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: Neural Tube Defect (NTD) is related to failure of neural tube closure between 3rd and 4th weeks of embryo development. The cause of NTDs is not clearly stated, however, may factors like radiation, drugs, malnutrition, chemicals, genetic, maternal age, previous history of still birth, lack of Antenatal Care (ANC), consanguinity and any febrile illness during pregnancy were identified as contributing factors for development of NTDs. In spite of deficiency of folic acid in Ethiopia, data on factors of NTD were very limited in Africa in general and Ethiopia in particular, therefore this study was undertaken to identify associated factors with NTDs and provides shadow for future studies.

The objective of the present study is to identify patterns of neural tube defect and associated factors among newborn in four public hospitals in Bale Zone, Southeast Ethiopia.

: Case control study design was conducted in four public hospitals at Bale Zone from October 2017 to February 2018. Total sample of 462 were included and convenience sampling method was implemented. Semi structured and pretested questioner was used to collect data.

Maternal factors significantly associated with increased risk for NTDs were maternal age between 15-24 years (OR=4.78, 95%CI, 1.10-20.66), consanguineous marriage (OR=5.54, 95%CI, 1.47-20.87), being passive smokers (OR=11.08, 95%CI, 1.96-62.69), and Folic acid supplementation (OR=0.095, 95%CI, 0.031-0.285).

In present study, folic acid supplementation was identified as protective factor for NTDs, while, consanguinity, being passive smokers and women between the ages of 15-24 years, were the risk factors associated

of newborn with NTD as compared to controls (62.9% and 23.1%

Anatomically, the locations of spina bi da were lumbosacral 6 (60%), thoracolumbar 3 (30%) and lumbar 1 (10%) (Figure 2).

Obstetric history of mothers

is study revealed that higher number of primigravidas give birth to NTD newborns compared to control (35%, 21%, p=0.028), respectively. Primiparous were signi cantly higher among mothers

95%CI, 0.044-0.298). Even though, ANC follow up was slightly higher

taken periconceptionally reduces the risk of NTDs by at least 50% [34,35]. e present study is also in agreement with the study done in Northern Iran revealed that folic acid consumption prior to pregnancy and during early pregnancy reduce risk of NTDs by 70 percent [24].

e nding of Present study indicated that mothers who were exposed to smoker (passive smoking) were 11 times more likely to give birth of child with NTDs as compared with mothers who were not exposed. Which is similar with study done in Italy that showed smoking were signi cantly associated with NTDs [4].

Patterns of NTDs tend towards more severe and lethal forms with highest being anencephaly 32(76.2%), followed by myelomeningocele 5(11.9). On the other hands, study done in Sudan and Nigeria reported myelomeningocele account (47.7%, 76.9%), followed by anencephaly (17.5% , 15.5%), respectively [41,42]. is di erence is probable explained by geographical variation which a ects NTD patterns.

Conclusion

is study revealed that consanguinity, maternal age between 15-24 years and passive smoker were risk factors associated NTDs. erefore health education is mandatory for reproductive age group women on the risks of consanguinity and passive smoking.

Folic acid supplementation was identi ed to be protective for NTDs, since health facilities needs to consider folic acid supplementation for reproductive age groups women and encourage reproductive age women to have medical consultation prior to pregnancy.

e patterns of NTDs were identi ed with the majority being of the lethal type anencephaly followed by myelomeningocele.

The dataset analyzed during the current study available from the corresponding author on reasonable request.

We have no competing interests.

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1. Sadler TW (2013) Langman's medical embryology. 13th Edition. Pp: 294-326.
2. Behrman RE, Kisman SL, Johnston M (2015) Nelson text book of pediatrics. 20th edition. 2: 2803-2811.
3. Kheir A, Eisa WMH (2015) Neural tube defects, clinical patterns, associated risk factors and maternal awareness in Khartoum State, Sudan. J Med Med Res 3: 1-6.
4. Marco PD, Merello E, Calevo MG, Mascelli S, Cama A, et al. (2010) Maternal periconceptional factors affect the risk of spina bifda-affected pregnancies: An Italian case-control study. Childs Nerv Syst 27: 1073-1081.
5. Elsheikh GEA, Ibrahim SA (2009) Neural tube defects in omdurman maternity hospital, Sudan. Khartoum Med J 2: 185-190.
6. Hegazy A (2004) Clinical Embryology for medical students and postgraduate doctors. Lambert Academic Publishing, Berlin.
7.

36. Carmichael SL, Shaw GM, Schaffer DM, Laurent C, Selvin S (2003) Dieting behaviors and risk of neural tube defects. Am J Epidemiol 158: 1127-1131.

37. Afshar M, Golalipour MJ, Farhud D (2006) Epidemiologic aspects of neural tube defects in South East Iran. Neurosci 11: 289-292.

38. Salih MA, Murshid WR, Mohamed AG, Ignacio LC, de Jesus JE, et al ¡ 1:= e ` f ne a @Sd r a ҫ m Jepin So

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