2nd Annual HIV and AIDS and Nutrition Research Dissemination Conference

Abstracts from symposiom held at College of Medicine in January 2007

A1: Randomized Controlled Trial comparing the Impact of Supplementary Feeding with either Ready-to-use Food or Corn-soy Blend among Malnourished Anti-retroviral Therapy Clients in Malawi.

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Objective:

Compare the effectiveness of 2 supplementary foods, ready-to-use therapeutic food (RUTF) and corn/ soy blend (CSB), given to wasted patients beginning the standard ART protocol, in improving the nutritional and clinical outcomes after 3.5 months.

Site:

QECH adult ARV clinic

Methods:

490 wasted (Body mass index, BMI < 18.5) adults starting ART were randomized to receive isoenergetic amounts of RUTF or CSB as dry rations. Weight, fat free body mass measured by bioelectrical impedance, CD4 count measured by FACS count machine and significant clinical events (hospitalizations + deaths) were measured at the monthly visits. The primary outcomes were BMI and fat free body mass, and the secondary outcomes were CD4 count and significant clinical events. Outcomes were compared with a Student's t-test for continuous parameters and with a Chi-Square test for dichotomous outcomes.

Results:

On enrollment subjects had a mean BMI of 16.5 and fat free body mass of 95. After 3.5 months of therapy patients receiving RUTF (n=161) had a weight gain 5.7 ±4.6 kg and BMI gain 2.2 ±1.8, compared to patients receiving CSB with weight gain of 4.5±4.2kg and BMI gain of 1.7±1.6. There were significant improvements in the weight gain, BMI, Fat-Free Mass and the CD4 cell count at 3.5 months of study participation in patients of both supplementary food groups. However, the increase in weight, BMI and the CD4 cell count of patients in the RUTF supplementary food group, were statistically significantly higher than in patients of the CSB supplementary food group, 5.7 (±4.6), vs 4.5 (±4.2)kg, 2.2 (±1.8) vs 1.7 (±1.6) and 165 (±137) vs 155 (±142) cells x 106/L, respectively, ($p < 0.05$). Of the study participants who have completed the 3.5 months of nutritional intervention, less deaths occurred in patients of the RUTF than in the CSB supplementary feeding group, 17.1% vs. 20.0%. Less drop- outs occurred in patients of the RUTF than in the CSB supplementary feeding group, 7.3% vs. 8.5%, respectively.

Conclusion:

Supplementary feeding with specially formulated RUTF, was associated with more increase in weight, BMI and CD4 cell count, but there were no differences in the survival of the wasted HIV-infected patients on ART Program.

A2: Prevalence of Acute Malnutrition and Eligibility for RUTF amongst HIV+ Patients followed at Baylor Clinical Center of Excellence

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Objectives

It is our objective to determine the prevalence of mild, moderate and severe acute malnutrition in HIV + children followed at the Baylor Clinical Center of Excellence in Lilongwe, Malawi over a six week period. This data is essential to identify a subset of patients that may be eligible for therapeutic feeding programs currently existing in Lilongwe and surrounding regions.

Results

In November 2006 there were 594 patients evaluated, using weight for height, 3.8 % were identified as having mild acute malnutrition (80-85% wt/ht) , 4.8% were identified as having moderate acute malnutrition (70-80% wt/ht) and 0.8 % with severe acute malnutrition (<70% wt/ht). In total 11.3 % of children suffered from some degree of malnutrition and 7.5% would be eligible for out patient therapeutic RUTF according to the interim guidelines for management of acute malnutrition through CTC.

During the month of December 2006 there were 611 patients evaluated, 3.6% were mildly malnourished, 9.4% were moderately malnourished and 2.1% were severely malnourished. In total 15.1% had some degree of malnutrition and 11.5% of children evaluated in December would be eligible for RUTF.

Conclusion

This preliminary data supports the need for RUTF to become available for children living with HIV. As this modality is more accessible we hope to see a reduction in the number of HIV + children requiring NRU admission as well as the morbidity associated with malnutrition.

A3: Food Supplementation improves Nutritional Recovery in Malnourished HIV infected Malawian Adults starting Antiretroviral Therapy

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Background

The pathophysiology of wasting in HIV infected adults is only partially understood. Food insecurity probably plays an important role in Malawi. Wasting is a strong risk factor for mortality but the value of food supplementation in malnourished African adults starting antiretroviral therapy (ART) has not been studied.

Objectives and methods

To evaluate the effect of food supplementation in wasted Malawian adults starting ART, we compared 191 patients enrolled in a trial of two different food supplements (2006-7) with 110 patients enrolled in a cohort study not providing food supplements (2005-6). All patients were adults, ART naïve, had BMI's < 18.5 and started Triomune® at the ART clinic of Queen Elizabeth Central Hospital, Blantyre. Food supplementation was initiated concurrently with

ART. Results after 14 weeks are presented.

Results

At baseline mean age, weight, BMI, CD4 count, percentage severe wasting, and percentages in CD4 strata and WHO clinical stages were similar in both groups. The percentage of females in the intervention group was larger (60% vs. 48%; p=0.03). Mean weight gain (4.9 vs. 3.3 kg; p=0.012) and BMI increase (2.1 vs. 1.2; p=0.003) after 14 weeks was higher in the intervention group. Mortality was very high in both groups (23.2% vs. 18.4%; p=0.34).

Conclusion

Early mortality on ART was high despite food supplementation. Among survivors food supplementation led to significantly better short-term nutritional recovery than no nutritional intervention. Results after longer follow up need to clarify the clinical relevance of these findings as well as the influence of different food supplements.

A4: Mortality of HIV Positive Children with Uncomplicated and Complicated Severe Acute Malnutrition

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Objectives

To describe outcomes of HIV positive children admitted with uncomplicated and complicated severe acute malnutrition (SAM) in a community based-therapeutic care (CTC) programme.

Site

Dowa district CTC programme, central region, Malawi

Methods

Children were prospectively recruited at admission from 29th December 2004 to the 23rd March 2005 and offered HCT in addition to usual CTC services. All children were investigated for signs of complications including poor appetite and medical complications. Mortality of HIV positive children with uncomplicated and complicated SAM were studied and compared to that of HIV negative children.

Results

Overall uptake of HIV testing was 64.3% for adults and 94% for children. HIV prevalence in severely malnourished children was ~ 3%. For children with uncomplicated SAM the mortality was 11.1% (2/18) and 2.0% (7/351) for HIV positive and negative children respectively (p=0.06). For those admitted with complicated SAM, 50% (2/4) of HIV positive and 3.4% (4/117) HIV negative died (p=0.011). Death of HIV positive children with complicated SAM occurred earlier (2 and 6 days) than that of those with uncomplicated SAM (36 and 41 days). In contrast, 59% of HIV-positive and 83% of HIV-negative children achieved the discharge weight-for-height (WFH) > 80% of the reference median (p=0.003).

Conclusions and Recommendations

Despite the study power limitation, the results suggest that HIV positive children with both uncomplicated and complicated SAM are at higher risk of death than HIV negative children. Studies with better power should be conducted to identify the risk factors of death in these children and propose intervention to improve their outcomes.

A5: Excess Mortality Risk associated with HIV Infection in a Large Malawi Nutrition Rehabilitation Unit

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2. Valid international

Objectives

To determine the risk of death in children with severe malnutrition, disaggregated by HIV status, and phase of rehabilitation.

Site

Moyo house NRU, Queen Elizabeth Central Hospital, and the OTP programme patients are discharged to after stabilisation, clinical recovery, and assessment of good appetite for RUTF. This NRU admits predominantly sick children with complicated malnutrition.

Methods

All children admitted to the NRU between July and December 2006 were entered onto a database, and HIV status recorded where known. Deaths were determined for inpatients, and those defaulting outpatient follow up were followed up at home to determine outcome.

Results

690 children were admitted in this 6 month period, of whom 355 (51.5%) were HIV ELISA reactive (R). In 68 (9.8%) the HIV status was not known (NK).

There were 146 inpatient deaths, and a further 16 known deaths in OTP. Death was strongly associated with HIV status, with 25 (9.3%) of HIV non-reactive (NR) dying, and 106 (29.8%) of HIV infected admissions dying by 4 weeks OTP follow up visit.

Time of death was associated with HIV status, with later deaths more likely to be HIV infected. There were 67 deaths in stabilisation phase 1 (8 NR, 35 R, and 24 NK), 57 deaths in transition phase (12 NR, 39 R, 7 NK), 22 in rehabilitation phase 2 (2 NR, 19R, and 1 NK). Outcome was available for 32 of 46 defaulters who were followed up at home, and of these, half had died (3 NR, 13 R). Death in all phases was strongly associated with HIV status, but particularly in phase 2 and within OTP. In children with known HIV status the Odds Ratio for death by HIV status was 4.12 (2.52-6.79).

Conclusions and Recommendations

Mortality within Malawi NRUs is strongly associated with HIV status, and this needs to be taken into account. The Prudhon Index, currently used to assess mortality risk in patients, and performance of units, requires modification to include HIV status as a major risk factor for death.

B1: Acceptability and Effectiveness of Chickpea Sesame Based Ready To Use Therapeutic Food (CS-RUTF) in Malnourished HIV Positive Adults: Results of a Pilot Programme.

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1. **Valid International, Malawi and UK**

Objectives

To describe acceptability and effectiveness of Chickpea Sesame based RUTF in chronically sick adults with HIV.

Site

Home based care of Salima Aids Support Organisation (SASO) and Nkhota Kota AIDS Support Organisation (NASO), Central Region Malawi

Methods

Sixty Home Based Care patients with Middle Upper Arm Circumference (MUAC) <210 mm were offered 3 months nutritional support with 500 g (2600 Kcals) of CS-RUTF and routine cotrimoxazole. Tolerance and intake, weight, MUAC and BMI gains and Karnofsky score change were studied.

Results

Out of the 60 patients who started the programme, 5 (8.3%) absconded because of unpleasant taste (too sweet or too salty), nausea, flatulence or abdominal pain. The mean daily intake was 300 g /person/day providing 1590 kcal and 40 g of protein. Overall, 73.3% (44/60) gained weight, BMI and MUAC. The median weight, MUAC and BMI gains after 3-month were 3.0kg, 25.4mm and 1.1, respectively. 78.3% patients (47/60) regained sufficient strength to walk to the nearest health facility.

Conclusions and Recommendations

We report rapid improvement in activity performance and nutrition status with CS-RUTF in malnourished HIV adults. The CS-RUTF was acceptable to the majority of patients. Our results also suggest that nutrition rehabilitation prior to HAART commencement can be achieved in some HIV positive adults. We are now investigating these findings further.

B2: Home-based Therapy with Ready-to-use Therapeutic Food is of benefit to Malnourished, HIV-infected Malawian Children.

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Objective

To determine if Home-based Nutritional therapy will benefit a significant fraction of malnourished, HIV-infected Malawian children, and to determine if ready-to-use therapeutic food (RUTF), is more effective in Home-based than traditional foods.

Site

Moyo Nutritional Rehabilitation Unit of the QECH Department of Pediatrics.

Methods

93 HIV-positive children >1 y old discharged from the Nutritional Unit in Blantyre Malawi were systematically allocated to one of three dietary regimens: RUTF, RUTF supplement, or blended Maize/Soy flour. RUTF and Maize/soy flour provided 730 KJ. Kg-1. d-1, while the RUTF supplement provided a fixed amount of energy, 2100KJ/d. These children did not receive antiretroviral chemotherapy. Children were followed fortnightly. Children completed the study when they reached 100% weight-for-height, relapsed or died. Outcomes were compared using regression modeling to account for differences in the severity of malnutrition between the dietary groups.

Results

52/93 (56%) of all children reached 100% weight-for-height. Regression modeling found that the children receiving RUTF gained weight more rapidly and were more likely to reach 100% weight-for height than the other two dietary groups ($p < 0.05$).

Conclusion

More than halve of malnourished HIV-infected children not receiving antiretroviral chemotherapy benefit from home-based nutritional rehabilitation. Home-based therapy RUTF is associated with more rapid weight and a higher likelihood of receiving 100% weight-for-height.

B3: Promotion of Nutrition Knowledge and Food Security in Rural Households affected By HIV in Malawi

C Walford

Family Health International (FHI), Lilongwe, Malawi

Objectives

To prevent nutritional deterioration in home-based care (HBC) clients through improved knowledge of nutrition and food utilisation, plus promotion of food security through low input horticultural methods

Sites

Target areas of FHI's partners in five districts: Dowa, Mangochi, Blantyre, Chikwawa and Nsanje.

Methods

Nutrition training was conducted over five days for partners and government staff in their districts of operation. The training included basic nutrition, dietary diversity, food availability and preparation, with emphasis on energy/time saving methods, plus malnutrition, nutrition for PLWHA, and remedial use of herbal/ medicinal plants. Soil and plant health, water management and use of local resources for improved crop production in kitchen gardens were covered. Group discussion, cooking sessions and site visits were included to ensure maximum understanding. Partners trained community volunteers, local leaders and HBC caregivers. A simple baseline assessment was conducted using a random sample of HBC households in each district, to be followed by one at six, twelve and eighteen months.

Results

In total, 45 partner staff, 48 government staff and approximately 320 HBC caregivers have been trained in the five districts. The six month assessment is currently underway. Anecdotally, partners report implementation of low input concepts introduced and an enthusiasm amongst households to improve their dietary intake and food preparation.

Conclusions and Recommendations

It is too early to conclude that this approach to preventing nutritional deterioration in HBC households is effective. Application of the nutrition knowledge gained, understanding of health benefits and subsequent adoption of low input concepts of food preparation and crop production requires behaviour change in our traditional, rural communities. On-going encouragement and support from our partner community based organisations (CBOs) and government extension staff is essential.

B4: Impact of RUTF on Nutritional Intake of Inpatients at QECH

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Objectives

To assess the nutritional status of inpatients in QECH adult wards in June 2006, and assess numbers eligible for RUTF. To assess the dietary intake of patients before and after RUTF, and assess the feasibility of RUTF introduction at QECH

Site

Adult medical wards, QECH

Methods

Cross-sectional study of 189 patients (51% HIV positive). Nutritional status was assessed by Weight, Height, Oedema, MUAC and BMI was calculated. Prevalence of BMI < 16 (severe malnutrition), and 16-16.9 (moderate malnutrition) determined. MUAC < 19 was used where BMI not possible.

Dietary intake on 30 patients by 24 hour prompted recall, and energy, protein and micronutrient intake calculated. Follow up dietary intake on 15 patients (BMI<17) after RUTF (3000kcal/ day for severe malnutrition and 1500 kcal/ day for moderate malnutrition) was introduced to the hospital.

Results

Mean BMI was 18.2, and prevalence of BMI<18.5 was 66.6%, with 31.7% (60) severe and 14.3% (27) moderate malnutrition.

The hospital ration of 1403kcal was rarely consumed fully by patients, whose mean daily dietary intake (n=30) was 795 kcal (SD 334). In 15 patients with a BMI <17 this increased from 911 kcal/ day to 1887 kcal/day after RUTF was added to their hospital diet. This was still below the mean calculated energy requirements of 2453 kcal for these patients, and few patients were able to consume their RUTF daily ration fully.

Micronutrient intake was uniformly below RDA, however after RUTF was sufficient for protein, vitamins A, B1, B2, B6, iron and zinc.

Conclusions and Recommendations

We report a high prevalence of malnutrition in inpatients, of whom 46% were eligible for RUTF. Patients had a very low dietary intake, which improved with RUTF. The acceptability of RUTF to both patients and staff was high, and prescribing on the drug sheet facilitated use as a medical intervention.

B5: Factors affecting uptake of Community-Based Therapeutic Care (CTC) In Nsanje

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Objective

To identify and investigate factors affecting uptake of CTC in Nsanje district, further bring out an understanding of cultural practices in relation to malnutrition, community perception and treatment of malnutrition.

Methods

The study used the following qualitative methods: focus group discussions, in-depth individual interviews, body mapping activities, and time-activity profiles.

Results

Women in Nsanje have very little control over resources and decision making processes relating to their and their children's health. This was found to be a major factor as it influenced child welfare in terms of what they ate, quantity and nutritional quality. The family finances impacts on children's wellbeing. If father had enough money, he was able to buy "good1" foods. Some cultural beliefs such as dzwade2, delayed access to treatment of malnutrition as most community respondents believed that the child was sick/ malnourished because the parents had not followed cultural taboos regarding child rearing. Community leaders are instrumental in ensuring that children are properly looked after and, socialised to become useful members of their communities. They also work together with other government and non-government agencies to ensure that the people of the communities are healthy.

Recommendations

Community stakeholders such as traditional healers and religious groups need to be involved in all stages of the programme. More and appropriate Information Education Communication (IEC) materials should be developed and used at community level. Use of other innovate approaches at community level to inform/educate community on issues relating to gender, health and nutrition. There is also need to conduct more regular community review workshops so that programme progress is monitored.

1. **"Good" foods are those foods with high nutritional value such as eggs, meats, and fruits.**
2. **Dzwade are set of social taboos that parents or all members of the family must follow when a baby is born in the family.**

C1: Complementary Feeding with Fortified Spread Reduces the Incidence of Severe Stunting Among 6-18 Month Old Rural Malawian Infants

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Background

Childhood growth failure and incidence of malnutrition are very common in Malawi. Fortified spreads have proven effective in malnutrition rehabilitation and may also offer a means to prevention.

Objective

To compare growth and incidence of malnutrition among infants receiving long-term dietary complementation with either ready to use fortified spread (FS) or maize-soy flour (Likuni-Phala).

Methods

A randomised, controlled, single-blinded clinical trial. Six-month-old healthy infants were randomised to receive daily supplementation for 12 months of either 25g FS (FS25 group), 50g FS (FS 50), or 72g of LP (LP). All supplements were fortified with micronutrients. Daily dose for FS50 and LP contained 256 kcal energy and FS25 half of that. Outcome measures included changes in weight and length and incidence of severe malnutrition.

Results

182 infants started and 168 completed the intervention. The mean (SD) weight gain in the FS25, FS50 or LP groups were 2.36 (0.61), 2.44 (0.78), and 2.36 (0.60), respectively. Comparable mean (SD) gains in length were 13.0 (2.7), 13.0 (2.4), and 12.6 (1.7) cm. The incidence of severe underweight (WAZ<-3) was 15%, 19% and 13%, severe stunting (LAZ<-3) 3%, 0% and 12%, and severe wasting (WLZ<-3) 2%, 2% and 2%, in the FS25, FS50, and LP groups, respectively. Compared to infants receiving LP, those getting FS had a 12% (95% CI 4 to 20%) lower incidence of severe stunting.

Conclusions

One-year-long complementary feeding with FS has some positive effect on the infants' average growth albeit not significantly different from LP, but it seems to markedly decrease the incidence of severe stunting.

C2: Diarrhea in Uninfected Infants of HIV-infected Mothers Who Stop Breastfeeding At 6 Months: The Ban Study Experience

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Objective

To describe diarrhea among early-weaned uninfected infants of HIV-infected mothers enrolled in the Breastfeeding Antiretroviral Nutrition (BAN) Study currently ongoing.

Site

Lilongwe, Malawi

Methods

Breastfeeding HIV-infected mothers with CD4 counts>250/mm3 and their infants are randomised to a maternal or an infant antiretroviral regimen or to standard of care during breastfeeding. Mothers are counselled to exclusively breastfeed followed by rapid weaning by 28 weeks. Besides, mothers are randomised to receive or not a nutritional supplement during breastfeeding. We examined the rates of diarrhoea, hospitalisations and deaths due to diarrhoea in HIV-uninfected infants from April 2004 to June 2006 in comparison to national Malawi data in infants who follow local feeding practices of extended breastfeeding into the second year of life.

Results

Between April 2004-June 2006, 771 HIV uninfected infants had been enrolled of whom 225 had reached 28 weeks. There was an increase in diarrhoea cases around the weaning time that continued through the end of the first year of life. Hospitalisations due to diarrhoea also peaked around weaning time. The frequency of diarrhoea was consistent with rates published in the literature. There was a higher probability of infant diarrhoea in the rainy, compared with the non-rainy season ($p<0.001$). The overall infant mortality (43/1000) was much lower than that reported in the MDHS, 2004 Edition (76/1000 live births).

Conclusions and Recommendations

Diarrhoea increased during and following weaning among exclusively breastfed infants reportedly weaned at 6 months. This is consistent with the pattern seen in populations who practice prolonged breastfeeding, as this time coincides with introduction of complementary infant foods. Greater emphasis should be on hygienic preparation of weaning foods and water purification to reduce infant diarrhoeal morbidity in resource-limited settings.

C3: Late Postnatal Transmission of HIV-1, Breast Milk Viral Load and Nevirapine Levels in Breast Milk and Plasma

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Objectives

To determine the risk and timing of late postnatal transmission (LPT) of HIV-1 in breastfed infants.

Methods

Infants enrolled in 2 previous clinical trials to prevent mother-to-child transmission of HIV were followed at QECH in Blantyre. LPT was defined as HIV infection occurring between 1.5 and 24 months. In a subset of women and infants, breast milk HIV RNA and nevirapine (NVP) concentrations in breast milk and maternal plasma, and NVP concentrations in infant plasma were measured. Kaplan Meier and Cox proportional hazard models assessed cumulative incidence and association of risk factors with LPT.

Results

Of 1256 infants enrolled, 98 were confirmed HIV infected and 1158 were uninfected during follow-up. The cumulative risk of LPT of HIV at 24 months was 9.68% (95% CI 7.80-11.56); the interval hazards were 1.22% during 1.5-6 months, 4.05% during 6-12 months, 3.48% during 12-18 months, and 1.27% during 18-24 months. During the postnatal period 1.5-9 months, breast milk viral load was significantly ($p=0.01$) less detectable in non-transmitting women receiving NVP intrapartum compared to those who did not receive NVP. Baseline maternal plasma viral load strongly predicted LPT (adjusted hazard ratio 3.6; $p<0.0001$).

Conclusions

Infant short-course NVP prophylaxis followed by weaning at 6 months could prevent >85% of LPT. Safe post-weaning infant feeding alternatives are needed.

C4: Risk/ Benefit Analysis of Weaning at 6 Months For HIV Infected Malawian Mothers: An Analysis Using Malawi Derived Data

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Objectives

Using locally derived data, to estimate HIV free survival if breastfeeding is stopped at 6 or 12 months. This would help inform national PMTCT guidelines on inclusion of weaning at 12 months as an option for mothers.

Methods

Analysis of Malawi DHS (2004) data to determine mortality between 6 and 12 months.

Calculation of HIV infection free survival in PMTCT programmes at 1 year modelled on weaning at 6 and 12 months, using Malawi data on mortality risk by breastfeeding practice.

Results

DHS (2004) indicates the infant mortality between 6 and 12m to be 2.2% at national level.

Extended Breastfeeding in Malawi has been associated with reduced mortality, indicating 3 fold greater mortality if not breastfed to 1 year, in both HIV + and – children.

Using these assumptions there would be an mortality increase from 2.2% to 6.6% (4.4%) between 6 and 12 months. The benefit of stopping breastfeeding between 6 and 12m is estimated to reduce HIV transmission by 3%.

HIV infection free survival using this model at 1 year would be 1.4% worse if mothers breastfeed to 6 months, than if they chose to breastfeed to 12 months.

Conclusions and Recommendations

Current PMTCT policy should add breastfeeding to 12 months as an acceptable option. Malawi researchers and NGOs should report local mortality data, ideally as HIV infection free survival at 12 or 18 months. These should include acceptability and cost benefit analyses for interventions such as RUTF, for which we have no studies to inform policy, and before deciding on RUTF as an

option in national policy.

C5: Effect Of Counseling On Early Breastfeeding Cessation And Abrupt Weaning Among Hiv Infected Mothers In Blantyre, Malawi

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Introduction

Breastfeeding (BF) is a major risk factor for mother-to-child HIV transmission (MTCT). However, in Malawi BF is universal among women and replacement feeding is considered not feasible due to cost and risk of other infections in the baby. For an HIV infected mother stopping breastfeeding altogether is the surest way of eliminating breastfeeding associated HIV infection. MOH/WHO is recommending providing all information to the HIV infected mothers to make informed decisions regarding BF.

Aim

The aim was to evaluate the effectiveness of education and counseling of HIV infected women, as per guidelines, to stop BF early and abruptly.

Methods

This was part of a large clinical trial on the use of Post Exposure prophylaxis for infants to reduce HIV MTCT through breastfeeding. All HIV infected women who enrolled in the main study received counseling and education to stop breastfeeding at 6 months based on WHO/MOH guidelines. Women were continuously counseled to exclusively breastfeed and wean abruptly if they choose to stop BF. They were instructed on food replacements, preparation and feeding practices. They were interviewed at each visit whether they actually decided to stop breastfeeding.

Data on various factors demographic, Socio economic and health status were collected through interviews using standard questionnaire to determine any relationship with ability to stop breastfeeding early.

Results

1100 women had enrolled in the study, 800 of them had reached > 6 months of follow up. Their mean age was 26.7 (18-44) years. More than 95% were married. Of the 800 mothers 81.1% weaned their babies by 6 months. Factors such as partner education, ability to read, and history of involuntary weight loss were significantly associated with early breastfeeding cessation.

Conclusion

In this study, there is evidence that education and counseling of HIV infected women to stop breastfeeding early was effective. However, implementation of early breastfeeding cessation programs must considered the impact on the health of the BF infants.

"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"