

Knowledge, beliefs and practices of primary caregivers of children attending a well-baby clinic in a Sri Lankan suburb regarding giving medicines to children

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Abstract

Introduction: Mothers and other primary caregivers of infants and preschool children are responsible for giving medicines to them. To ensure safe and effective medicine administration to young children they need to have the relevant knowledge, skills, beliefs and practices. The objective of this study was to assess the knowledge, beliefs and practices of primary caregivers regarding giving medications to children.

Methods: A descriptive cross sectional study was done at a well- baby clinic of a suburban area. Study participants were the mothers and other primary caregivers of children attending the well-baby clinic, who have previously administered medicines to children. An interviewer administered questionnaire was used to gather data.

Results: Only half of the participants knew that a medicine had a generic name and brand names and knew what they meant. Majority (73.7%) believed that non- prescription medicines should not be given to children without consulting a doctor. Majority knew that paracetamol (88.4%) and gripe water (57.9%) were non-prescription medicines but believed that oral rehydration salts (ORS) and chlorpheniramine were prescription medicines. Though the majority (90.5%) knew that medicine doses should be calculated according to the body weight of the child, 57.9% used age specific paracetamol doses for their children. Though the majority has used ORS previously nearly half of them did not remember the proper way of preparing and using it. Though 88.4% said that they read medicine labels and leaflets 70.5% were not aware that they provided information on adverse effects. They thought antibiotics were suitable to be used without prescriptions and should be given when children developed fever or cough.

Conclusion: This study shows that there were deficiencies in the knowledge, beliefs and practices of mothers regarding giving medicines to their children.

Keywords: Medicines, infants, children, primary care givers, non-prescription medicines

Introduction

Mothers are the primary caregivers of neonates, infants and pre-school children,

even though at times grandparents and other relatives may take the role. Giving medicines to children is a challenge due to

various reasons related to their anatomical, physiological and psychological variations from adults. Pharmacokinetics and pharmacodynamics of medicines may differ in children. World Health Organization (WHO) has identified numerous problems with medicinal treatment in children. There are wrong dosages causing either toxicity or treatment failure, non-availability of proper paediatric formulations resulting in crushing / dissolving tablets or administering the powder inside the capsule, and lack of awareness among caregivers about medicinal issues (World Health Organization 2007).

The primary caregivers in the community setting are more vulnerable to make errors in giving medicines to children. They use the common medicines such as paracetamol, oral rehydration solution, chlorpheniramine, gripe water etc at home. A Sri Lankan study has shown that 85% of mothers use either allopathic or traditional medicines on children during illness without consulting a qualified healthcare practitioner (Kariyawasam et al., 2005). A longitudinal study of pregnancy and childhood (Headley and Northstone, 2007), found that around three quarters of their study children were given some kind of medicinal product before 8 weeks of age and 84% of them were given some kind of antipyretic by the end of one year of life. They have recognized the necessity for more studies to obtain information on medicines used in children.

Most medicines are given as liquids; mothers use various measuring devices to measure liquid medicines; some medicines need preparation prior to administration. All of these carry a risk for dosing errors. A study focusing on epidemiology of therapeutic errors in community setting has found that incorrect and double dosage accounted for 56.8% and 26.1% of the cases respectively (McD Taylor et al., 2009). Failure to read or comprehend instructions on label and using wrong measuring device or inappropriate preparation were found to

be the usual causes of unintentional overdosing (Lucas, 2003; Mahamithawa and Ajanthan, 2003). Therefore the mothers' knowledge on medicines (especially non-prescription medicines), various measuring devices, proper storage; correct believes, practices and appropriate skills are essential to ensure safety and efficacy of medicines administered to small children.

Worldwide there is evidence portraying inadequate knowledge, false believes, and incorrect practices of caregivers on administering medicines to children. In a systemic literature review conducted to investigate the incidence and nature of dosing errors in children (Wong et al., 2004), eleven out of the sixteen studies found that dosing errors were the most common type of medication error, and three of the remaining studies found it to be the second most common type. Many regional studies have shown inadequacy of mothers skills in preparing oral rehydration solution (ORS) (Ahmed, Rahman and Mahmood 2000; Bandyopadhyay, Banerjee and Sharma 1993; Bhandari, Qadeer and Bhan 1995; Shaw et al. 1990; Varavithya et al. 1989). A Sri Lankan study has shown that though the majority (96.5%) were aware of ORS almost half of them prepared it incorrectly (de S Seneviratne, 2003). An Indian study (Ravikiran and Shivarajashankara 2011) demonstrating dosing ability of parents has found lower parental education was associated with poor dosing ability.

The studies mentioned above have looked at different aspects of medicine use in children. However studies on overall general knowledge, believes and practices of mothers regarding medicines administered to children are inadequate. Regional or local studies to demonstrate caregivers' knowledge, beliefs and practices are also lacking. Most such studies conducted in western countries also do not cover the whole aspects under one umbrella.

Furthermore there is inadequate local data to understand the situation in Sri Lanka.

Sri Lanka being a developing island in the Indian Ocean shows good health indicators despite lower income and is in lead in the South Asian region providing good quality healthcare services (Annual health Bulletin). However we do not have many studies looking at the awareness of the general population regarding medicines or assessing their skills to handle medicines and their medicinal related practices.

This preliminary study to assess primary caregivers' knowledge, beliefs and practices on giving medicines to children will provide health care professionals much needed insight regarding the local situation to facilitate further research and suitable interventions.

Materials and methods

This descriptive cross sectional study was carried out over a period of three months from 1st of July 2013 to 30th of September 2013. We selected the well-baby clinics held by Gampaha Medical Officer of Health (MOH) area at Ganemulla for our data collection. The clinics were held on 2nd and 4th Tuesdays of every month.

The Parents and other primary caregivers of a child aged 5 years or below, who had administered medications to their children at least once were included in the study. Primary caregivers who had not administered medications to a preschool aged child at least once, those who were healthcare workers, parents whose children were ill or not cooperative, and the adults who were not the primary care givers were excluded from the study. The estimated sample size was 96 (Lwanga and Lemeshow 1991).

Ethics clearance was obtained from Ethics Review Committee of the Faculty of Medicine, University of Colombo, Sri Lanka. The necessary approvals were taken from Regional Director of Healthcare Services (RDHS) and from Gampaha

Medical Officer of Health. The investigators explained about the study verbally to the primary care givers in their preferred language (Sinhala / Tamil / English). The mothers / primary care givers who fulfilled the eligibility criteria and consented for the study were recruited by convenience sampling method till the expected sample size (n=95) was covered.

After recruiting the potential participants, informed written consents were obtained from them. The data was collected by the investigators using interviewer administered questionnaires in their preferred local language (Sinhala). The study instruments were subjected to a pre-test in a similar group of the community. The Socio demographic characteristics of the population, specific questions to evaluate their knowledge on medicines, their beliefs and practices were the components of the study instruments. The data was collected in a setting which ensured their privacy. We made six visits to the clinics in order to complete the data collection.

The data was analyzed using SPSS version 18.0. Descriptive statistics was used to describe demographic characteristics, and the patterns of knowledge, beliefs and practices.

Results

Ninety five participants who fulfilled our eligibility criteria were recruited by convenience sampling.

The Socio demographic characteristics of the population

Majority of the primary caregivers were mothers (n =93, 97.9%) while rest of them were fathers. All of them spoke Sinhala as their 1st language (100%) though only 97.9% of them (n=93) were Sinhalese while rest of them were Burgers. The mean age of the parents was 30.78 years (SD-5.57 years, range 19 - 45). Nearly half of the population (n=46, 48.45%) has attended school up to their advanced levels (A/L) and more than

90% had followed the arts stream (47.6%) or commerce stream (42.9%) for A/L. Greater part of them have completed Grade 10 or more at school (n=82, 86.3%). One tenth has completed their tertiary education (n=9, 9.5%) while very small group has an educational level below Grade 10 (n=4, 4.2%). Nearly half of them have a monthly income below 25,000 LKR (n=44, 46.3%) and more than 80% of them had income below 50,000 LKR (n=81 85.2%). Majority had two children in their family (47.4%). The mean number of children they had 1.82 (SD=0.85, range 1-6) and the mean age of their last child was 23.75 months (SD=21.05, range 1-83).

Health related matters in their children

Above half of their children had previous hospital admissions (54.7%) and the mean hospital admissions was 1.85 (1-10). Majority had single admission (57.1%) and the common causes for admissions were febrile illness (32.7%), shortness of breath and respiratory tract infections. The health related decision making was influenced by mother (58.9%), father (45.3%), or grandparents (20%). Most of the children had 2 caregivers at home (46.3%) and mean number of care givers was 2.04 (range =1-5).

Primary care givers general knowledge and beliefs regarding medicines and its use in children

Their knowledge regarding generic drugs versus brands

Half of the population (51.6%) was aware of the existence of “generic name” & “brand name” of a medicine. All who knew that had an educational level above grade 10 and the majority of them knew the meaning of generic name (89.8%), availability of several brands for a single drug (91.8%) and the price difference of branded drugs (63.3%). Majority believed that branded drugs were of better quality than generic

drugs (65.3%) and that they caused fewer side effects (42.9%); Though 67.4% (n=31) said paracetamol was a generic name majority were not aware that salbutamol (67.4%), theophylline (84.8%) or chlorpheniramine (84.7%) were generic names.

Knowledge on prescription only medicines versus non-prescription medicines

Majority of the population (n=82, 86.3%) agreed that prescription medicines can only be prescribed by doctors and 69.5% agreed that they cannot be issued by a pharmacist without a prescription. 70.5% of them agreed that old prescriptions should not be used. 73.7% of them believed that they should not give any prescription medicines to children without a doctor’s prescription. Majority knew that paracetamol (88.4%), and gripe water (57.9%) can be given as non- prescription medicines and only 26.3% agreed that chlorpheniramine was a non-prescription medicine. Over three quarter of them (75.8%) were not aware that oral rehydration solution (ORS) can be bought over the counter.

Knowledge on antibiotic use

Some care givers believed that a child should be given an antibiotic when the child develops fever (58.95), cough (29.5%) or diarrhea (29.5%). Almost all of them (98.9%) were not aware that antibiotic should not be bought without a doctor’s prescription. They believed that the antibiotic dose of the drug should be calculated according to child’s weight (90.5%), age (75.8%), and severity of illness (26.3%).

Knowledge on ORS

Considering the ORS, although 84.2% of them had previously used it, half of the population was not aware that sugar (56.8%) or salt (55.85) should not be added or

solutions could be kept up to 24 hours once continued with ORS (47.4%). Regarding paracetamol, majority were aware that it is used for fever (86.3%), it can cause liver toxicity in overdose (73.7%) and maximum 4 doses can be given in a day (57.9%). However, 57.9% believed that child's dose is calculated according to age. 50% selected syrup / oral suspension as better dosage forms for children.

Knowledge on storage of medicines at home

Regarding storage of medicines at home majority agreed that they have to be stored in a cool dry place (71.6%), out of reach of children (85.3%) and small children should not be encouraged to self-administer them (78.9%).

Knowledge on what information could be obtained from medicine labels and outer packaging

The majority mentioned that they can find out the generic name (70.5%) & brand name (63.2%) of a drug, expiry date (90.5%), and directions on use (86.3%) from the label, information leaflets and outer packaging of medicines but 70.5% were not aware that they can get information on side effects.

Their practices relevant to medicine use in children

Most of them (88.4%) have never used old prescriptions or drugs obtained for a previous illness when their child developed similar symptoms. Majority (62.1%) preferred specific brands of medicines at some point. Most reasoned out that health care worker's endorsement (54.5%), pharmacist's endorsement (16.4%) low price (18.2%), and palatable drug (23.6%), for their preference for particular brands. Less common reasons were faith on some products due to it's manufacturers (5.15%), family members / friends endorsement (7.3%), advertisements in media (9.1%) and ease of preparation (12.5%).

prepared (52.6%), or breast feeding can be **How they obtained information regarding medicines**

If the child vomited medicine after administering it, majority (44.1%) would give the next scheduled dose while Majority said they will get information about non – prescription medicines from doctors (58.5%) or midwives (46.3%).

Majority said they always read medicine information labels (88.4%) and followed the instructions (93.7%). They said they will get dosing information from doctors (76.8%), pharmacists (34.7%), or mid wives (25.3%) in the instances when they can't follow the labels. Either the labels not being available (50%), or the language difficulties (50%) were the reasons for not using the labels.

Practices related to administering medicines

Majority do not crush the tablets (46.3%), add sweeteners to medicines (63.2%) or break the capsule and give the powder to children (83.2%) at all. They have used sugar / honey /juices to sweeten medicines.

When they were asked on their choices to measure 5 ml of liquid medicine, majority chose the measuring cup (68.1%) while others chose measuring spoons (38.3%), measuring syringe (33%), and the household tea spoon (22.3%). Only 24.7% will repeat the dose in 30 minutes time.

Majority will take the child to hospital after stopping the drug (93.5%) if child develop itchy rash; they started paracetamol and observed at home (56.8%) if child developed fever, and took all their children to a doctor if all at home developed a similar illness (94.7%). Majority of parents said they had difficulties in administering the medicines to a child (60%); Some had difficulty choosing the correct non-prescription medicines for a child (33.7%) at the pharmacy.

Table 1: Caregiver's choice of medicines if their child is ill.

Illness	Medicines they choose	% of Care givers
Fever	Paracetamol	87.3
	Piriton	1.1
	None	11.6
Sore throat	None	100
Wheezing	Piriton	2.1
	Salbutamol	1.1
	None	96.8
Cold	Augmentin	1.1
	Deriphilline	1.1
	Panadol	1.1
	Piriton	11.6
	Vitamin C	3.2
	None	82.1
Cough	Piriton	7.5
	Salbutamol	1.1
	None	91.4
Vomiting	Domperidone	4.3
	ORS	1.1
	None	94.6
Diarrhoea	Gripe water	11.6
	Domperidone	1.1
	ORS	1.1
	None	86.2
Constipation	Gripe water	2.1
	None	97.9
Abdominal pain	Gripe water	27.4
	Dompeidone	1.1
	Paracetamol	1.1
	Piriton	1.1
	None	69.3
Ear ache	Paracetamol	2.1
	None	97.9
Red eye /itchy eye	None	100
Skin rashes	Piriton	2.1
	None	97.9
Lice	Lysine	1.1
	None	98.9
Wound	Betadine	4.2
	Cloxacillin	1.1
	Soframycin	1.1
	Panadine	1.1
	None	92.5
	Piriton	1.1
Insect bites	None	98.9
	Siddhalepa	2.1
Musculoskeletal pain	None	97.9
Dizziness	None	100
Headache	Paracetamol	15.8
	None	84.2
Seizures	None	100
Excessive cry	Gripe water	1.1
	None	98.9

Discussion

The study shows inadequate knowledge and unacceptable practices regarding use of common medications among the primary care givers of small children. Even though the great majority have completed their secondary or tertiary education at school there was no clear relationship between the level of education and their knowledge on medicine use in children.

The study especially highlights that the majority of participants had inadequate knowledge regarding use of non-prescription medicines, antibiotics and ORS in their children. Most of them thought that they should not use non-prescription medicines without the advice of a doctor. The majority did not select any non-prescription medicines on their own most of the time to treat common symptoms such as fever, cold, diarrhea etc. This could lead to unnecessary medical consultations and extra burden especially to the state sector hospitals. Most of them were not aware about non-prescription medicines other than paracetamol and gripe water. Their knowledge about antibiotics was not satisfactory which could lead to inappropriate use and development of resistance to antibiotics. Though most of them were aware about the oral rehydration solution, they could not categorize it as a non-prescription medicine. The majority of them have used it before but they could not remember the principles of using oral rehydration salts.

There were deficiencies in their knowledge regarding how to calculate the dose of medicines to be given to their children. The majority of the care givers decided on the doses of non-prescription medicines according to the child's age rather than the weight which was not appropriate in some instances.

These results emphasize the need to provide inputs about commonly used non-prescription medicines to care givers of children in order to ensure the safety of

medicinal use in smaller children as they were vulnerable to toxicity and adverse effects.

Another important finding was that parents preferred particular brands of medicines at least on some occasions mainly because they were recommended by health professionals such as doctors, pharmacists and midwives. This emphasizes the need of the health professionals to be very responsible to promote rational use of medicines in children. They were more comfortable to ask their medicines related doubts from doctors, pharmacists or midwives.

The way forward

The fact that midwives were approached for obtaining medicine related information by primary care givers of children should be recognized. Midwives should receive special inputs and training on common medicines used in small children so that the information and advice provided by them are relevant and accurate.

Inputs regarding giving medicines to neonates, infants and preschool children could be provided during antenatal clinic visits and at well baby clinics. The television and radio could also be utilized for this purpose as well as newspapers and consumer health magazines.

Further studies should be planned to explore this topic in more detail involving larger numbers of caregivers representing other socio economic, geographical, ethnic and educational backgrounds. Since this study was conducted in a semi-urban population of Sri Lanka the study findings may not reflect the situation in the low or high income groups. Further it may not reflect the illiterate groups or other ethnic groups such as Tamils and Muslims who also reside in Sri Lanka.

Conclusion

This study shows that there were deficiencies in the knowledge, beliefs and practices of primary caregivers regarding giving medicines to their children.

Declaration

No conflicts of interests to be declared.

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