Efficacy of Colostrum and Whole Egg Blend Dietary Supplementation in the Management of Acute Watery Non-bloody Diarrhea in Children Aged 1 to 5 Years Old

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BACKGROUND

Diarrheal diseases affect nearly 20% of pediatric population at any given time. It accounts for about 10 million deaths per year, making it the second leading cause of mortality in children under 5 years old. Recent fact sheet from World Health Organization reported that globally there are around 1.7 billion cases of diarrhea occurring in children yearly, with more than 80% of cases prevailing in developing countries such as Africa and South Asia. In the Philippines, diarrheal diseases have always been a major public health concern. It is consistently among the top ten diseases in the Registry of Childhood Disease of the Philippine Pediatric Society.

The study aims to compare the efficacy of colostrum and whole egg blend dietary supplementation with standard therapy versus standard therapy alone in the management of acute watery non-bloody diarrhea among those greatly affected, children 1 to 5 years of age.

RESULTS

Table 2. Clinico-demographic profiles and outcomes of the study groups.

	CONTROL GROUP	TREATMENT GROUP	95% CI	Welch p value	Wilcoxon p value
Age (Mean, Years)	3.0	2.7			
Male : Female	34 : 30	36 : 28			
No Sign : With Signs of Some Dehydration	50 : 14	40 : 24			
Good : Poor Tolerability	---	54 : 10			
Average Stool Frequency	4.3 6.2 5.2 3.5	3.5 6.0 3.5 1.4	0.48, 1.22	1.32x10 ⁻⁵	1.30x10 ⁻⁴
Average Stool Consistency*	2.9 4.2 3.5 2.3	2.5 3.9 2.6 1.5	0.24, 0.58	5.16x10 ⁻⁶	2.19x10 ⁻⁵
Average Duration of Illness (Days)	4.4	3.6	0.6, 1.1	1.12x10 ⁻⁹	9.70x10 ⁻⁹
Average Doctor-reported Well Being*	2.2 3.0 2.2 1.4	1.8 2.6 1.9 1.1	0.14, 0.61	2.00x10 ⁻³	3.00x10 ⁻³

Mean ages in the control and treatment groups are 3.0 and 2.7 years, respectively. More than half (55%) of the participants were males. Majority (70%) did not present with dehydration, while 30% came in with signs of some dehydration. Results showed that the supplement was effective in decreasing stool frequency (3.5 vs 4.3 episodes per day), improving stool consistency (2.5 vs 2.9 score), shortening duration of illness (3.6 vs 4.4 days), and improving well being (1.8 vs 2.2 score), with dramatic improvements noted as early as one day after intake of initial dose. All participants were discharged with clinical improvement. The product was proven to be well tolerated and safe with no reported adverse reaction. All outcomes were statistically significant.

METHODS

QUASI-RANDOMIZED CONTROLLED TRIAL

Table 1. Scale for stool consistency and doctor-reported well being.

SCORE	STOOL CONSISTENCY	DOCTOR-REPORTED WELL BEING
1	Fully formed	Active, playful, with good appetite
2	Mostly formed, some liquid	Active, sometimes crying, with fair to good appetite
3	Half formed, half liquid	Irritable, mostly crying, with fair appetite
4	Mostly liquid, some formed	Weak, mostly sleeping, with poor appetite
5	Fully liquid	Severely ill, always sleeping, Unable to feed

Fig 2. Average stool consistency score per day.

Fig 1. Average stool frequency per day.

Fig 3. Average doctor-reported well being score per day.

CONCLUSION

The addition of colostrum and whole egg blend supplement is highly effective and presents valuable contribution in reducing morbidity and mortality caused by diarrheal diseases in the pediatric population. As a dietary intervention, it may serve important roles in reducing over-prescription of antibiotics and halting emergence of drug-resistant pathogens.