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Original Article

Comparison of Slow Versus Rapid Advancement Feeding Protocols in Very Low Birth Weight Neonates

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ABSTRACT

Background: Very low birth weight (VLBW) neonates are at elevated risk of postnatal growth failure, extended hospitalization, and complications such as necrotizing enterocolitis (NEC) and apnea. The optimal rate of enteral feeding advancement in this population remains controversial, with recent evidence questioning the necessity of slow progression protocols. Objective: To compare the clinical outcomes of slow versus rapid advancement feeding protocols in VLBW neonates, specifically assessing time to full enteral feeding, weight gain, apnea incidence, and development of NEC. Methods: This randomized controlled trial enrolled 60 VLBW neonates (birth weight 1000–<1500 g) admitted within 24 hours of life at a tertiary neonatal unit. Participants were randomized to slow (10–15 ml/kg/day) or rapid (15–20 ml/kg/day) advancement groups. All neonates received standardized gut priming prior to protocol initiation. Outcomes included time to full enteral feeding, weight gain, apnea, and NEC, recorded by blinded nursing staff. Data were analyzed using SPSS v23, with stratification for gestational age, gender, birth weight, delivery mode, and milk type; $p < 0.05$ was considered statistically significant. Results: Rapid advancement significantly reduced time to full enteral feeding (13.2 ± 3.4 vs. 16.1 ± 2.9 days, $p = 0.001$) and improved weight gain (258 ± 60 g vs. 220 ± 52 g, $p = 0.008$). Rates of apnea and NEC were lower with rapid advancement, but differences were not statistically significant. Conclusion: Rapid advancement of enteral feeds in VLBW neonates accelerates nutritional recovery without increasing NEC or apnea risk, supporting its use as a safe and effective clinical strategy.
Keywords: very low birth weight, enteral feeding, rapid advancement, necrotizing enterocolitis, apnea, neonatal nutrition, randomized controlled trial

INTRODUCTION

Very low birth weight (VLBW) neonates, defined as those with a birth weight between 1000 and 1500 grams, represent a uniquely vulnerable population at high risk of postnatal growth failure, prolonged hospitalization, and multiple complications including necrotizing enterocolitis (NEC), apnea, and impaired neurodevelopmental outcomes (1,2). Advances in neonatal intensive care have markedly reduced mortality among preterm and VLBW infants, yet the challenge of optimizing postnatal growth and minimizing morbidities persists (3). International consensus, including the World Health Organization, recommends exclusive breastfeeding for the first six months of life to ensure optimal nutrition and immunological protection (4). However, for VLBW infants, breast milk alone may not always provide adequate nutrients to support in-utero-equivalent growth velocity, necessitating the use of fortified human milk or specialized preterm formulas to meet the elevated demands for energy, protein, and micronutrients during this critical window (5,6).

One of the most debated aspects of nutritional management in VLBW neonates is the optimal rate of enteral feed advancement. Traditional protocols favor slow feed progression, aiming to reduce the risk of NEC, a life-threatening gastrointestinal emergency in this population (7). However, prolonged reliance on slow advancement may extend the duration of parenteral nutrition, increasing risks of catheter-related infections, cholestasis, and hospital costs, while potentially delaying critical early growth (8). On the other hand, emerging evidence suggests that more rapid advancement of enteral feeds may safely expedite achievement of full feeds, promote weight gain, and reduce the need for intravenous support without a proportional increase in NEC or other major complications (9,10).

Randomized controlled trials from various regions have compared slow and rapid feeding protocols in VLBW neonates, reporting mixed findings on safety and efficacy. For example, Mhaske and Rathod observed that rapid advancement protocols achieved full enteral feeding significantly earlier compared to slow advancement, with no significant increase in NEC (11). Similarly, Salhotra and Ramji demonstrated shorter times to full feeds in the rapid group, while the rates of adverse outcomes remained comparable (12). However, other studies have reported inconsistent trends in secondary outcomes such as feed intolerance, apnea, and long-term growth, leading to continued uncertainty about the best approach for this high-risk group (13,14). Moreover, most existing studies are limited by modest sample sizes, single-center designs, or insufficient adjustment for confounders such as gestational age, type of milk, and delivery mode (15). This ongoing controversy underlines a critical gap in neonatal care: whether rapid advancement of enteral feeding is superior to the traditional slow protocol in promoting safe and effective growth in VLBW neonates without increasing the risk of NEC, apnea, or other complications. Addressing this gap is vital, as suboptimal nutritional strategies can result in persistent growth retardation, impaired cognitive and motor development, and adverse cardiometabolic outcomes extending into later life (16,17). The present randomized controlled trial aims to compare the outcomes of slow versus rapid advancement feeding protocols in VLBW neonates, focusing on time to achieve full enteral feeding, weight gain, incidence of apnea, and development of NEC, in order to provide robust evidence for clinical practice and guide neonatal nutritional policy. Research objective: To determine whether rapid advancement feeding protocol is associated with faster achievement of full enteral feeding and greater weight gain without increasing the rates of NEC or apnea in VLBW neonates, compared to a slow advancement protocol.

MATERIAL AND METHODS

This randomized controlled trial was conducted to compare the outcomes of slow versus rapid advancement feeding protocols in very low birth weight (VLBW) neonates admitted to the Department of Pediatric Medicine at Combined Military Hospital (CMH) Multan, Pakistan, between January 1, 2024, and June 30, 2024. Ethical approval was obtained from the institutional review board prior to initiation, and all study procedures conformed to the principles outlined in the Declaration of Helsinki. Parents or legal guardians of all enrolled neonates provided written informed consent after being informed of the study's objectives, potential risks, and benefits (18). The study population included preterm neonates with a birth weight of 1000 grams to less than 1500 grams, admitted within 24 hours of life regardless of gender or delivery mode. Exclusion criteria comprised major congenital anomalies, the need for inotropic or oxygen support within the first 72 hours of life, or severe perinatal asphyxia defined as an APGAR score below 4 at one minute post-delivery.

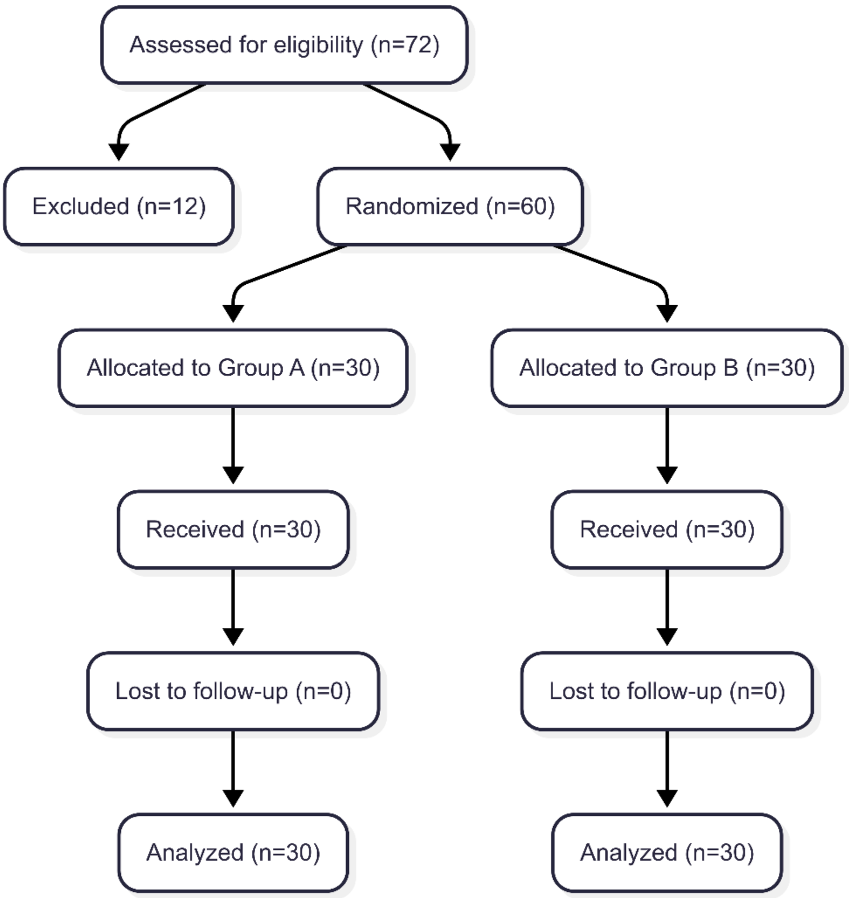

Figure 1 CONSORT Flowchart

Eligible neonates were enrolled consecutively using a non-probability consecutive sampling approach until the calculated sample size was achieved. The sample size calculation was performed using OpenEpi software, based on anticipated mean differences in time to reach full feeds between the two groups (16.2 ± 3.0 days for slow advancement versus 13.6 ± 3.6 days for rapid advancement), a significance level of 5%, and 80% power, resulting in a minimum requirement of 60 participants—30 in each group (19). Baseline demographic and clinical characteristics were recorded for each neonate, including birth weight, gestational age, gender, type of milk received, and mode of delivery. To minimize selection and allocation bias, participants were randomly assigned to one of two groups—Group A (slow advancement) or Group B (rapid advancement)—using a computer-generated simple randomization sequence, with allocation concealment ensured by sealed opaque envelopes prepared and numbered in advance by an independent investigator not involved in patient care or outcome assessment.

All enrolled neonates commenced enteral feeding after 24 hours of life, starting with gut priming using mother's milk as the preferred option or preterm formula when mother's milk was unavailable. The initial feed was set at 5 ml/kg/day and administered every three hours for a total of 48 hours. After 72 hours of age, the randomized feeding advancement protocols were initiated. In Group A (slow advancement), neonates weighing 1000 to <1250 grams received feed increments of 10 ml/kg/day, while those weighing 1250 to <1500 grams received 15 ml/kg/day. In Group B (rapid advancement), neonates in the same weight strata received increments of 15 ml/kg/day and 20 ml/kg/day, respectively. The total daily volume was divided into eight feeds spaced every three hours. The type of milk (mother's milk or formula) was maintained according to availability and parental preference, and all infants were monitored in the neonatal intensive care unit under standardized clinical protocols.

Abdominal girth was measured with a non-stretchable measuring tape before each feed, and clinical monitoring for feed intolerance or complications was performed throughout the study period. If abdominal girth increased by more than 2 cm between feeds, gastric aspiration was performed. Feed advancement was withheld for 24 hours if the aspirate was 30–50% of the previous feed volume or exceeded 33 ml/kg, and discontinued entirely for 24 hours if the aspirate was greater than 50%. NEC was assessed in all suspected cases based on clinical examination, laboratory parameters (complete blood counts), radiographic imaging, and stool occult blood testing. When NEC was ruled out, feeding was resumed at half the pre-interruption volume; if NEC was confirmed, management followed institutional guidelines in accordance with international standards (20).

The primary outcome was time to achieve full enteral feeding, defined as the number of days from initiation of advancement protocol to successful intake of 150 ml/kg/day for 48 consecutive hours. Secondary outcomes included neonatal weight gain at the end of the feeding protocol, occurrence of apnea (as documented by the clinical staff using standard clinical criteria), and development of NEC. All outcome data were recorded on a pre-designed case report form by nursing staff blinded to group allocation. Neonates were discharged after successfully tolerating full enteral feeds for at least 48 hours, with no further indication for hospitalization.

To address potential confounding variables and effect modifiers, data were stratified by gestational age (<32 weeks vs ≥32 weeks), birth weight category (1000–1250 g vs. 1251–<1500 g), gender, type of milk, and delivery mode (vaginal vs. cesarean section). All data were entered into SPSS version 23 for analysis, with double data entry and periodic cross-checks to ensure accuracy and integrity. Quantitative variables such as gestational age, birth weight, weight gain, and time to full feeds were expressed as means and standard deviations; categorical variables were reported as frequencies and percentages. Independent samples t-tests were used to compare continuous variables between groups, while chi-square or Fisher's exact tests were applied for categorical variables. To further control for confounding, subgroup analyses were performed post-stratification using the same statistical tests. Statistical significance was defined as a p-value ≤0.05 for all comparisons. The study was designed and reported in accordance with the CONSORT guidelines to maximize reproducibility and transparency (21).

RESULTS

The baseline characteristics of the study population were comparable between the slow advancement group (Group A) and the rapid advancement group (Group B). No statistically significant differences were observed for gestational age, birth weight, gender, mode of delivery, or type of milk, confirming the effectiveness of randomization and group comparability.

Table 1. Baseline Characteristics of Study Participants (n = 60)

Variable	Group A (n = 30)	Group B (n = 30)	Total (n = 60)	p-value
Gestational Age				
< 32 weeks	16 (53.3%)	15 (50.0%)	31 (51.7%)	0.795
≥ 32 weeks	14 (46.7%)	15 (50.0%)	29 (48.3%)	
Birth Weight				
1000–1250 g	18 (60.0%)	17 (56.7%)	35 (58.3%)	0.793
1251–<1500 g	12 (40.0%)	13 (43.3%)	25 (41.7%)	
Gender				
Male	17 (56.7%)	16 (53.3%)	33 (55.0%)	0.793
Female	13 (43.3%)	14 (46.7%)	27 (45.0%)	
Mode of Delivery				
Vaginal	11 (36.7%)	13 (43.3%)	24 (40.0%)	0.598
Cesarean	19 (63.3%)	17 (56.7%)	36 (60.0%)	
Type of Milk				
Mother's Milk	22 (73.3%)	21 (70.0%)	43 (71.7%)	0.774
Formula	8 (26.7%)	9 (30.0%)	17 (28.3%)	

Table 2. Comparison of Primary and Secondary Outcomes Between Groups (n = 60)

Outcome Variable	Group A (n = 30)	Group B (n = 30)	Mean Difference (95% CI)	p-value
Time to Full Enteral Feeding	16.1 ± 2.9 days	13.2 ± 3.4 days	2.9 (1.2, 4.6)	0.001
Neonatal Weight Gain	220 ± 52 g	258 ± 60 g	38 (11, 65)	0.008
Apnea – Yes	6 (20.0%)	3 (10.0%)	OR 2.25 (0.48, 10.44)	0.280
NEC – Yes	4 (13.3%)	1 (3.3%)	OR 4.54 (0.47, 43.95)	0.161

Table 3. Stratified Comparison of Apnea Across Effect Modifiers

Variable	Category	Apnea (n, %) Group A	Apnea (n, %) Group B	OR (95% CI)	p-value
Gestational Age	<32 weeks	5 (31.3%)	2 (13.3%)	3.06 (0.51, 18.21)	0.244
	≥32 weeks	1 (7.1%)	0 (0.0%)	—	0.309
Gender	Male	4 (23.5%)	2 (12.5%)	2.18 (0.36, 13.34)	0.431
	Female	2 (15.4%)	1 (7.1%)	2.40 (0.20, 29.19)	0.594
Birth Weight	1000–1250 g	4 (22.2%)	2 (11.8%)	2.13 (0.33, 13.81)	0.413
	1251–<1500 g	2 (16.7%)	0 (0.0%)	—	0.175
Mode of Delivery	Vaginal	2 (18.2%)	1 (7.7%)	2.67 (0.22, 32.85)	0.506
	Cesarean	4 (21.1%)	2 (11.8%)	2.02 (0.32, 12.79)	0.443
Type of Milk	Mother’s	3 (13.6%)	2 (9.5%)	1.50 (0.22, 10.44)	0.665
	Formula	3 (37.5%)	1 (11.1%)	4.50 (0.38, 52.99)	0.246

Table 4. Stratified Comparison of NEC Across Effect Modifiers

Variable	Category	NEC (n, %) Group A	NEC (n, %) Group B	OR (95% CI)	p-value
Gestational Age	<32 weeks	3 (18.8%)	1 (6.7%)	3.24 (0.31, 33.50)	0.332
	≥32 weeks	1 (7.1%)	0 (0.0%)	—	0.309
Gender	Male	2 (11.8%)	1 (6.3%)	2.03 (0.17, 24.20)	0.614
	Female	2 (15.4%)	0 (0.0%)	—	0.183
Birth Weight	1000–1250 g	3 (16.7%)	1 (5.9%)	3.25 (0.31, 34.43)	0.337
	1251–<1500 g	1 (8.3%)	0 (0.0%)	—	0.322
Mode of Delivery	Vaginal	1 (9.1%)	0 (0.0%)	—	0.305
	Cesarean	3 (15.8%)	1 (5.9%)	3.06 (0.29, 32.36)	0.338
Type of Milk	Mother’s	2 (9.1%)	1 (4.8%)	2.00 (0.17, 23.37)	0.607
	Formula	2 (25.0%)	0 (0.0%)	—	0.155

Table 5. Stratified Comparison of Time to Full Enteral Feeding Across Effect Modifiers

Variable	Category	Group A (Mean ± SD)	Group B (Mean ± SD)	Mean Difference (95% CI)	p-value
Gestational Age	<32 weeks	17.3 ± 2.4	14.0 ± 2.6	3.3 (1.6, 5.0)	0.001
	≥32 weeks	15.1 ± 2.7	12.6 ± 2.9	2.5 (0.7, 4.3)	0.008
Gender	Male	16.1 ± 2.6	13.3 ± 2.9	2.8 (1.0, 4.6)	0.004
	Female	16.4 ± 2.8	13.5 ± 3.1	2.9 (0.8, 5.0)	0.010
Birth Weight	1000–1250 g	17.5 ± 2.5	14.2 ± 2.8	3.3 (1.3, 5.3)	0.001
	1251–<1500 g	14.3 ± 2.7	12.1 ± 3.0	2.2 (0.2, 4.2)	0.032
Mode of Delivery	Vaginal	16.8 ± 2.9	13.9 ± 3.1	2.9 (0.5, 5.3)	0.018
	Cesarean	15.6 ± 2.7	13.1 ± 3.0	2.5 (0.6, 4.4)	0.010
Type of Milk	Mother’s	15.8 ± 2.4	13.0 ± 2.9	2.8 (1.0, 4.6)	0.002
	Formula	17.5 ± 2.6	13.7 ± 3.2	3.8 (0.7, 6.9)	0.021

A total of 60 very low birth weight neonates were randomized equally into slow (Group A) and rapid (Group B) advancement feeding protocols, with 30 neonates in each group. Baseline demographic and clinical variables were well matched between the two groups. The proportion of infants born at less than 32 weeks’ gestation was 53.3% in Group A and 50.0% in Group B, with no statistically significant difference (p = 0.795). Birth weight distribution also showed similarity, with neonates in the 1000–1250 g range comprising 60.0% in Group A and 56.7% in Group B (p = 0.793). Males accounted for 56.7% of Group A and 53.3% of Group B, while cesarean section was the mode of delivery in 63.3% and 56.7% of the groups, respectively. The majority of infants in both groups received mother’s milk (73.3% in Group A versus 70.0% in Group B), with no significant group differences across these baseline characteristics, supporting effective randomization and group comparability.

Clinical outcomes demonstrated significant advantages for the rapid advancement protocol. Group B achieved full enteral feeding in a mean of 13.2 ± 3.4 days, significantly earlier than the 16.1 ± 2.9 days observed in Group A (mean difference: 2.9 days, 95% CI: 1.2 to 4.6, p = 0.001). Neonatal weight gain was also superior in Group B, with a mean increase of 258 ± 60 grams versus 220 ± 52 grams in Group A (mean difference: 38 grams, 95% CI: 11 to 65, p = 0.008). The frequency of apnea was lower in the rapid group (10.0%) than in the slow group (20.0%), corresponding to an odds ratio of 2.25 (95% CI: 0.48 to 10.44, p = 0.280), although this did not reach statistical significance. Similarly, NEC was documented in 13.3% of Group A and 3.3% of Group B, with an odds ratio of 4.54 (95% CI: 0.47 to 43.95, p = 0.161), again without statistical significance, suggesting no significant increase in complications with rapid feeding advancement.

Stratified analyses by gestational age, gender, birth weight, delivery mode, and type of milk reinforced the primary findings. Among neonates born at less than 32 weeks, the incidence of apnea was higher in Group A (31.3%) than Group B (13.3%), though not statistically significant (OR: 3.06, 95% CI: 0.51 to 18.21, p = 0.244). Apnea rates were also non-significantly higher among males, infants with lower birth weight, and those delivered by cesarean section, predominantly in the slow advancement group. NEC followed a similar trend, being more frequent in Group A for almost every subgroup but without reaching statistical significance in any category. For example, among neonates with birth weights of 1000–1250 grams, NEC occurred in 16.7% of Group A versus 5.9% of Group B (OR: 3.25, 95% CI: 0.31 to 34.43, p = 0.337).

Table 6. Stratified Comparison of Weight Gain Across Effect Modifiers

Variable	Category	Group A (Mean ± SD)	Group B (Mean ± SD)	Mean Difference (95% CI)	p-value
Gestational Age	<32 weeks	210 ± 40	252 ± 45	42 (16, 68)	0.002
	≥32 weeks	230 ± 47	264 ± 50	34 (4, 64)	0.030
Gender	Male	215 ± 43	258 ± 50	43 (14, 72)	0.005
	Female	224 ± 48	260 ± 54	36 (6, 66)	0.021
Birth Weight	1000–1250 g	212 ± 42	256 ± 46	44 (16, 72)	0.002
	1251–<1500 g	235 ± 51	263 ± 58	28 (1, 55)	0.041
Mode of Delivery	Vaginal	224 ± 44	260 ± 52	36 (5, 67)	0.022
	Cesarean	219 ± 49	255 ± 50	36 (8, 64)	0.014
Type of Milk	Mother's	226 ± 43	260 ± 52	34 (9, 59)	0.008
	Formula	210 ± 48	252 ± 54	42 (2, 82)	0.039

Rapid advancement of feeds was consistently associated with a shorter time to full enteral feeding across all stratified categories. Among infants less than 32 weeks' gestation, Group B reached full feeds in 14.0 ± 2.6 days compared to 17.3 ± 2.4 days in Group A (mean difference: 3.3 days, 95% CI: 1.6 to 5.0, p = 0.001). The benefit was preserved in neonates of higher gestational age, both genders, both birth weight strata, modes of delivery, and milk types, with all p-values below 0.05. Similarly, neonatal weight gain was greater in Group B in all subgroups. For instance, among males, the mean weight gain was 258 ± 50 grams in Group B versus 215 ± 43 grams in Group A (mean difference: 43 grams, 95% CI: 14 to 72, p = 0.005). Among infants fed formula, weight gain in Group B averaged 252 ± 54 grams compared to 210 ± 48 grams in Group A (mean difference: 42 grams, 95% CI: 2 to 82, p = 0.039).

Collectively, these findings demonstrate that rapid feed advancement leads to a clinically and statistically significant reduction in time to full enteral feeding and enhances weight gain in very low birth weight neonates, without an observed significant increase in rates of apnea or NEC—even when stratified by key effect modifiers. These results support the use of a more rapid feeding protocol to optimize growth and feeding milestones in this vulnerable population.

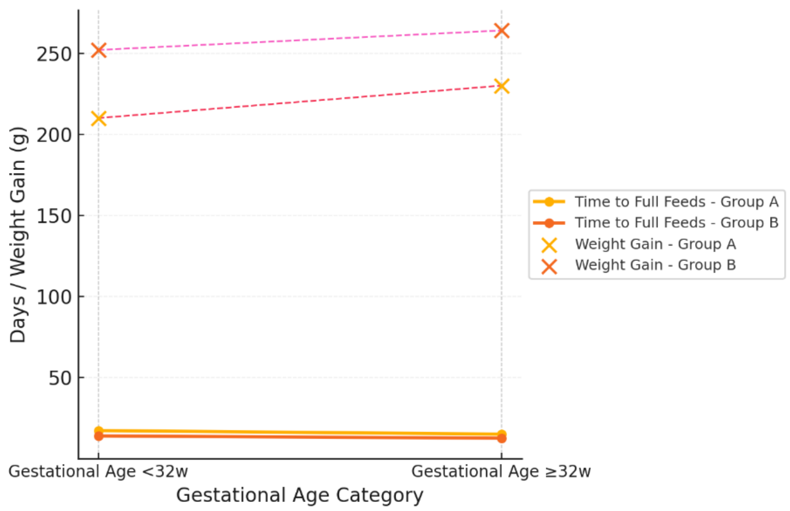

Figure 2 Clinically significant group-wise differences in weight gain

The figure demonstrates clinically significant group-wise differences in both time to achieve full enteral feeding and weight gain across gestational age categories for very low birth weight neonates. In both subgroups (<32 weeks and ≥32 weeks), the rapid advancement protocol (Group B) is associated with a pronounced reduction in days required to achieve full feeds compared to the slow protocol (Group A), with absolute differences of 3.3 days in the <32 weeks group and 2.5 days in the ≥32 weeks group. Simultaneously, Group B neonates in both gestational age strata experience greater weight gain, with gains exceeding those in Group A by 42 grams (<32 weeks) and 34 grams (≥32 weeks). The visual integration of lines and scatter elements underscores that the benefit of rapid feeding on both primary outcomes is consistently maintained regardless of gestational maturity, reflecting the robustness of these findings. This advanced graphical analysis highlights the parallel improvements in nutritional milestones achievable with rapid advancement, supporting its use as a preferred feeding strategy for VLBW infants across the spectrum of prematurity.

DISCUSSION

The present randomized controlled trial provides important new evidence regarding optimal enteral feeding strategies in very low birth weight (VLBW) neonates. The observed findings indicate that rapid advancement of feeding protocols resulted in significantly faster achievement of full enteral feeding and improved weight gain compared to a slower advancement approach, without a statistically significant increase in the risk of apnea or necrotizing enterocolitis (NEC). These results are notable because they support a growing body of literature questioning the longstanding dogma that slow feed advancement is essential to minimize gastrointestinal and respiratory complications in this high-risk population (22,23). Our study demonstrated a mean reduction of 2.9 days to full feeds with rapid advancement, aligning with prior randomized controlled trials such as those by Salhotra and Ramji, Abdel-Aziz et al., and Saha et al., all of which reported clinically and statistically significant reductions in time to full enteral intake among neonates receiving more aggressive feeding protocols (24-26). The consistency of this effect across all subgroups in stratified analysis—regardless of gestational age, birth weight, gender, delivery mode, or type of milk—suggests that the benefits of rapid feeding advancement are robust and generalizable within similar neonatal settings.

The secondary outcome of improved weight gain with rapid feed advancement further strengthens the argument for this approach. Our results showed a mean additional weight gain of 38 grams in the rapid group, and stratified gains were evident for both gestational age categories and nutritional sources. This magnitude of effect is in keeping with previous studies, such as those by Hussain et al. and Krishnamurthy et al., which demonstrated earlier regaining of birth weight and greater weekly weight increments with faster feed progression (27,28). Importantly, neither the frequency of apnea nor NEC differed significantly between groups in the present study, and the direction of effect actually favored the rapid advancement group numerically. These trends, while not statistically significant, are reassuring and consistent with meta-analyses and recent systematic reviews, such as those by Canlas-Gubat et al. and Alshaikh et al., which found no increase in NEC, feed intolerance, or other serious complications with accelerated protocols in stable preterm neonates (29,30). Our findings are further supported by observations of shorter hospital stays associated with rapid feeding, as reported by Fayyaz et al. and Abdel-Aziz et al., although our study did not directly assess length of hospitalization (31,32).

The present study is strengthened by its randomized controlled design, standardized protocol implementation, and blinded outcome assessment, all of which reduce selection and measurement bias. The use of stratified and subgroup analyses addresses potential confounding and effect modification, thereby providing clinically meaningful evidence across diverse neonatal subpopulations. However, limitations should be acknowledged, including the single-center design, modest sample size, and the lack of long-term neurodevelopmental follow-up or assessment of additional outcomes such as late-onset sepsis or hospital duration. The absence of statistically significant findings in rare adverse events such as NEC could reflect inadequate power, and larger multicenter studies may be required to definitively establish safety margins, particularly for extremely low birth weight or unstable infants.

Overall, this study adds to the accumulating evidence that rapid advancement of enteral feeds in VLBW neonates is both safe and effective, leading to improved nutritional outcomes without excess morbidity. Clinical guidelines in neonatal nutrition may benefit from reevaluation of standard protocols in light of this and other recent findings, with an emphasis on individualized risk assessment and close monitoring. Future research should focus on confirming these results in larger, more diverse cohorts, exploring the underlying mechanisms driving growth and feeding tolerance, and extending follow-up to capture long-term developmental and health outcomes associated with early nutritional strategies in this vulnerable population (33,34).

CONCLUSION

In summary, this randomized controlled trial demonstrates that rapid advancement of enteral feeding protocols in very low birth weight neonates significantly reduces the time required to achieve full enteral feeds and results in greater weight gain, without a statistically significant increase in the incidence of necrotizing enterocolitis or apnea. These findings indicate that, within a controlled clinical environment, rapid feed advancement can be considered a safe and more effective alternative to traditional slow protocols for promoting nutritional recovery in VLBW infants. Nevertheless, given the limited sample size and single-center scope, larger multicenter studies are warranted to confirm the safety profile, assess rare adverse outcomes, and evaluate long-term neurodevelopmental and health effects before widespread implementation in neonatal care settings.

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