Extended Abstract

Journal of Neonatal Studies

Prevalence and associated factors of perinatal asphyxia among newborns in Dilla University referral hospital, southern Ethiopia, 2017

Getnet Melaku
Dilla University, Ethiopia

Keywords: Asphyxia, Determinant factors, Perinatal.

Background: Perinatal asphyxia is a global neonatal problem which significantly contributes to both neonatal morbidity and mortality. Perinatal asphyxia in Ethiopia is the leading cause of neonatal mortality that constituents 34% followed by preterm birth.

As this study mainly focused on the platform for assessment of the Magnitude and determinant factors of perinatal asphyxia of neonates or the newborn at Dilla University Referral Hospital.

Ayder Comprehensive Specialized Hospital is found in the Tigray region Mekelle town, which is around 778 km from the capital city Addis-Ababa. The clinical service to more than a population of 8 million in the catchment areas are provided to Tigray, Afar, and southeastern parts of the Amhara regional state. It provides a broad range of medical services to both in- and outpatient for all age groups. It also serves as a teaching hospital to several medical, dental medicine, nursing, midwifery, public health, pharmacy, anaesthesia, and medical laboratory students in both undergraduate and postgraduate programs. It is the second largest hospital in the nation and has more than 500 inpatient beds in the four major departments (internal medicine, pediatrics, gynaecology and obstetrics, and surgery and other specialties). Mainly pediatricians and child health caretakers which have 18 specialists and six sub specialists. Approximately there are 43 residents in the department and 30-40 medical interns rotating every three months.

The NICU (neonatal intensive care unit) ward provides service for approximately 200 neonates per month with a total of 43 beds and one room for KMC (kangaroo mother care). There are 65 BSC nurses, 1 neonatologist, 1 general pediatrician, 4 residents, and 8 interns. It is equipped with 4 radiant warmers, 6 incubators, 5 phototherapy devices, and two mechanical ventilation machines.

If many neonates are suffering from major congenital anomalies or syndromes , example., NTD (neural tube defect), have incomplete documentation (no maternal or fetal measurement parameters), are kept for observation, and have mothers who took general analgesia. The sample size was determined by using a single proportion formula. The sample size determination formula is where is the required sample size, is the proportion, and is the level of precision or acceptable error. 5% level of precision with 95% confidence interval and 21.1% prevalence of perinatal asphyxia were used most of the tertiary hospital in Nigeria [15]. The total sample size was calculated to be 256. With a contingency rate of 10%, the final sample was determined to be 282. Finally, variables with a value < 0.05 were expressed as associated factors of perinatal asphyxia. The study subjects were selected by a systematic sampling method, and relevant information was collected using a checklist. Neonates are newborn infants who are less than 28 days. Perinatal asphyxia in the newborn is the inability to initiate and sustain adequate respiration after delivery. is a The part of early assessment of a newborn is known by APGAR score. Perinatal asphyxia is considered when the 5th APGAR score is <7 or a neonate did not cry or needed resuscitation.

HIE (hypoxic ischemic encephalopathy) is a central nervous system dysfunction during the neonatal period, and it is due to ischemic and hypoxic insult. Prolonged labor is the total duration of hours. Congenital malformation is a physical defect present in a newborn at birth that results in central nervous system depression.

Prestructured data collection format was used to collect the information. Data was collected by medical interns. Relevant information was obtained which includes neonatal information (gender, gestational age, birth weight, and APGAR score), maternal information (age, parity of mothers, residence, place of delivery, mode of delivery, and problems during pregnancy or labor). Data were entered into SPSS (Statistical Package for the Social Sciences) version 20 (Armonk, NY: IBM Corp), cleaned, coded, and checked for normality and completeness before analysis. Descriptive statistics was used to determine the prevalence of birth asphyxia and sociodemographic as well as obstetrics history. Bivariate and multiple binary logistic regression analysis was carried out to identify the associated factors of PNA. Variables with a value < 0.25 during bivariate analysis were included to multivariable logistic regression model. Finally, variables with a value < 0.05 were expressed as associated factors for perinatal asphyxia.

Ethical clearance was obtained from the Institutional Review Board (IRB) of the College of Health Sciences of Mekelle University. Permission was taken from Ayder Comprehensive Specialized Hospital medical director offices; a support letter from the chief clinical director was obtained. This is the first PNA study in our hospital, and it was able to show the prevalence, associated factors, and outcome of asphyxiated neonates. The study was designed with random sampling technique. Moreover, neonates were included from both rural and urban areas of residence.

Institution based cross sectional study was employed. A total of 256 samples were taken in the study. Systematic random sampling method was used to select study subjects and a newborn is diagnosed as asphyxiated if it is not crying or poorly breathing or/and gasping. Data was entered to and analyzed by using SPSS version-22 computer software. Descriptive statistics and logistic regression model were used to identify factors associated with the outcome variable and results were presented using odds ratio with the corresponding 95% confidence interval.

A total of 256 women with their newborns were included in the study

with 97.71% response rate and the magnitude of perinatal asphyxia was 32.8%. The commonest risk factors for the development of perinatal asphyxia were: Anemia during pregnancy (AOR=2.992, 95%CI 1.073, 8.348), Chronic maternal hypertension (AOR=4.894, 95%CI 1.156, 20.721), Meconium stained amniotic fluid (MSAF) (AOR= 3.593, 95%CI: 1.739, 7.424) and Low birth weight newborns (AOR=3.309, 95%CI: 1.308, 8.368).

The magnitude of perinatal asphyxia among newborns delivered at Dilla University Referral Hospital (DURH) was relatively high compared to the previous literatures and factors that were significantly associated were; anemia, chronic hypertension, meconium stained amniotic fluid (MSAF) and low birth weight. Therefore, attention should be given in the provision of antenatal risk assessment, intra-natal skillful birth attendance and postnatal immediate newborn care (INBC) to prevent perinatal asphyxia.