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A LONGITUDINAL STUDY TO EVALUATE QUALITY IMPROVEMENT INITIATIVE ON KANGAROO MOTHER CARE

Preventive & Social Medicine

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ABSTRACT

Kangaroo Mother Care (KMC) is a broader package which includes humanized, cost effective, developmentally supportive therapy for hospitalised preterm infants. It is an effective way to meet baby's needs for warmth, breastfeeding, stimulation, safety, love and protection from infection and reduction in hospital stay. Despite KMC being tagged as a "game changer" in decreasing newborn mortality and morbidity, still the coverage of such babies is poor and their duration of KMC is not optima.

KEYWORDS

Kangaroo mother care, quality improvement, barriers

INTRODUCTION

Kangaroo Mother care "is an effective and safe alternative to conventional neonatal care for LBW infants, mainly in resource-limited countries. [1] It is broader package of care defined by the World Health Organization. Kangaroo Mother Care originally referred only to care of low birth weight and preterm infants, and is defined as a care strategy including three main components: kangaroo position, kangaroo nutrition and kangaroo discharge. Kangaroo position means direct skin-to-skin contact between mother and baby, but can include father, other family member or surrogate.[2] The infant should be upright on the chest, and the airway secured with safe technique. (The term Kangaroo Mother Care is commonly used to mean skin-to-skin contact, despite its definition from the WHO as including a broader strategy) Kangaroo Mother Care (KMC) is a broader package which includes humanized, cost effective, developmentally supportive therapy for hospitalised preterm infants. It is an effective way to meet baby's needs for warmth, breastfeeding, stimulation, safety, love and protection from infection and reduction in hospital stay.[3] Despite KMC being tagged as a "game changer" in decreasing newborn mortality and morbidity, still the coverage of such babies is poor and their duration of KMC is not optimal.

OBJECTIVE:-

1) To assess the barriers of effective Kangaroo Mother Care in preterm neonates.
2) To evaluate the effect of a Quality improvement initiative on KMC duration in a Neonatal Unit.

MATERIAL AND METHODS:-

A Longitudinal analytical study was conducted at our teaching hospital for two months{August-October 2021}for data collection, intervention, analysis and report writing after obtaining prior permission from institutional ethical review board.Complete enumerations (Inclusion of all during specific period) was done. Standardized procedures and education material was used for implementing QI strategies.Our study population included those preterm mother-neonates dyads admitted in Neonatal Unit during study period at our teaching hospital who gave written consent.Our study excluded those who preterm neonates who were seriously ill requiring invasive or non-invasive mechanical ventilation or in shock or apnea, chromosomal abnormalities and life threatening congenital abnormalities, neonates receiving phototherapy etc.). Along with those preterm neonates whereTheir mothers required admission in ICU due to one of the postnatal complications and no eligible relatives were available

Study Tools :

Questionnaire was divided in 2 parts. First one to assess and identify problems faced by mother and staff for providing effective KMC by using fish bone analysis during baseline phase and second one was to assess duration of KMC after application of QI initiative in implementation phase.

Quality improvement (QI) module.[4]

Sampling framework:-

The study was carried out on preterm mother-neonates dyads admitted during study period in a teaching hospital's Neonatal Unit of our institute. Study was conducted in two phase by using Plan-Do-Act-Study (PDSA) cycles (one cycle of 02 weeks). In first phase, a team including expert of various domain (doctors , paramedical staff, lactation counsellor, health educators etc.) related to care of preterm neonates was formed to evaluate the barriers for effective KMC. Based on the results of first phase, extensive and empirical literature search and discussion among team members a Quality Improvement (QI) initiative module was prepared for training of health care providers, parents and family members. QI initiative was incorporated through counselling, education and video demonstration. This consisted of two main elements: one was awareness and sensitisation of health care providers and family members and secondly, a simultaneous reinforcement of ongoing practice of KMC.

In second phase, QI initiatives were implemented and effects on duration and quality of KMC were recorded in KMC compliance chart. For felicitation of corrective steps in original design module, changes were tested as a part of Plan-Do-Stud-Act (PDSA) cycles.[5] After each PDSA cycle, an evaluation meeting was organised to find out the problems in improving KMC duration and to modify the strategies to overcome these hurdles. Complete 3 such cycles were conducted.

Outcome measures:-

1. Duration of KMC.
2. Occurrence of complication in neonates and duration of hospital stay.

Statistical analysis:-

Data was entered in MS Excel and analysed in SPSS software TRIAL version 26.0. Statistical methods such as student t-test and Z test of proportion were used to find association.

RESULTS:-

Total 40 eligible preterm mother-neonates dyads (20 in baseline and 20 in implementation phase) were enrolled in study.

Table 1 Characteristics of study participant in baseline and implementation phase. Mean weight and gestational age of neonates were 1342±190 gm and 30.2±2.6 weeks in baseline phase while it was 1281±211 gm and 32.4±2.4 weeks in implementation phase. Only 50% mothers of baseline phase and 20% mothers of implementation phase had knowledge about KMC.

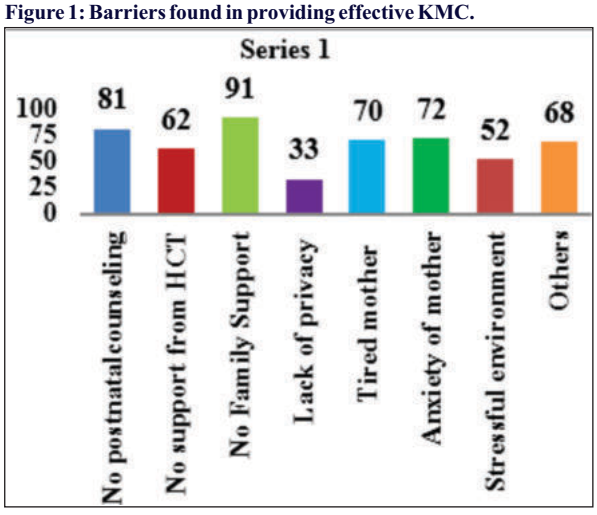
Parameters	Baseline phase (n=20)	Implementation phase (n=20)
Gestational age (weeks)	30.2±2.6	32.4±2.4
Birth weight (gm)	1342±190	1281±211
Males : Female	07 : 12	09 : 11
Maternal age (years)	25.6±3.6	23.6±4.2
Primi-para mother	04 (20%)	06 (30%)
Mother knowledge about KMC	10 (50%)	04 (20%)

Table 2 Statistically significant difference was found in duration of KMC (p=0.001) and mean duration of hospital stay (p=0.01), before and after implementation of QI strategies although occurrences of complication (p=0.67) was similar in both phases.

Outcome measure	Before QI strategy	After QI strategy	P value
Duration of KMC	4.1±1.2	9.21±1.5	0.0001
Complication in neonates	05 (25%)	04 (20%)	0.67
Mean duration of hospital stay (days)	18±4	14±3	0.01

P value <0.05 is consider statistically significant.

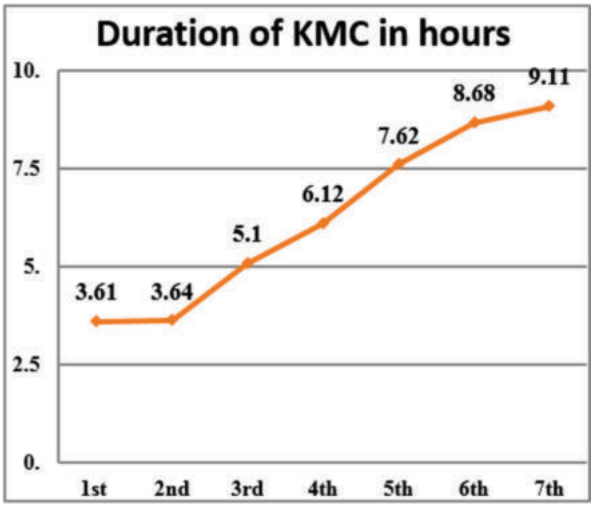
Figure 1: Barriers found in providing effective KMC.



Numbers shown in figure are %.

Major hurdles identify in providing effective KMC were no postnatal counselling, lack of support from health care team, lack of initiative by other family members for KMC, tiredness and anxiety of mother etc.

Figure 2 : Changes in KMC duration week-wise during PDSA cycle.



The QI project improved "Successful KMC" from 61.5% to 100% (p=0.04). The mean duration of KMC was increase step-wise in seven weeks and the difference in mean duration of KMC was significantly higher (p=0.001) in third PDSA cycle (9.11 hours) as compare to first PDSA cycle(3.61hours). required.

CONCLUSIONS:-

Implementation of prolonged KMC still remains a major challenge due to lack of awareness (may be due to no counselling by health care providers) and family support. QI initiative demonstration improved KMC duration significantly however sustained efforts are

Limitation:-

Small sample size and short duration (study must be conducted on large sample size including multi-centre approach and follow up should be of longer duration even including KMC at home.

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