administered 26-item questionnaire about fever and management of it to caregivers during health care maintanance or acute care visits. Questions elicited information about definition of fever, concerns of it and management of fever. Additional information included home fever measurement techniques, frequency of temperature measurement and treatment that these children had received for fever.

All questions were closed-edge except those regarding resource of fever information and types of health care practices. The study was approved by institutional review board and informed consent was obtained from caregivers. Data analysis was performed with the use of statistical package for the social sciences (SPSS version 10 for Windows, SPSS, Inc Chicago ILL). Student's t test was used for continous variables, Chi-square and Fisher's exact test was used for dichotomal variables.

RESULTS

Characteristics of patients, controls and caregivers are summarized in Table 1. There were 85 males and 39 females in oncology group. The patients' median age was 7.3 years (range 4 months-18 years). The median age of the mothers was 33 years and median age of fathers was 38 years. Caregiver was the mother of the patient. Control group composed of 42 males and 30 females who did not have a malignant disease. There was no significant difference between the two groups in respect to gender. However, children in control group were older than the children with cancer. Age of the caregivers in both groups did not differ statistically. Types of visits at the time of interview for oncology patients were mostly follow-up visits, only 3 (2.4%) were due to fever. In control group 6 children (8.3%) were brought with the complaint of fever (p=0.08).

Table 1. Characteristics of patients, controls and caregivers

	Patients	Controls	p
Gender (male)	68.5	68.1	0.5
Mean age	5.2	7.3	0.02
Mean age of caregivers	34	32	0.08
Mothers illiterate (%)	70.1	48.6	0.003
Fathers illiterate (%)	20.9	14.2	0.28
Fever resource			
Doctors and nurses (%)	54	16.7	0.001
Friends and relatives (%)	31.5	75	0.001
Other (tv, newspaper, reading) (%)	14.5	8.3	0.001
Green card as health insurance (%)	98.3	98.6	0.902

Almost all families included in the study had green card both in oncology and control groups (p=0.902). Majority of the mothers (70.1%) in oncology group were illiterate and the difference was statistically significant (p=0.003). The diffrence between the fathers according to educational status was not significant (p=0.28). Oncology patients were brought to hospital generally for routine follow-up visits or for treatment. Only 2.4% of them visited hospital for acute fever. The most common diagnoses were lymphomas and brain tumors among oncology patients.

Knowledge and management of fever of caregivers are summerized in Table 2. Most of the caregivers in control group (72.2%) knew at least one harmful effect of high fever (p=0.001). Resources of fever konowledge was mainly doctors and nurses in oncology group (p=0.001). The most common reported harmful effects of fever were convulsion and brain damage in both groups.

Forty one point nine percent of the caregivers in oncology group knew the correct measurement of fever, but only 2.7% in control group (p=0.001). Mercury-in-glass or electronic thermometers were used in 43.6% and 8.3% in oncology and control groups respectively for fever measurement. The primary method of measurement however was skin palpation in both groups. Caregivers stated ibuprofen and parasetamol as the most preferred antipyretics in oncology and control groups, respectively.

Table 2. Knowledge and management of fever of caregivers

	Patients	Controls	p
Knowing at least one harmful effect of fever	47.6	72.2	0.001
Type of measurement			
Mercury in glass thermometer	22.6	2.8	0.001
Electronic thermometer	21	5.5	0.001
Skin palpation	56.4	91.7	0.06
Type of antipyretic			
Paracetamol	7.3	18.1	0.02
İbuprofen	25	15.3	0.02
Acetylsalicylic acid	0.08	0	0.99

Dont know the medicine	66.9	66.6	0.907
Knowing fever measurement	41.9	2.7	0.001
Frequency of fever measurement			
Every 15-59 minutes	22.5	15.3	0.33
Every 60-240 minutes	77.5	84.7	0.31
Temperature accepted as fever			
<38 ^{o}C	9.8	1.4	0.001
≥38 ^{o}C	28.9	6.9	0.001
Dont know	61.3	91.7	0.07
Frequency of antipyretic administration			
1-2 times	21.7	4.2	0.001
3 and over	37.5	32	0.36
On requirement	23.4	27.7	0.42
What doctor suggested	17.4	36.1	0.02
Cold sponging	76.6	34.7	0.08

Although majority of the caregivers in both groups did not know the temperature accepted as fever, 28.9 % in oncology group accepted the body temperature of ≥38 ^{o}C as fever (p=0.001). Frequency of temperature measurement was predominantly every 60-240 minutes and the difference was not significant (p=0.31). Frequency of antipyretic administration in oncology (37.5%) and control groups (32%) was mostly 3 and more administration but the comparison between the two groups was not significant statistically (p=0.36). Cold sponging ratios did not differ statistically between the two grous (p=0.08). Two caregivers in oncology group and one in control group stated they make sponging with alcohol instead of water.

DISCUSSION

Fever is among the most common problems in pediatrics for which the children are brought to hospital. Pediatric oncology patients constitute a special group of children mostly vulnerable to the destroying effects of fever especially in case of neutropenia. Unfortunately, parents generally have misinformations about fever and limited skills regarding fever management[2]. Because fever is one of the alarming symptoms in pediatric oncology practice, the correct measurement of fever and appropriate management of it have utmost importance. Therefore, caregivers of pediatric oncology patients should know basic principles about fever and its management. Little information in literature, dealing with the knowledge of fever and attitudes of caregivers having children with a diagnosis of malignant disease toward fever have prompted us to undertake the present study.

One of the most striking finding of our study was education status of caregivers. Unfortunately, more than half of the caregivers were illiterate in oncology group. Beside this, almost all families included in the study had green card. Green card, a public health insurance type provided by government for individuals who do not have a job was the most common insurance type in both groups. This finding also reflects the region's limited resources for education, employment and income.

In pediatric oncology practice, parents frequently report that thier child had a fever at home. Although some parents state objectively measured temperature, it is not uncommon to have only a subjective assessment by the parent. Because the workup may be modified on the basis of history of fever, physicians must know whether they should believe the parent's subjective assessment. Singhi[3] showed that mothers detected 88.9% of fevers that were subsequently detected by oral or axillary thermometer. Similarly, Hooker et al[4] have found parental subjective assessment of fever agreed with the presence of fever as measured by rectal glass thermometer in 79% of cases. In our series, the most frequently used method for fever measurement was palpation of skin in both groups. Although known as a method for fever measurement, touching can not be regarded as an objective way for fever measurement. More caregivers in oncology group reported to measure fever with a thermometer. Better knowledge of fever measurement in oncology group may be as a result of gaining conciousness about medical care by means of a chronic disease. Apart from depicting caregivers' restricted information on fever measurement, ways of coping with fever and harmful effects of fever, we created a chance for education on these issues via the present investigation.

Most of the children were being seen for a reason related not with fever at the time of survey. The most common reported harmful effects of fever were convulsion and brain damage in both groups. Although an important proportion of the caregivers mentioned the risk of brain damage with fever, related literature reports such complication occoring only at very high temperatures[5,6]. Caregivers in both groups did not exactly know the harmful effects of fever. However, more caregivers in control group reported to know at least one harmful effect of fever. This finding also reflects the low socioeconomic status of families of oncology patients in this region.

Caregivers in oncology group stated ibuprofen as the most preferred antipyretic in management of high fever. This may be originated from the former experiences of caregiver that fever did not subside despite the administration of paracetamol. Fortunately, the caregivers give their children parcetamol or non-steroidal antiinflammatory drugs other than acetylsalicylic acid except one in oncology group. Asetyl salycilic acid is not encouraged in our practice due to its possible association with Reye's syndrome in addition to gastrointestinal side effects[7,8].

There were two major limitations of the study that warrant additional discussion. First of all, our study was conducted at two pediatric oncology clinics in hospital located in a region mostly populated by low-income citizens. So the results may not be generalized to all of the country. However, because Diyarbakır is the most developed and crowded city at southeast and east of Anatolia, the results may represent the population of at least approximately 15 milllions living in these regions. Secondly, the study mostly relied on caregiver's self-report and information may be limited by recall bias. However, our primary intent was to document body temperature measurement skills and fever knowledge of caregivers of pediatric oncology patients in the context of past and present experiences.

Caregivers in oncology group list doctors and nurses as their primary resource of fever information. Therefore, pediatric health care providers must have more initiative and exploit oppportunities on parental understanding of fever and its management. Educational interventions are needed to correct caregivers' misconceptions about fever and to promote appropriate management of febrile pediatric oncology patients.

Conflict of Interest Statement: The authors declare no conflict of interest.

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