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Prevalence and Risk Factors Associated with Neonatal Hypothermia in Zambia: A Systematic Review

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ABSTRACT

Neonatal hypothermia is a serious global problem affecting even tropical developing countries like Zambia despite the Warm environmental conditions and it contributes to a high neonatal morbidity and mortality [1]. Worldwide, many studies have been done on the prevalence and risk factors associated with neonatal hypothermia with results showing similar trend in sub Saharan Africa [2]. In Zambia, majority of estimated deaths in new-borns are attributed to conditions associated with neonatal hypothermia [3]. Therefore thermoregulations Is a key component of new born care. This article therefore discusses the prevalence and risk factors of neonatal hypothermia in Zambia.

Keywords

Neonatal hypothe, hypothermia, New Born.

Prevalence of neonatal hypothermia

Hypothermia is defined by World Health organisation as a core body temperature <36.5 degree Celsius or a skin temperature <36 0c and is categorised into three levels of severity: mild or cold stress (core 36. 36.4), moderate (core 32 to 35.9) and severe (core, 32 degree centigrade). It may be purely as environmental or represent undercurrent illness [4]. Maintaining an appropriate environmental temperature is critical in preventing neonatal hypothermia as well as diagnosing and treating the underlying conduction. In Zambia, the prevalence of neonatal hypothermia is high. For instance, a study conducted at the University teaching hospital in Lusaka showed a neonatal hypothermia prevalence of 44% on admission [5]. The findings also revealed that hypothermia was not recorded as a diagnosis hence no special attention was given to such infants and that mortality was higher for infants who were hypothermic on admission compared to those who were not. However, the prevalence of hypothermia recorded in other studies is much higher. For example, In Kenya, at Moi Teaching and Referral hospital, Nyandiko et al. [6] reported a neonatal hypthermia prevalence of 73.7% on admission where as a cross sectional study conducted in Arba Minch and Jinka general hospitals in south west Ethiopia showed a prevalence of neonatal hypothermia on admission to NICU to be 50.3% with higher incidence at Jinka general hospital (58.6%) than Arba Minch general hospital [7]. Mukunya and colleagues [8] in Lira district Northern Uganda recorded a prevalence of 51%. Overall, 32% had mild hypothermia and 18.7% had moderate hypothermia.

Risk factors associated with neonatal hypothermia

In an effort to combat the burden of neonatal hypothermia and improve the survival of new-borns, the World Health Organisation proposed a warm chain or a series of interlinked procedures that aimed at minimizing the risk of hypothermia in a new-born which include warming the delivery place, immediate drying, skin-to-skin care, early and exclusive breastfeeding to promote close warming contact with the mother and provide energy to generate heat, postponing bathing, appropriate clothing and bedding and placing mother and baby together [9]. These interventions are supposed to be implemented at all levels of care including the primary health care level. A study conducted in by Lunze et al. [1] in Lufwanyama district on the Copperbelt province of Zambia,

revealed that most of their respondents had knowledge of the above mentioned interventions but most of them did not practice consistently in the first few hours of delivery putting the neonate at risk of hypothermia. In addition, immediate and exclusive breastfeeding was commonly practised but it was not associated with neonatal hypothermia.

In the same study it was also revealed that immediately following delivery of the new born, birth attendants focused primarily on the mother. The mother is usually cleaned and taken care of so that she gets the chance to rest and recover. In the interim, the new born is sometimes just put aside or laid on the floor, exposing it to the environmental cold. In some instances, only after cleaning and caring for the mother is the new born taken care of, often placed next to the mother where the mother rested.

Similarly, a study by Ukke and Diriba [7] in south west Ethiopia reported several factors such as delay in initiation of breast feeding, giving a bath within 24 hours after birth, presence of obstetric problems during pregnancy and labour, baby's weight less than 2500gm and admission during cold season were significantly associated with neonatal hypothermia on admission to NICU. Another study conducted in the Eastern part of Ethiopia by Bayih et al. [10] showed that no skin to skin contact, no wearing cap, no intra-facility transportation were associated with neonatal hypothermia.

Furthermore, a systematic review and meta-analysis on incidence and risk factors of neonatal hypothermia also found that no skin to skin contact, prematurity, low birth weight, delayed breastfeeding, APGAR score, not wearing a cap and caesarean section affected hypothermia.

In southern Nepal Mullany et al. [11] found an association between neonatal hypothermia and low birth weight. The findings revealed that 30% of neonates in their study had low birth weight(<2500) and those between 2000g -2499g and 1500g to 1999g were at 1.49 and 4.32 times greater risk of hypothermia respectively, while neonates with very low birth weight were 11.63 times more likely to have hypothermia than normal weight neonates. In addition, a study by Dang et al. investigating the incidence of neonatal hypothermia in the new born nursey and associated risk factors revealed that infants of lower gestational age and birth weight and those born to black and Asian mothers carried the highest odds of hypothermia compared to non-Hispanic White mothers.

Conclusion

Neonatal hypothermia common and could contribute to the high neonatal mortality in Zambia, however, there is scanty information on the prevalence and risk factors of the neonatal hypothermia in the country. More research is needed in order to develop evidenced based interventions to minimize the deaths due to neonatal hypothermia.

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