Original Research Article

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Early full enteral feeding in very low birth weight babies on day one

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ABSTRACT

Background: Nutrition in very low birth weight babies is most important factor in early improvement of neonate. It also decides duration of stay in intensive care unit. Objectives of the current study were to initiate required full enteral feed at the earliest and to know the outcome of such neonates.

Methods: It is a hospital based retrospective study conducted from October 2019 to December 2019 in Gulbarga institute of medical sciences, Kalaburagi. 40 clinically stable VLBW neonates on day 1 started on enteral feeding are included in the study. Babies with birth weight more than 1.5 kgs or less than 1 kg, hemodynamically unstable at start of feeds are excluded from the study. Collected data is analysed by SPSS 17.

Results: Total 40 VLBW babies were included in the study. Among them, 28 neonates tolerated feeds, were improved & discharged early with an average duration of stay of 16days with early birth weight gain by 14 days. 10 neonates had feed intolerance with signs of Necrotizing enterocolitis during course of treatment, were improved and discharged with an average duration of stay of 22 days. Mortality was seen in 2 neonates due to associated sepsis.

Conclusions: Initiation of full enteral feeds in stable VLBW babies is effective mode for improvement, weight gain and early discharge from hospital.

Keywords: Enteral nutrition, Very low birth weight, Neonates, Sepsis, Necrotizing enterocolitis

INTRODUCTION

Good nutrition is required for growth, neurodevelopement and early improvement of VLBW (very low birth weight) neonates.1 Enteral nutrition is preferred mode compared to parenteral. This avoids unnecessary intravascular access and sepsis.² Incidence of low birth weight babies is high in India. Low birth weight (LBW) and very low birth weight (VLBW) is common cause of neonatal mortality. They account for 60-80% of total neonatal deaths.^{1,3} Mortality among 1-1.5 kg babies is >50% among preterm babies attributing to sepsis as a comorbid factor. Hence to shorten the duration of stay of baby in SNCU, achieving full feeds early is important. Most of the deaths can be prevented with care such as warmth, prevention of infections & importantly optimal feeding. Nutrition influences the immediate survival, growth & development of such very low birth weight babies. 4.5 Term and normal birth weight neonates require less assistance as compared to LBW & VLBW neonates. Feeding in VLBW neonates is still difficult because of immature feeding skills, immaturity of gut and high fluid requirement with excessive insensible losses. Feeding ability of neonates largely depends on gestational age. Ideal method is to evaluate the gestational age & then initiate feed accordingly. Present study is conducted by starting full enteral feeds in VLBW as early and clinical profile of such neonates is studied.

Aim and objectives

Objectives of current study were to initiate required full enteral feed at the earliest and to know the outcome of such neonates.

METHODS

Current study is a hospital based retrospective study conducted from October 2019 to December 2019 in Gulbarga institute of medical sciences, Kalaburagi.

Inclusion criteria

All stable VLBW babies (birth weight 1 kg-1.5 kgs) at time of admission were included.

Exclusion criteria

Exclusion criteria for current study were; birth weight more than 1.5 kgs or less than 1 kg and hemodynamically unstable VLBW babies.

Sample size

Since average admission of VLBW is 25 per month, we have included all (40) VLBW neonates who were stable at admission during October 2019 to December 2019.

Procedure

On evidence based revised feeding guideline which included full enteral feeding on day 1 in neonates, 40 hemodynamically stable neonates who were fitting in inclusion criteria were included in this study. Full enteral feeds were started from day 1 of life on admission of VLBW neonates (1-1.5kg) in NICU. Clinical stability of the neonates were checked by abdominal girth monitoring and other early signs of feed intolerance such as abdominal distension, altered feed vomitus/ aspirate. Only breast feeds were considered. During the course of stay, if there was any signs of feed intolerance feeds were

with held for 48 to 72 hrs. On clinical improvement, feeds were restarted. If any sign of advanced NEC was noted, feeds were withheld for 7 days and triple antimicrobial regimen was started.

Statistical analysis

Data was staistically analyzed using SPSS 17.

RESULTS

Total 40 VLBW babies were included in the study. Among them, 15 were male neonates, 25 were female. Mean APGAR score at time of delivery was 7. Record of antenatal steroid was available for 35 mothers in register. 35 cases were booked on antenatal registry (Table 1). Total 28 neonates tolerated feeds, were improved & discharged early with an average duration of stay of 16days with early birth weight gain by 14 days. 10 neonates had feed intolerance with signs of Necrotizing enterocolitis during course of treatment, were improved and discharged with an average duration of stay of 22 days and birth weight gain by 18 days. Mortality was seen in 2 neonates due to associated sepsis (Table 2-3).

Table 1: Demographic details (n=40).

Demographic details	Total number of neonates
Male	15
Female	25
APGAR score	7 (7-7)
Antenatal steroids course N (%)	35 (87)
Registration status in antenatal booked N (%)	35 (87)

Table 2: Outcomes of VLBW neonates (n=40).

Parameters	Total number of neonates, N (%)
Neonates who did not develop feed intolerance during NICU stay	28 (70)
Neonates who developed feed intolerance	10 (25)
Neonates expired (mortality)	2 (5)

Table 3: Outcomes in neonates with feed intolerance and without feed intolerance.

Parameters	Neonates with no incidence of feed intolerance, (n=28)	Neonates with incidence of feed intolerance, (n=10)
Day of regaining birth weight	14	18
Incidence of feed intolerance	0	10
Incidence of clinical sepsis	0	6
Duration of hospital stay in days	16	22

DISCUSSION

Among 40 VLBW babies who were included in the study, 28 neonates (70%) tolerated feeds, were improved and discharged early with an average duration of stay of

16 days and early birth weight gain by 14 days. 10 neonates (25%) had feed intolerance with signs of Necrotizing enterocolitis during course of treatment & were withheld with feeds. Later on clinical improvement feeds were restarted and were discharged with an average

duration of stay of 22 days. Mortality was seen in 2 neonates (5%) due to associated sepsis. Study done by Nangia et al early total enteral feeding versus conventional enteral feeding in stable very-low-birth-weight infants: a randomised controlled trial, also show similar shorter duration of hospital stay (15.5 vs. 19.6 days) (p=0.01) in ETEF group.⁶

As mentioned above, results of our study and study done by sushma et al demonstrate early full enteral feeding in VLBW neonates on day 1 definitely reduces the duration of stay of neonates in NICU, reduces the risk of intravenous approaches, sepsis, achieves early rooming in and discharge of the NICU graduates. Full enteral feeding from day 1 in VLBW neonates achieves early discharge of neonates and reduces the hospital stay with reduced risk of sepsis. Incidence of feed intolerance in our study shows 15% (10) which is same 15% as study done by Sushma nangia et al early total enteral feeding in stable very low birth weight infants: a before and after study, showing ETF is safe and has benefit of optimizing nutrition with decrease in sepsis, NEC and hospital stay in stable preterm VLBW infants.7 The results of this study when taken together with other recent works suggest the potential benefits of total enteral feeding outweighing the unproven risks of NEC in stable VLBW infants.

Limitations

Limitations of this study include that not every potential complication of a revised feeding potential was studied. For example, the number of abdominal radiographs to evaluate potential feeding intolerance was not measured. As it is a retrospective cohort study, other exposure factors on feed intolerance of neonates, follow up of discharged neonates could not be determined.

CONCLUSION

Initiation of full enteral feeds in stable VLBW babies is effective mode for improvement, early birth weight gain and early discharge from hospital.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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