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Determinants of preterm survival at the Federal Medical Centre Asaba, Nigeria: Stories from low and middle income countries of Africa

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Background

Neonatal mortality is extremely high in Nigeria and attempts to address it include identification of its major causes and determinants. Maternal health is a major underlying factor. Inequities need to be addressed as these are the major determinants that should be considered alongside the immediate and direct causes of the neonatal health. The major causes of neonatal mortality include Prematurity, Birth Asphyxia and Sepsis. These stories will highlight the major challenges of management of the teeming numbers of premature babies in the context of preterm delivery rate of 12% and constitute about 20% of the neonatal mortality in the modest setting.

Objective of the story

To encourage neonatologists in low resource settings to be innovative in their approach to enhance survival of the extreme Low Birth Weight (LBW) infants

Methods

To highlight the key points of what has worked and what has not worked through sharing of experience on these key issues that have been touching to me as lessons learned from some of the cases managed over the recent past 2019-2024.

What do babies 24-32 weeks gestational age (GA) need for survival in most of our centres in Nigeria? From previous works, we identified the urgent need for respiratory support to achieve reductions in mortality for the very preterm. The quest for innovations drove further this concept when in 2011 Audu et al¹ reported the

gains achieved by their innovation of the b-CPAP in 89 babies. We further utilised this concept in Benin in 2013² and showed that there was no difference in survival rates of the babies treated with the improvised and the patented b-CPAP devices. In other words, despite its limitations, it enhanced survival. The use of this improvised device stimulated further works to improve the available non expensive local devices. To date, it is still widely utilised in Nigeria. The introduction of this device stimulated further works in the field for respiratory support. INNOVATION therefore drove further research in this field!

In furtherance of the quest to move on, in 2018 we had shown that increased availability of affordable surfactant to the < 28 weeks' gestation baby in Nigeria was a game changer for their survival³.

Surfactant availability to the few who could afford it, coupled with the use of Kangaroo mother care (KMC) and feeding with human breast milk made the difference. Intermittent KMC enhanced survival of the baby better than total incubator care for these babies⁴. It provided the nurturing care these babies required⁵. Above all it protected the babies from acquisition of nosocomial sepsis.

Feeding of human breast milk was essential for their survival as borne out by few cases of 30/31 week GA babies now older than 3 years and have intact survival. We have an unwritten policy in the Unit- "No BMS is allowed in the Unit". Babies with short falls from own mothers' milk, parents are counselled for the use of screened donor milk for their feeding and consent to the use of donor EBM whilst mother's milk flow is built up. Mothers are admitted with their babies to our unit because we practice family centered care. This enables the mothers to be part of their babies' life story as one of the mothers said during the Focus Group Discussion (FGD) held with them.

All of these practices in the face of challenging low resources have been possible because of the resilience of the health workers. We have learnt to improvise and apply basic principles to reach impactful decision. The implementation of best practices, the application of basic knowledge and skills as the best guide to decision making has been most useful. The challenges are daunt-

ing as we continue to learn and save more lives of the teeming numbers of babies.

Further experiences in recent times over the past one year; there has been a change in mortality trends:

Such cases of extreme LBW / Extreme preterm < 1000gm/< 28 weeks Gestational Age who have survived beyond 72hours and beyond 28 days, have contributed to the decline in neonatal mortality. We now experience a rising late neonatal and post neonatal mortality! These mortalities accrue from complex developmental issues and sepsis. How do we overcome these to make further gains?

What is the problem? Rising rates of post neonatal mortality. Are these predictable? What can we do?

Ominous signs include prolonged oxygen dependency for more than 3 weeks in these small babies, cardiovascular abnormalities like PDA or persistent foramen ovale have been troublesome issues!

Recurrent incarceration of inguinoscrotal hernias requiring surgery is often a problem in such small babies!

Gastro Oesophageal (GE) reflux is an everyday occurrence but can be mitigated by KMC practice!

All of these can be classified as developmental issues that can be overcome with increasing maturation of remedies for mitigation or alleviation are identified in our peculiar circumstances of low resources!

Other more recently identified problems include other preventable issues:

Poor enforcement of infection control techniques policies is worthy of mention. Infection control is a chal-

lenge as these babies readily come down with MRSA organisms now observed to be on the rise in our unit. Some of our practices in the face of low resources might be promoting this trend. We tend to use peripheral venous lines more frequently than umbilical lines (Umbilical Venous Catheter). We do not have standard umbilical venous catheter and have to use peripheral lines for fear of contamination that may lead to fulminant bacterial sepsis. The result of multiple peripheral lines is multiple skin abrasions that promote acquisition of sepsis in these babies.

Inefficient / lack of monitoring of such babies that need intensive care promotes GE reflux and massive aspiration pneumonia. Low Nurse – to – Patient ratio does not permit appropriate monitoring of the babies especially when KMC is not practiced. Can this be mitigated by task shifting to other health work force cadre?

Conclusion

Given that neonatal mortality is very high in Nigeria, it is expedient that major contributors to these mortality be addressed in their context to identify how to achieve further reductions. Investments are needed in the health of mothers and the newborn to decrease the extreme preterm rate because underlying to these early preterm births are maternal condition like hypertensive disorders of pregnancy, severe maternal malaria that translate to late fetal deaths, preterm births with attendant complications and early neonatal deaths.

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