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Booth M, Bundy DA, Albonico P, Chwaya M, Alawi K (1998). Associations among multiple geohelminth infections in school children from Pemba Island. *Parasitol.* 116: 85-93.0.

Fransiscus RG, Long JC, (1991). Variation in human nasal height and breath, *Am. J. Phys. Anthropol.* 85(4):419-427.

Stanislawski L, Lefeuvre M, Bourd K, Soheili-Majd E, Goldberg M, Perianin A (2003). TEGDMA-induced toxicity in human fibroblasts is associated with early and drastic glutathione depletion with subsequent production of oxygen reactive species. *J. Biomed. Res.* 66:476-82.

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Case Report

Is delayed coagulopathy still difficult to anticipate after snakebite? — An illustrative case report

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Coagulopathy following snakebite typically occur within 24 h. Occasionally, abnormality of the coagulation system persists into the second week; although clinically, significant bleeding is rare after seven days. Early coagulopathy and concurrent acute renal failure tends to increase the odd of delayed coagulopathy. We report a case of delayed coagulopathy and renal failure occurring after 2 weeks in a previously healthy male patient who was bitten by *Echis ocellatus* to illustrate the fact that coagulopathy could be delayed till the third week after snakebite. We suggest close clinical and/or laboratory surveillance of patients who survived an early envenomation, so as to forestall unnecessary morbidity and mortality.

Key words: Coagulopathy, snakebite, *Echis ocellatus*.

INTRODUCTION

Snakebite is both an occupational and environmental health hazard of public importance. Globally, snakebite results in at least 421,000 envenomation and 20,000 deaths each year (Kasturiratne et al., 2008). In the Nigerian savannah, the incidence of snake bites has been reported to be in the range of 48 to 497 per 100,000 populations per year (Pugh and Theakston, 1980) with envenomation largely due to four families of snake namely; Viperidae, Elapidae, Colubridae and Actraspididae. Three species from the first two families - carpet viper (*Echis ocellatus*), black-necked spitting cobra (*Naja nigricollis*), and puff adder (*Bitis arietans*) have been found to be responsible for most envenomation in Nigeria (Habib et al., 2001). *E. ocellatus* in particular, is reported to be the culprit for the majority of envenomation in the savannah region of Nigeria and has been found to contain a prothrombin activating procoagulant, haemorrhagin which causes

bleeding, incoagulable blood, shock and local reactions/necrosis (Habib et al., 2001).

Although, commonly known to occur within 24 h of snakebite, coagulopathy could be delayed for up to 7 days after a poisonous snakebite and rarely up to the second week (Kim et al., 2008; Khadwal et al., 2003; O'Brien et al., 2009; Boyer et al., 1999). To date, only about 5 cases of significant late onset bleeding have been reported (Lavonas, 2012). We are not aware of a late onset bleeding occurring in the third week after snakebite. We report a case of a Nigerian male who presented to our facility with delayed coagulopathy and renal failure following *E. ocellatus* bite to illustrate this phenomenon and raise awareness about the need for clinical and laboratory surveillance of patients who survived an early envenomation.

Since the patient could not give consent for this report, the written informed consent was obtained from the son

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Figure 1. Patients left elbow. Arrows show incision marks.

of the patient for publication of this case report and the accompanying figures.

Case report

A 62 year old previously healthy Nigerian man was bitten by a snake on his left elbow while asleep on the floor outside his room in Bida, Niger State, Nigeria in the evening of February 13, 2013. The snake was killed and identified as “Gbeji” the local name for *Echis* species of Viperidae. He developed pain and swelling of the site few minutes after the bite. This was treated locally with incision of the bite site (Figure 1) and other traditional remedies. However, about two hours later, he noticed that his saliva was blood stained and he was noticed to be bleeding from his gum, the bite site as well as the incision sites. He was subsequently taken to a peripheral hospital where three doses of polyvalent anti-snake venom in addition to other supportive care were given. The bleeding stopped after administration of the antivenin while the painful swelling was said to have resolved within the succeeding 5 days. He was discharged from the hospital thereafter. He however noted total haematuria on February 28, 2013 (15 days after the bite), and this persisted for another two days. He was brought to our facility when he became progressively weak, lethargic and breathless. There was no bleeding from any other orifice neither was there any skin bruises. He had no previous history of haematuria. He had never had urinary instrumentation. He had no associated dysuria, urge incontinence or loin pain. He denied history of oliguria. His genotype is AA, he is neither diabetic nor

hypertensive and does not smoke cigarette or drink alcoholic beverages. There was no background history of hepatic, renal or cardiovascular disorder.

On admission in our facility in the afternoon of March 2, 2013, he was found to be lethargic although conscious, and communicates spontaneously. He was pale and dyspneic but was neither cyanosed nor jaundiced. Two fang marks were visible over the left elbow with no local swelling or inflammation (Figure 2). His pupils were normal sized and reacted normally to light. He had no cranial nerve palsies. His muscle power was MRC 5/5 globally. He had no signs of meningeal irritation. His pulse was 100 per minute and blood pressure was 130/80 mmg on admission. His apex beat was not displaced. He had a third heart sound with no haemic murmur. His respiratory rate was 24 per minute and breath sound was vesicular with no added sounds. His packed cell volume was 18%, with deranged coagulation profile; prothrombin time (PT) was 22 s (Control; 16 s), activated partial thromboplastin time (APTT) was 49 s (Control; 40 s) and international normalized ratio (INR) was 1.6. An assessment of delayed coagulopathy was made. He was given a unit of fresh whole blood, 10 mg of vitamin K, intranasal oxygen and slow intravenous infusion of 30 mls of polyvalent antivenin after test dose. His repeat haematology profile immediately after the transfusion was PT: 20 s, APTT: 44 s while INR was 1.4. His thrombocytes count was $176,000/m^3$ (range 150 to $400,000/m^3$). His repeat packed cell volume (PCV) was 23%. His serum d-dimer and fibrinogen level and electrocardiogram could not be done as these tests were not included in our weekend laboratory services. The patient's ultrasound of the kidneys, bladder and prostate



Figure 2. Patients left elbow. Arrow shows fang marks.

was normal.

On March 3, 2013, while efforts were being made to get another fresh whole blood, patients blood chemistry result was received which showed; potassium (7.4 meq/L), bicarbonate (13 meq/L), sodium (128 meq/L) and urea (186.5 mg/dl) and creatinine (18.6mg/dl). Interim management of the hyperkalaemia was instituted with slow intravenous injection of 10% calcium gluconate. This was followed by the administration of intravenous insulin and double-diluted 50% glucose at the dose of 10 IU and 20 mls, respectively. Patient was subsequently transferred to another hospital to have a salvage haemodialysis because of the unavailability of this service in our facility at the time. Patient died before haemodialysis could be arranged for him after he left our hospital.

DISCUSSION

Since snake venom is a complex mixture of enzymes, the clinical responses to envenomation are myriad (Hutton et al., 1993). The venom of many snake species contains several components that can induce haemorrhage, including fibrinolytics, platelet aggregation inhibitors, and hemorrhagins. Delayed envenomation is often difficult to predict as the degree of envenomation depends on the amount of venom injected, the age of the victim, the condition, and species of the snake, size of the victim, and many other factors (Gold et al., 2002; Litovitz et al., 2000). The clinical management of snakebites typically requires a longitudinal monitoring of the patient's response to the envenomation, which may also vary

greatly according to the location of the bite and the inherent physiology of the affected individual (Moriarity et al., 2012). The aforementioned factors are often confounded by delayed presentation to healthcare facilities which seem to be the chief factor contributing to this patient's demise.

In Nigeria, the prevalence of isolated coagulopathy could be up to 50% (Khadwal et al., 2003; Fadare and Afolabi, 2012) while coagulopathy complicates about 27 to 37% of cases of ARF following snake bite (Hutton et al., 1993). The prevalence of acute renal failure (ARF) following snake bite is between 1 to 10% (Warrell et al., 1977). These complications are well known to occur within 24 h of the bite and rarely last up to 7 days. In really uncommon situation, laboratory evidence of coagulopathy may persist into the second week even though there may not be clinically apparent bleeding (O'Brien et al., 2009; Boyer et al., 1999).

Our patient's case is noteworthy in the sense that recurrent bleeding began in the third week after the bite. Various explanations suggested in the literature for the delayed coagulopathy include: temporary decrease in antivenin levels, rapid elimination of antivenin from circulation or continuous release of un-neutralized venom from the envenomated site (Boyer et al., 1999). Boyer et al. (1999) found that early coagulopathy strongly predicted late onset coagulopathy in their series (Boyer et al., 1999) and the same authors emphasized the fact that the presence of an early coagulopathy could be useful in identifying patients who are at risk of developing a delayed envenomation. Our patient had obvious early coagulopathy which could have increased his odds of having a delayed coagulopathy. Likewise, the interval

between the bite and administration of the initial antivenin seemed prolonged. Our report is limited however, because we cannot state whether this delayed coagulopathy was recurrent or persistent since we do not have the patient's whole blood clotting time at first discharge.

It is also not surprising that this patient had concurrent acute renal failure. By itself, coagulopathy is a marker of the vasculotoxicity and haemotoxicity of the poison, which means that patients may have nephrotoxicity due to damage to renal microvasculature (Patil et al., 2012; Jayanta et al., 2012). found that development of acute kidney injury was independently associated with an abnormal 20 min whole blood clotting time while concurrent ARF, and coagulopathy carries a higher mortality than either complication alone (Jayanta et al., 2012). It is therefore clinically reasonable to monitor renal function whenever there is coagulopathy and vice-versa.

Conclusion

This case illustrates the fact that though coagulopathy occur early after snakebite, in some rare situations it could be delayed into the third week. Clinical and laboratory surveillance into the third week may be necessary in patients who survived an early envenomation. Although in resource challenged environment like Nigeria in which healthcare financing is chiefly out of pocket, this may not be cost effective since clinically significant bleeding is rare after 7 days. For practical purposes, we suggest that patients who survive early coagulopathy be alerted on early signs of bleeding or ill health thereafter. Renal function evaluation before discharge and at follow up might be helpful. Patients should be instructed to report back early to hospitals and desist from time wasting alternatives. This might reduce mortality from delayed envenomation.

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Full Length Research Paper

A study investigating infant and young child feeding practices in Foni Kansala district, western region, Gambia

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It has been documented and a well-established fact that good nutrition including appropriate infant and young child feeding practices is central to the growth and development of all infants and young children. A study to investigate infant and young child feeding practices was conducted in Foni Kansala District, The Republic of The Gambia. The overall aim of the study was to explore the situation of infant and young child feeding practices that are prevalent and perceived effective in promoting the health and nutritional status of young children in the study area. A total of three focus group discussion (FGDs) and five in-depth interviews were conducted, and interviews were conducted in natural settings. Purposive sampling technique was used to recruit the participants. Thematic analysis approach was used to analyse the responses from the interviews. The results of the study found that exclusive breastfeeding up to six months was rarely practiced in the area due to strong cultural and traditional beliefs and inadequate information on the importance of exclusive breastfeeding. Colostrum was perceived as impure and unsafe to be given to the infant. Breastfeeding is the most common method of infant feeding, while bottle was practiced by only two mothers who participated in the FGD. Initiating breastfeeding after delivery is usually delayed due to cultural and traditional practices and the involvement of partners. The role of health workers, opinion leaders, traditional communicators, NGOs and grand mothers in supporting mothers to adequately feed their infants have been highly valued in the area. In addition, increased workload of women, maternal illness or death after delivery, breast milk insufficiency and the involvement of grand mothers, husbands, friends and other family members play an influential role in the early introduction of complementary foods to infants. Also, mothers' socio-economic status, culture and tradition have been found to have an influence on early introduction of complementary foods. This article presents an analysis and summary of the data collected during the course of the explorative research conducted in the study area.

Key words: Infant, feeding practices, complementary feeding.

INTRODUCTION

Malnutrition contributes to more than half of all under-five childhood deaths throughout the developing world; and has been responsible directly or indirectly for about 60% of the 10.9 million deaths annually of which over two-

thirds of these deaths; are often associated with inappropriate feeding practices, occurring during the first year of life (WHO and UNICEF, 2003). An estimated 54% of all under-five deaths in developing countries are

associated with malnutrition resulting from poor feeding practices in the first year of life (Sagoe-Moses and Ketsela, 2005). The associated effects of poverty, inadequate household access to food, infectious disease, and inadequate breastfeeding and complementary feeding practices often lead to illness, growth faltering, nutrient deficiencies, delayed development, and death, particularly during the first two years of life are a major obstacle to sustainable socio-economic development and poverty reduction (WHO and UNICEF, 2003). The promotion of exclusive breastfeeding in resource-poor settings has played a critical role in improving child health by providing optimum nutrition and protection against common childhood infections (Suryavanshi et al., 2003; McIntyre et al., 2002).

General background information on breastfeeding

Breastfeeding is the first fundamental right of the child. The early initiation of breastfeeding and the timely introduction of adequate, safe and appropriate complementary foods in combination with continued breastfeeding are of paramount importance for the growth, development, health and nutrition of infants and children everywhere (Kulkarni et al., 2004; Giovannini, 2004). Exclusive breastfeeding during the first six months of life has been identified as one of the key interventions for reducing childhood deaths (Bahl et al., 2005). The adoption of recommended breastfeeding and complementary feeding behaviours and access to the appropriate quality and quantity of foods are essential components of optimal nutrition for infants and young children between ages 6 and 24 months (Lutter and Rivera, 2003).

The choice to breastfeed is influenced by many factors such as: breastfeeding physiological advantages for mothers, fear of dependency, moral reasoning and advertisement of breast milk substitutes (Chabrol et al., 2004). Decisions about infant feeding are often based on the social and economic environment in which women live (Liamputton, 1998). Demographic factors such as older maternal age, higher level of maternal education, prim parity and family income are strongly associated with choice, initiation and duration of breastfeeding (Manan, 1995; Barnes et al., 1997; Smith et al., 2003; Casiday et al., 2004; Ergenekom-Ozelci et al., 2001; Foo et al., 2005). Mother's attitude towards infant feeding is associated with their parent's attitudes (Littman et al., 1994; Giugliani et al., 1994; Shepherd et al., 2000). Father's nonsupportive or negative behaviour towards breastfeeding discourages their female counterparts from attempting to initiate early breastfeeding (Shepherd et al., 2000). Mothers may also have negative attitudes or perceptions of breastfeeding, the bulk of which arise from media representation (Henderson, 1999), such as that it

is inconvenient and embarrassing (Earle, 2000; Zimmerman and Guttmann, 2001). A study in Nicaragua found out that a man's positive or negative attitudes towards breastfeeding can easily influence a woman's breastfeeding behaviour (Espinoza, 2002). Similarly (Bryant et al., 1992; Bentley et al., 1999) found that men may disapprove breastfeeding if they believe it will interfere with sexual activity; if it will make women lose their breast shape or cause women to expose their breasts in public. Cultural beliefs have a significant influence on breastfeeding practices which are harmful to infants and young children in their early lives (Ergenekom-Ozelci et al., 2005). Among ethnic groups, culturally based feeding beliefs influence how individual mothers make decisions (Li et al., 2005). Infant feeding practices are associated with the context of ethnic and cultural beliefs (Ergenekom-Ozelci, 2005). The reasons for failure to exclusively breastfeed for the recommended six months of life include health systems practices and community beliefs that delay the initiation of breastfeeding and the lack of support for women in resolving difficulties with breastfeeding (Quinn et al., 2004).

The factors associated with early cessation of breastfeeding and/or early use of complementary foods is considered to be: milk insufficiency or perceived insufficiency, maternal employment, breast-related problems, maternal illness or death and infant illness or prematurity (Walker and Adam, 2000). Similarly, the study of Tuttle and Dewey (1994) found that the most common reasons for mothers not exclusively breastfeed their infants include work or school, convenience, ability for others to feed their infant, and concern about insufficient milk after delivery.

Information background on breast feeding in the Gambia

In the Gambia, it is estimated that 36% of children aged less than four months are exclusively breastfed and 36% between the ages of 6-9 months receive breast milk and solid or semi-solid foods (MICS, 2002). The way mothers feed their children in rural Gambia are closely associated with their traditional beliefs and practices (Semega-Janneh et al., 2001; NaNA, 2000). Breastfeeding in The Gambia as in many African countries is part of the culture with mothers often breast feeding for long durations. Generally, Gambian mothers breastfeed their infants for 18 to 24 months, but the initiation of breastfeeding is usually delayed until 24 h and beyond after delivery, while prelacteal feeds are more common. The adoption of the BFCI strategy contributed to the increase in the national average of exclusive breastfeeding from 0 in 1989 to 17.4% in 1998 to 36% in 2000 (NaNA, 2002); an 41% in 2006 (MICS, 2006).

Table 1. Number and type of respondents in the FGD.

No. of Interviews	No. of participants	Type of participants	Type of Interview
2	12	Breast feeding mothers	FGD
1	6	Grandmothers	FGD

Table 2. Number and type of respondents for the In-depth interview.

No. of Interviews	No. of Participants	Type of Participants	Type of Interview
1	1	Nurse Midwife	In-depth
2	2	Community Health Nurse- CHN	In-depth
1	1	Traditional Communicator-TC	In-depth
1	1	Traditional Birth Attendant-TBA	In-depth

METHODOLOGY

Background information on the study area

The study area has a total population of 11,353 inhabitants with 1,183 households and a total area of 144.73 (Sq km) (CSD, 2003). The study was conducted among a population belonging to the Jolla ethnic group, but other languages are widely spoken in the area which alleviated the language barrier. In this area, educational level is very low; electricity is not available in many villages, water supply is provided by means of hand pumps and open traditional wells and firewood is the main combustible used for cooking which is mainly collected by women. In addition, culture, food taboos, beliefs and traditions regarding infant and young child feeding are well preserved and child care is the responsibility of older siblings or grand mothers who it is argued neither can take care of themselves nor the children.

Focus Group Discussions (FGDs) were conducted in 3 randomly selected communities in the District. The conduct of only 3 FGDs was based on financial and time constraints and also the recommendations set out by researchers. Although Bowling (2002) pointed out that there are no specific guidelines about the number of focus groups to aim for.

In addition to the FGD, in-depth interviews were conducted with health workers including a nurse midwife and two community health nurses, a community health worker and traditional communicator in the district because the purpose of the study is to uncover and describe the participants' perspectives on infant and young child feeding. In-depth interviews are one of the main methods of data collection used in qualitative research.

FGD and in-depth interview guides were developed and the discussions were centred on the common feeding practices, barriers to breastfeeding promotion and initiation. The discussion guides were used to generate a rich understanding of participants' experiences and beliefs on infant and young child feeding. The information obtained from the FGDs was supported by in-depth interviews and review of published literature on infant feeding practices. FGDs and in-depth interviews are useful techniques for exploring cultural values, and beliefs about health and disease (Bowling, 2002). The FGD and the in-depth interview involved women from 3 randomly selected communities in the District and the main criteria for selection of the study area was based mainly

on the knowledge of the area, cultural practices and the high prevalence of under nutrition among infants and young children.

A total of 18 women with children under the ages of one year were recruited to take part in the FGD, while 3 health workers and 1 community health worker and 1 traditional communicator were identified to take part in the in-depth interview. Each of the FGD sessions comprised of 6 participants. FGDs are frequently conducted with purposively selected samples in which the participants are recruited from a limited number of sources.

Although there are no specific rules regarding the sample size in a purposive sampling, often the sample size is usually very small (Patton, 1990). In purposive sampling, the selection of the sample size depends upon what the researcher want to know, what will be useful, what will be credible, and what can be accomplished within the time and resources available at the time of the study (Patton, 1990). One good thing about purposive sampling is that the sample size may change as the study progresses (Patton, 1990). This was not the case with this study because the sample size did not change as the study progressed. Thus, the sample size remained 18 women for the FGD and 3 health workers and 1 community health worker and 1 traditional communicator throughout the study.

The study was conducted in two phases among the following respondents details of which can found on Tables 1 and 2.

1. Phase One: The first phase of the study include the conduct of two FGDs with breastfeeding mothers in only two locations in the district, while one FGD was conducted with the grand mothers. Although the author intended to include more FGDs on both breastfeeding mothers and grand mothers, but because of time factor this could be accomplished. The other factor was that the study was done in the middle of the rainy season thus makes it difficult to get more people to participate in the study.

2. Phase Two: The second phase of the study was conducted a week after the conduct of the FGDs. A total of five (5) in-depth interviews were conducted with a nurse midwife attached to the hospital, two (2) Village Health Service Community Health Nurses supervising Primary Health Care Strategy in the study area, one (1) traditional communicator involve in disseminating health and nutrition messages in the study area and one (1) Traditional Birth Attendant (TBA) involving conducting deliveries in one of the communities in the study area (Table 2).

Leeds Metropolitan University (LMU) Ethical Committee approval

was required before the start of the study and clearance for the conduct was made available through my research supervisor. In addition to the LMU Ethical approval, clearance was given to conduct the study by the Director of Health Services of the Republic of The Gambia on behalf of the Ministry of Health and Social Welfare, who was the chairperson of the joint MRC/MoH Ethical and Scientific Review Committee (Appendix). Consent was obtained from the respondents by engaging them to sign the consent forms. As most the respondent could not read and write, the consent forms which included the research aim, confidentiality and anonymity, were read to them before the start of the interview. They agreed to take part in the study by thumb printing representing their approval to take part in the study. For those who were able to read and write just went through the consent and signed to take part in the study.

As a matter of Gambian tradition, FGD participants were not paid in cash, but cola nut was given to each of the three groups after the session as a sign of gesture of appreciation for their participation in the study. It is ethical to give cola nut to research participants in The Gambia because it is part of respect, culture and social symbols in the communities. In order to address the issue of reliability and validity during the study, the FGD and the In-depth interview guides were pre-tested among a group of women of the same characteristics with the study respondents. Purposive sampling method was used in the study because this method aims to sample a group of people, or settings, with a particular features or characteristic (Bowling, 2002).

The communities were notified through the village heads who then informed the required participants for their participation in the study. The information collected from the FGDs and the in-depth interviews were recorded, transcribed and analyzed using conventional techniques for qualitative data and the most commonly used was thematic analysis (Wilkinson, 2004). Thematic analysis approach was used to derive patterns in the responses given by the respondents during the FGD and the in-depth interviews. The transcripts were then read and the key themes and concepts were drawn from each of the transcripts and the categories derived under each theme (Bowling, 2002).

RESULTS

The study on infant and young child feeding practices was conducted in the Foni Kansala District in Western Region of the Republic of The Gambia. A total of 3 FGDs were conducted in three communities namely: Kanfenda, Sangajor and Kankuntu villages. In the former two communities, FGDs were conducted with women of children age less than one year, while in the later community; FGD was conducted with grand mothers. In addition to the FGD, a total of 5 in-depth interviews were conducted with three health workers namely: 2 CHNs from Kampant and Sangajor and a SEM at Bwiam Hospital, while 1 CHW from Njomokunda and 1 TC from Bwiam.

The results obtained from the FGDs and in-depth interviews cannot be whatsoever be generalised. FGDs are not a good source of data on group behaviour or attitudes, because it cannot validate findings from other methods. The major disadvantage of a FGD is that the samples are typically small and may not be representative

to the general population. The fact that focus groups are driven by the researcher's interest makes it a source of weakness. The main weakness of this study is that it does not attempt to use the information collected to represent the entire Region or Country. Women who had never had children were excluded from the study, because the target was women with children at the time of the study. Among the women who took part in the study, there was no age limit attached to the selection criteria. The women who took part in the study are between the ages of 25-35 years. The responses from the women, grandmothers, health workers and community health workers revealed several themes, the discussion of which can be found below:

Perception and experiences of mothers and grand mothers

Knowledge about infant feeding practices

Comments under the above theme varied this way and the experiences of certain mothers on infant feeding practices were also mentioned.

“For me just to give the child breast milk and then other foods that make the child look healthy and strong” (FGD-Mother).

“Sometimes these feeding practices are done in a way of breast feeding the child. You know there are different ways a child is fed in this community, but some are good and some are not good because of the way it is done” (FGD-Mother).

Preferred method of infant feeding

The comments varied this way:

“Some women breastfeed immediately when they deliver, but some women do not practice this method, you know... for some mothers they do practice late initiation of breast feeding” (In-depth Interview-TBA).

“Breast feeding is most common method of infant feeding in this community, unless the mother is very sick that breast feeding cannot be practice” (FGD-Grandmother).

“For me breast feeding of the child is more common in this community, because when a mother delivers newly she is advice by other family members to give breast milk to the child” (FGD-Mother).

Early introduction of water and other liquids

The comments on early introduction of water and other

liquids varied this way:

“You know women here just breast feed just for few days and then start giving other liquids and foods to the child, because this makes the child very strong and healthy” (FGD-Mother).

“Grandmothers usually say if a baby does not drink water for six months and he or she happens to be given water after six months the baby can die and if one does not give a crying child food the child will not stop crying” (In-depth Interview- TBA).

“For me if the child is born and does not drink water, he or she will be very *stubborn and aggressive* that is why mothers are advice to give water and other liquids to the child as early as two months so that the children will not be aggressive when they grow” (FGD-Grand mother).

Reasons for delay or late initiation of breastfeeding

The comments for late initiation of breast feeding varied this way:

“Here majority of mothers do initiate breast feeding within one hour after birth, but yet still some mothers do delay the initiation of breast feeding after birth. Some mothers do give *charm water* (It is water prepared by the marabous or someone who knows the Holy Quran by quoting a verse, write it on a piece of paper and then put in water for the someone to drink which is believed to protect the individual from evil spirits) to the child to drink first which is usually prepared by the *marabou* in the area before breast feeding is initiated” (In-depth interview – CHN).

“Some mothers will tell us different stories when we ask them whether they put their babies to the breast immediately after delivery. They normally say that they will have to wait for signal from their mothers-in-laws or husbands before they initiate breast feeding” (In-depth interview-Nurse Midwife).

Belief that colostrum is impure and unsafe

Comments on the misconception of colostrum varied this way:

“Some mothers do express breast milk in a cup and then put an *ant* in it and if the *ant* dies that means the child should not be breast feed with that milk. They normally say the yellow milk is not good for the child. This is still a deep rooted practice in certain communities” (In-depth interview-TC).

“When a woman deliver we do advice the mother to wash

the breast, sometimes the breast of some mothers do contain *stone* in them and when that happen a *cassava* leaf is boiled and used to wash the breast that contains the *stone*” (FGD-Grandmother).

Perception on the advantages of breast feeding over bottle feeding

Comments on the advantages of breast feeding over bottle feeding varied this way:

“Exclusively breast fed child grows faster than the one who has not been exclusively breast- fed” (FGD-Mother). “You know some of these formulas are made out of animal milk and in our tradition here we do say that a mother who gives animal milk to her child, the child behaves like an animal, does not grow well and keeps on being sick at all times” (In-depth interview- TC).

“Exclusive breast feeding cannot be compared to bottle feeding because it is very much expensive to practice bottle feeding and it is very difficult to maintain it clean and it is really time consuming” (In-depth interview-CHN).

Supports available to help mothers adequately feed their infants

Issues around support mothers may need to adequately feed their infants were pointed out this way:

“The elders in the community also give support at family level. The support includes child care while the mothers are away to work on the farms” (In-depth interview- Nurse Midwife).

“Grandmothers also support mothers in the homes to adequately feed their children. They ensure that children are well fed by the mothers and they also wash the children. They support in the cooking of children’s foods” (In-depth interview-TC). “For me giving good information on child health is also a good support for mothers” (FGD-Grandmother).

“Health workers do provide support to mothers adequately feed their infants through giving health information to mothers on general child care, which is very good for mothers in this community. The health workers here created a lot of awareness for mothers” (FGD-Grandmother).

Factors responsible for early introduction of solid or complementary foods

The involvement of grandmothers or mother-in-laws

“Here grandmothers are very much respected in this

community and whatever they say to mothers, that is what is practiced. They always advocate for the infants to be given water and other foods as early as two months because they will always say breast milk alone is not enough for the child” (FGD-Mother).

“We as grand mothers of children, we do influence the early introduction of complementary foods to the child” (FGD-Grand mother).

“If the child cries all the time, the grand mothers usually conclude that the child needs food and not breast milk and they start encouraging mothers to introduce complementary foods at an early stage” (In-depth interview TBA).

Husbands, friends and other family members of breast feeding mothers

“Husbands tend to show that they have voice in the community that is why they force some breast feeding mothers to introduce complementary foods so early” (In-depth interview- CHN).

“You know husbands are also responsible for the early introduction of complementary foods to the child, because men are also decision makers in the community” (FGD-Mother).

“Friends of breast feeding mothers are also responsible for convincing other mothers to start complementary foods to babies so early” (In-depth interview- Nurse Midwife).

Increased workload of women (breast feeding mothers)

Maternal employment outside the home and increase workload of women has been found to significantly influence on appropriate infant and young child feeding:

“Women in this community do not rest, because they are always engaged with child care and work” (In-depth interview- CHN).

“During the rainy season, when we are busy on farms and rice fields and we cannot take our children with us, we just leave the children with the grand mothers to take care of” (FGD-Mother).

Maternal illness or death after delivery

The well-being of the mother has been identified as an

important determinant for a change of infant feeding practices among mothers in the study area.

“Unhealthy condition of the mother is another factor responsible for the early introduction of complementary foods, because if a mother is so sick, family members do not allow her to breast feed because they will say he child will also be sick when he or she sucks the breast of a very sick mother. Sickness such as malaria, HIV/AIDS, TB, anaemia are all factors responsible for the early introduction of complementary foods and if this happens to the mother, the tendency for her to breast feed is minimal, sometimes breast feeding cease completely” (FGD-Mother).

“Sometimes with the work of God, some mothers may die after delivery and leave the child and in this case foods are introduced to the child so early” (FGD- Grand mother).

Breast milk insufficiency of the mother

Comments under this theme varied this way:

“If some mothers are sick they have insufficient milk supply and in that case the milk they produce cannot satisfy the breast feeding child and thus they introduce complementary foods so early to the child” (FGD-Grand mother).

“You know for some children they are so greedy in breast feeding, they breast feed too much, this makes the mother to have anaemia and also loose weight, that is why that particular child no longer breast feed from the mother, and at this time other foods are given to the child” (FGD- Mother).

Mother’s socio-economic status and income

For mother’s socio economic status and income, this is what one of the respondents pointed out:

“Poverty is also another factor responsible for the early introduction of complementary foods to the child. If the mother is poor, she will not be happy enough to adequately feed the child because she will be thinking of how to get good food to increase the quantity of breast milk” (In-depth interview- TBA).

Cultural and traditional practices

Factors such as tradition, beliefs and cultural practices have been found to have an influence on infant feeding.

"If a baby cries often, an abdominal cramp is usually suspected and if that happen we do go to the bush to look for roots of a plant called "Kuntumangho" (It is a type of plant found in the wild bush and the roots are boiled and drink which is believed to treat abdominal cramps or discomfort). This root is broken into pieces and chew by the mother until it is completely crushed and given to the child by mouth. This helps in the prevention of abdominal cramps. The straw of the chewed root is use to rub around the umbilicus of the baby and this way the baby does not cry anymore. This case there is no need to give the child breast milk, because the child sleeps straight away" (FGD-Grandmother).

DISCUSSION

This study aimed to put together information that can be used to understand infant and young child feeding practices in the District. The FGDs and the in-depth interviews proved to be very useful methods for investigating relevant community and family practices with regards to infant and young child feeding among breast feeding mothers. Despite the fact that a small sample size coupled with the method used to get the participation of the respondents certainly limit the generalizability of the research findings.

The commonest infant feeding method prevalent in the study area is breast feeding with the introduction of solid or complementary foods as early as two to three months of the infants' life. The study found out that mothers are aware of the fact that successful breast feeding leads to less money spent on infant formula. Based on this fact formula feeding in this area is very low, although some mothers do practice it. Despite the strong support of breast feeding by the women, some mothers either bottle feed or introduce other liquids as early as they are born. In addition, information on infant and young child feeding practices is adequate but knowledge on the effects of early introduction of solid or complementary foods to the infant is inadequate. Apparently most of the women are unaware of the effects of some of their own infant and young child feeding practices which were linked to their own cultural beliefs and tradition. What has become clear in this study was that breast feeding is the norm in the District, although the women participating in the study seems to agree in principle that there are different methods of infant feeding in the study area, but they categorically made it clear that breast feeding is the commonest preferred method of feeding an infant from birth up to 24 months. This study and that of (Samega-Janneh et al., 2001) agree in principle that optimal breastfeeding practices including exclusive breastfeeding increase the chance of survival for most infants.

The reasons for delay initiation of breast feeding is due to the fact that newly delivered mothers have to wait for

signal from their husbands, parents and mother-in-laws. The attitude of husbands, parents and grand mothers towards breast feeding mothers certainly discouraged them to initiate breast feeding early as the case in other research findings. This study found out that most of the women are not aware of the importance and benefits attached to the early initiation of breast feeding. The studies such as that of (Littman et al., 1994; Shepherd et al., 2000; Giugliani et al., 1994) found that inadequate maternal education and support for both partners significantly inhibit on successful breast feeding. It was found in this study that culture and economics greatly influence choice and decisions regarding infant and young child feeding in the District. The belief that exclusive breastfeeding is dangerous to the child has been found in this study because the mothers feel that if a child does not drink water after delivery; the child will be tasty and may eventually die, while the grand mothers have a feeling that if a child does not drink water early makes the child aggressive in later life.

The women perceived that giving the infant water immediately after birth is necessary because it makes the child look healthy. Although no specific amount of water to be given to the child on a daily basis has been mentioned by the women, but they emphasised that giving water to the child is important. The majority of the respondents do not comply with the WHO recommendation on the promotion of exclusive breast feeding due to their cultural backgrounds, although exclusive breast feeding has been identified as one of the key interventions for reducing childhood deaths (Bahl et al., 2005). The belief that colostrum is impure and dangerous to the child has also been established in this study. The respondents thought that colostrum needs to be removed from the breast of the mother before actual breast feeding starts and that certain cultural practice are used to remove the colostrums with the influence of grand mothers. The findings of this study revealed that there is a negative misconception about the use of colostrum.

The support from health workers, opinion leaders and traditional communicators and NGOs by means of nutrition information have been valued as an important strategy in helping mothers to adequately feed their infants and thus help in improving their infant feeding practices. The women mentioned that most of the support is in the form of information on nutrition given by grand mothers, health workers, traditional communicators, opinion leaders and other family members. It was found that although grand mothers and husbands are the major barriers to the early initiation of breast feeding, but on the other hand they do provide support to breast feeding mothers in a way of information giving, provision of food at household level and training of young mothers on infant food preparation. The BFCI strategy which has proven to be a good intervention in improving child health

and nutrition at community level is not available in the study area on a wider scale. This study found that grand mothers play a major role in influencing the early introduction of complementary foods because they have been found to be very powerful decision makers in the home. In addition to grand mothers, husbands, friends and other family members of breast feeding mothers play an influential role in the early introduction of complementary foods in the District. In addition, maternal employment outside the home for economic and nutritional gain coupled with increased workload of women has a significant influence on appropriate infant feeding practices, as most of the women in the study area are mostly engaged in agricultural activities. Factors such as; breast milk insufficiency, maternal illness or death after delivery, too close pregnancies and size of the breast feeding mother have been found to significantly influence the early introduction of complementary foods and early cessation of breast feeding in the area. It has also be found that mother's socio-economic status, income level, cultural and traditional practices very well influence the early introduction of complementary foods and henceforth lead to changes in their infant feeding practices.

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Appendix.

FROM : Panasonic TAD/FAX

PHONE NO. : 223178

Jul. 20 2006 10:25AM P01



THE REPUBLIC OF THE GAMBIA
Department of State for Health and Social Welfare
BANJUL

TEL NO: (220) 4227300

Fax NO: (220) 223178

Ref: AD 471/01

10th July 2006

Mr. Modou Njai
Leeds Metropolitan University
Faculty of Health
Queen Square House
Room 431
Leeds LS2 8AJ
England

PERMISSION TO CONDUCT A STUDY IN THE GAMBIA

The Department of State for Health and Social Welfare has received your project proposal and look forward to the result of your studies.

I wish you all the best.

Dr. Mariatou Jallow
Ag. Director of Health Services

Cc: Permanent Secretary -- DoSH
file

UPCOMING CONFERENCES

13th Congress of the Asia-Pacific Federation for Clinical Biochemistry and Laboratory Medicine (APCCB 2013), Bali, Indonesia, 27 Oct 2013



5th International Conference on Legal Medicine, Medical Negligence and Litigation in Medical Practice & 5th International Conference on Current Trends in Forensic Sciences, Forensic Medicine & Toxicology (IAMLE 2014), Goa, India, 25 Feb 2014



5th International Conference on Legal Medicine, Medical Negligence and Litigation in Medical Practice & 5th International Conference on Current Trends in Forensic Sciences, Forensic Medicine & Toxicology (IAMLE 2014)

Conference Date: 25th - 27th February, 2014 | **Venue:** The International Centre, Goa, India

Conferences and Advert

November 2013

7th International Conference on Communication in Veterinary Medicine (ICCV), St. Louis, USA, 4 Nov 2013

October 2013

13th Asia Pacific Federation for Clinical Biochemistry and Laboratory Medicine Congress, Bali, Indonesia, 6 Oct 2013

13th Congress of the Asia-Pacific Federation for Clinical Biochemistry and Laboratory Medicine (APCCB 2013), Bali, Indonesia, 27 Oct 2013

Journal of Clinical Medicine and Research

Related Journals Published by Academic Journals

- *Journal of Metabolomics and Systems Biology*
- *Journal of Neuroscience and Behavioral Health*
- *Journal of Physiology and Pathophysiology*
- *Journal of Public Health and Epidemiology*
- *Medical Case Studies*
- *Medical Practice and Reviews*
- *Journal of General and Molecular Virology*
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