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Moroccan Traditional Medicine in the Febrile Child

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ABSTRACT

Fever is a very common symptom in children and represents a major source of anxiety for parents. This sometimes leads to the use of traditional medicines witch is not devoid of danger. Aim of our study is to make an inventory of parent's practices regarding the use of traditional treatments in febrile children, and to study the factors associated with this use. Material and methods: This is a cross-sectional study conducted among 843 parents looked at the pediatric medical emergency hospital for children in Rabat. Results: eight hundred forty-three questionnaires could be analyzed, parents have used a traditional pharmacopoeia in 44% of cases, factors associated with this use were clarified. Conclusion: This investigation underlines insufficient knowledge and noxious management practices among parents with unfavourable socio-economical conditions which lead us to recommend targeted information preferentially in areas gathering together most unfavourable socio-economical condition populations.

KEYWORDS Fever, Parents, Children, Traditional medicine

INTRODUCTION:

Fever is a very common symptom in children and represents a major source of anxiety for parents (1,2,3) This sometimes leads to the use of traditional medicines witch is not devoid of danger. Many studies have focused on how the disease is perceived by different population groups and the attitudes of parents face in febrile children (4,5,6), but the studies that have focused on traditional products used by parents as treatment of fever are much less frequent. The notion of "fever phobia" was introduced in 1980 by Schmidt who described the unrealistic parental perception of fever (7). Other studies have confirmed that perception and attitudes of parents are largely unjustified (8). The aim of our study is to make an inventory of parents practices regarding the use of traditional treatments in febrile children, and to study the factors associated with this use.

MATERIAL AND METHODS:

This is a cross-sectional study, descriptive and analytical, conducted between beginning of January and the end of March 2014. It was conducted among 843 parents looked at the pediatric medical emergency hospital for children in Rabat. Our service is located at an university Hospital of third level and welcomes pediatric emergencies in the region of Rabat-Salé Zamour Zair (area north west of Morocco and populated by more than three million inhabitants), more than 200 children are received per day.

Were included in our study children whose age ranged between 1 month to 16 years, who looked for acute or persistent fever, quantified or not, isolated or associated with other symptoms, after informed consent of the accompanying parent. Data collection was performed using a pre-established questionnaire including three parts:

The first part studying epidemiological and demographic profile of parents and children: mothers age, socioeconomic level (low, medium or high depending on the classification of the High Commissioner in Morocco Plan), education level, living environment (rural or urban), age and sex of the child

The second part related the information about the disease and how it was supported by parents

The third part concerned the education of parents and their source of information.

Data exploitation and statistical analyzes were performed with SPSS, Odds ratios with 95% confidence intervals were calculated, the differences were considered significant at $p < 0.05$.

RESULTS:

1 - Characteristics and knowledge of parents (Table 1):

The average age of mothers was 31.5 +/- 6.5 years. Socioeconomic level was low in 44% of cases. 32% of parents were illiterate and 56% had completed primary or secondary study. 72% of parents were living in urban areas. Half of parents did not have a thermometer at home and 45% of them do not know the definition of fever. Only 30% of parents had already received medical advice on the disease and its treatment. Other parents learned from their entourage experience (parents, grandparents and neighbors).

2- Characteristics of the current episode (Table 2):

The children's median age was 3 years [2 years - 5 years], infants under 2 years old represented 48% of cases and 51.2% of were female. The median time between the fever onset and consultation was 2 days [1d - 3d]. The fever was isolated

in 32.6% of cases and were associated with minor symptoms (cough, runny nose, diarrhea, vomiting ...) in 60.8% of cases . in 6.5% of cases fever were associated with a vital distress (shock, respiratory distress, consciences disorders) .

3- Parents management at home (Table 3):
Initial support at home by the parents consisted of the use of physical therapy in 25.7% of cases and the administration of antipyretics in 80% of cases (paracetamol in 85.6% of cases, NSAIDs 10.2% and aspirin in 4.3% of cases). Traditional pharmacopoeia was used in 44% of cases, the various products used are detailed in FIGURE 1.

These products were used in combination in 16% of cases and were administrated orally (30%), topically (62.2%) or by inhalation (7.8%).

4- Associated factors with the use of traditional medicines (Table 4):
• univariate analysis:
In univariate analysis, factors statistically significantly associated with the use of traditional medicines are: socioeconomic low level ($p < 0.001$), illiteracy ($p < 0.001$), rural living environment ($p < 0.001$), lack of home thermometer ($p < 0.001$), male gender ($p < 0.001$), age more than 5 years ($p < 0.05$), non-use of physical therapy ($p < 0.001$) and the absence of medical advice ($p < 0.001$).

• Multivariate Analysis:
In multivariate analysis adjusting for all other factors associated in univariate analysis, factors that are statistically significantly associated with the use of traditional medicines are: socioeconomic low level ($p < 0.05$), male gender ($p < 0.05$), age more than 5 years ($p < 0.05$), and non-use of physical ($p < 0.05$).

DISCUSSION:
The management of febrile children by parents continues to be inconsistent and incomplete, according to several studies (9, 10), although the guidelines are available. The emergency department is often cluttered with unnecessary consultations (11). In emerging countries, where access to care remains difficult, the use of traditional methods to reduce fever is still common. In Morocco the use of traditional medication is frequently observed, but studies on this topic are rare.

Our investigation had included different socio demographic and intellectual levels of parents. This has a major interest which allowed us to study the influence of these factors on the perception of the disease and its treatment by parents.

Apart from the traditional pharmacopoeia, the majority of parents interviewed in our series (80%) have given an antipyretic to their children before consulting. This accords with the results of Al-Nouri and Kavehmanesh and al (12,13,14). Paracetamol was the reference antipyretic in our series (85.6%) before ibuprofen (10.2%), the use of aspirin was less prevalent (4.3%). In the investigation made by Bourros (15), paracetamol was used in 71.7% of cases, ibuprofen in 2.8% of cases, and acetylsalicylic acid in 25.5% of cases.

A survey conducted in Casablanca in 1995 by Aboussad and al . (16) showed a use of traditional herbal or plants (thyme, mint, lemon, clove and verbena) in 8.5% of febrile children. In 2007 a similar study (17) made in Marrakesh had objectified using Mkhinza (pigweed) alone or in combination with lemon by 43% of parents to reduce fever of their children. Other parents had used rose water, vinegar, and various substances. The data from our study are comparable in the prevalence (44.1%) and the type of traditional medicines used.

The products used in our study can be divided into two groups:

- «Innocuous» substances: Lemon, Mint, Olive oil ... without direct risk of poisoning in children, but its use may be responsible for a delay of consultation and management.

- «Dangerous» Substances especially goosefoot and oil of cade whose poisoning cases continue to increase in our context and where the Poison Centre pulls the alarm.

Furthermore 6% of children presented to the emergency in serious condition, potentially induced by taking the traditional treatment and / or consultation delay. No causal link could have been established between the clinical presentation of the patient and the use of traditional medicines.

Cade oil is one of the essential oils which are mostly used in Moroccan traditional medicine. It is obtained by dry distillation from the branches of *Juniperus oxycedrus* , which is a Mediterranean kind (18). The oil contains phenols, mainly guaiacol and cresol, cadinene (a sesquiterpenoid), and cardinol (an alcohol). There are no human exposure case reports that can provide a basis for identifying the toxicity profile or side effects of the guaiacols. The toxicity profile of guaiacols may be similar to that of the related phenolic compounds phenol and cresol. In Morocco, CO is accessible to consumers without a prescription and is known to be used externally for skin disorders in dermatology and hair care. The oil is also used as a vermifuge. The CO is used also against "evil eye", abdominal pain and diarrhea, psychiatric disorder, cancer, fever, cephalgia, angina, weight decrease, the common cold, and hypotonia, without any scientific evidence to support these uses despite such common use (19).

M'khinza or pigweed wormer (Dysphania ambrosioides, formerly called Chenopodium ambrosioides) is a herbaceous plant, annual or perennial 30 cm to 1 m high odorous when crumpled. In Moroccan folk medicine, the seeds of C. ambrosioides are used as vermifuge and the whole plant is used as analgesic, antipyretic and to cure gastrointestinal disease, including typhoid and dysentery. Poison Control Center and pharmacovigilance of Morocco (CAPM) puts also warned citizens against using M'khinza. The center had issued a warning after receiving several reports of adverse and serious effects following the use of this herb. Reported adverse events were gastrointestinal (vomiting, epigastric pain), cardiovascular (tachycardia), neurological (headaches, seizures or coma), kidney (renal failure), hemorrhagic and skin lesions (pruritus, purpura) (20). Center recommends not to use this plant in children. For their part, clinicians should discuss the possibility of ingesting M'khinza to adverse events.

CONCLUSION:
This survey allows us to identify deficiencies in basic knowledge and customary practices of control beyond fever. Despite efforts by the Poisonnig and pharmacovigilance Centre of Morocco against the use of Chenopodium ambrosioides (M'khinza) and cade oil, these products continue to be used in febrile Moroccan child. It is imperative to strengthen the information and organize education campaigns by the health authorities in this regard.

Tables and figures :
TABLE 1 : Characteristics of parents and their knowledge

	Effectif (%)
Socioéconomic level	
low	*376 (44,4)*
way	*410 (48,4)*
high	*61 (7,2)*
Level of studies	
illiterate	*271 (32,3)*
Primary ou secondary	*475 (56,6)*
Superior	*93 (11,1)*
Living environment	
Rural	*233 (27,8)*
Urban	*606 (72,2)*

Home thermometer	
No	*386 (45,8)*
Yes	*455 (54,2)*
Measuring site	
Rectal	*198 (52,8)*
Axillary	*173 (46,1)*
Auricular	*4 (1,1)*
Definition of fever	
Do not know	*356 (44 ,9)*
Sup 37	*50 (6,3)*
Sup 38	*341 (43)*
Sup 39	*46 (5,8)*
ADVICE	
No	*563 (69,6)*
yes	*246 (30,4)*
Source information	
Doctor	*172 (22,3)*
Pharmacist	*59 (7,6)*
Nurse	*15 (1,9)*
Entourage	*527 (68,2)*

TABLE 2: characteristics of the current episode

	Value
Child's Sex	
Female	*411 (51,2)*
Male	*392 (48,8)*
Age of the child	
Less than 2 years	
2 years to 5 years	*399 (48)*
Over 5 years	*277 (33,3)*
	156 (18,8)
Method of measurement	
subjective	*505 (61,5)*
Thermometer	*316 (38,5)*
Delay before consultation (days)	*2 [1-3]*
associated signs	
isolated fever	*276 (32,6)*
minor symptoms	*515 (60,8)*
vital distress	*55 (6,5)*

CHART 1: products used by parents

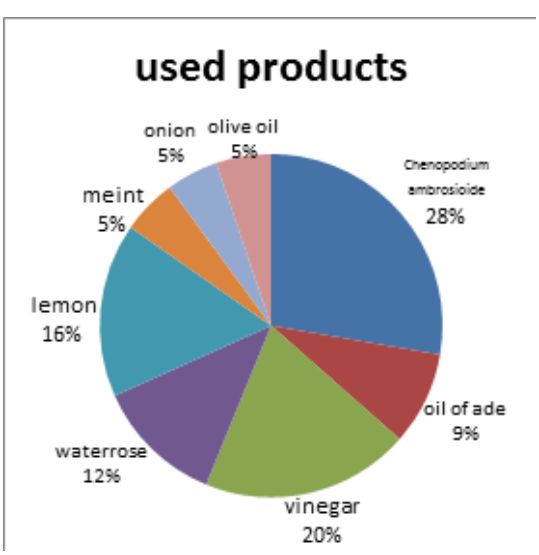

TABLE 3: Parents management at home

	Effectif (%)
Physical treatment	
No	*601(74,3)*
yes	*208 (25,7)*
Medecines	*581 (85,6)*
Paracetamol	*69 (10,2)*
NSAIDs	*29 (4,3)*
Aspirin	
traditional Traetment	
No	*469 (55,9)*
yes	*370 (44,1)*
Route of administration	
Oral	*108 (30)*
Topical	*224 (62,2)*
Nasal	*28 (7,8)*
Given by	
Mom	*236 (76,1)*
Grand-mother	*71 (22,9)*
Other	*3 (1)*

TABLE 4 : *Associated factors with the use of traditional medicines*

	univariate Analysis			multivariate Analysis		
	OR	IC 95%	P	OR	IC 95%	P
Socioéconomic level low/ high way / high	*8,32 1,90*	*14,18 - 16,53 0,95 – 3,78*	*<0,001 0,066*	*4,22 2,29*	*1,49 – 12,06 0,89 – 5,87*	*<0,05 0,085*
Study level illiterate /Sup Primary or secondary /Sup	*6,23 1,54*	*3,66 – 10,61 0,93 – 2,55*	*<0,001 0,089*	*1,13 0,51*	*0,44 – 2,93 0,22 – 1,18*	*0,78 0,11*
Living environment (Urban)	0,25	0,18 – 0,35	<0,001	0,92	0,53 – 1,57	0,76
Home thermometer (yes)	0,28	0,21 – 0,37	<0,001	0,80	0,50 – 1,28	0,37
Sex of the child (male)	1,39	1,05 – 1,84	<0,001	1,83	1,22 – 2,74	<0,05
Age of the child 2 to 5 years /<2years more-than 5 ans /<2 years	*1,17 1,61*	*0,86 – 1,60 1,10 – 2,34*	*0,312 <0,05*	*0,79 1,74*	*0,50 – 1,24 1,01 – 3,00*	*0,31 <0,05*
method of measurement (thermometer)	0,53	0,40 – 0,71	<0,001	0,86	0,55 – 1,35	0,53
associated signs minor symptoms vital distress	**1,48 1,60**	**1,10 – 2,01 0,89 – 2,87**	**<0,05 0,111**	**1,26 1,36**	**0,82 – 1,95 0,63 – 2,94**	**0,28 0,43**
physical treatment (yes)	0,26	0,18 – 0,37	<0,001	0,42	0,23 – 0,77	<0,05
advice (yes)	0,22	0,16 – 0,32	<0,001	0,63	0,33 – 1,19	0,15
information Source Pharmacist / doctor Nurse / doctor Family / doctor	**1,06 0,94 5,17**	**0,52 – 2,18 0,25 – 3,52 3,44 – 7,77**	**0,858 0,932 <0,001**	**0,99 0,34**	**0,39 – 2,51 0,07 – 1,69**	**0,99 0,19**

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