

Modified Cow Milk as a Replacement for Breastfeeding of Infants Born to HIV-Seropositive Mothers

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Abstract

Breastfeeding by HIV-seropositive mothers accounts for 90% of HIV infection in children worldwide. Replacement feeding has been recommended for prevention of mother-to-child-transmission (PMTCT) of HIV. However, this can result in increased morbidity and mortality of infants due to malnutrition, diarrhoea and respiratory infections. The present study aimed at producing an appropriate replacement for breastfeeding of infants. It focused on modification of cow milk to reduce renal solute load (RSL), enrichment to increase nutritive value, and destruction of pathogenic and spoilage micro-organisms. Whole cow milk was diluted with potable water in the ratio of 2:1, milk to water, and enriched with 3.1% sugar (w/v) and 3.1% corn oil (v/v). The mixture was homogenized at 2,500 psi and pasteurized at 65°C for 30 minutes, cooled and stored in a refrigerator. Analysis showed reduction of 35% in protein and 43% in ash. The nutrient components were: 2.16% protein, 4.29% fat, 5.22% carbohydrate, 0.4% ash and 88.38% water. The presumptive coliform test showed nil cfu/ml. Acidity was 0.09% and the shelf life, 40 hours at 26°C. Sensory evaluation showed significant differences, greater acceptance and preference for the modified milk in appearance, flavour, sweetness, mouth feel and after-taste. The overall product cost was 29% that of formula milk. Results indicated a microbiologically safe product with reduced RSL for infants. The product is therefore recommended as an appropriate replacement to breast milk for non-breastfed infants of HIV-seropositive mothers.

Key words: PMTCT: Replacement feeding: Appropriate: Modification

Introduction

Breastfeeding in the context of HIV infection poses ethical challenges to medical practitioners and presents a dilemma to infected mothers in

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