Editorial

Prevention of Fetal and Neonatal Loss, Global Challenges

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Globally the burden of intrauterine deaths (IUD), Stillbirths (SB), Neonatal deaths (NND) is still high though the occurrence of SB has fallen from around 35 for every 1000 live births in 1980 to around 15/1000 live births in 2015. McClure *et al* [1] reported that around 98 percent of SB occurred in low and middle income countries where SB have been substantially higher, 21 for every 1000 live births compared to 12 deaths/1000 live births in high income countries. Still the SB numbers have been high even in high income countries if one looks at other vital statistics. Overall SBRs have been strongly linked to, maternal age, <25 years and > 35 years, race, socioeconomic deprivation, rural residence, female illiteracy, chewing tobacco, illicit drugs, uterine abnormalities, less than four times antenatal care which are not always possible to manage by health providers. However, health providers can do a lot for other things. Quite a lot is known since decades about pre-existing medical disorders like anaemia, sickle cell anaemia, hyperthyroidism, hypothyroidism, diabetes, renal disorders, Systemic Lupus Erythomatosis and so on which lead to IUD. It could be any other non - obstetric complications. Including hepatitis intrahepatic cholestasis during pregnancy. Lethal malformations, placental abnormalities and foetal growth restriction (FGR) are known leading causes of SB. Further gestational diabetes, pregnancy induced hypertension, preeclampsia, hydramnios and oligohydromnios, placental abnormalities in structure, vascular malformations, placental abruption, fetomaternal hemorrhage, haemorrhage of unknown origin, preterm/term pre labour rupture of membranes, vasaprevia, chorioamnionitis, or umbilical cord accidents such as knot in cord or cord prolapse or vasa previa are all known to be fatal. Maternal infections are one of the important causes of SB as well as NND, birth defects, low birth weight (LBW) or preterm births. Common ascending bacterial infection (with or without membrane rupture) may be caused by E.coli, klebsiella, Group B steptcoccus, Enteroccocus, Mycoplasm ureaplasma, Haemophilus and Chlamydia.

It could be genetic abnormalities, multiple gestation, congenital abnomalies, fetal infection, post maturity. , hydrops fetalis, arrhythmia, platel *et al.* loimmunization. Various congenital anomalies have been identified to be associated with younger maternal age, the risk of age mainly attributed to omphalocele /gatrochiasis and for musculoskeletal /intugemental anomalies. Most common genetic etiology for SB is due to karyotype abnormalities but many SB foetuses with normal karyotype also have genetic abnormalities. In a nested case-control study within the intergenerational cohort held in the Aberdeen Maternity and Neonatal Databank (AMND) in Aberdeen, United Kingdom in which all mothers who had at least one daughter between 1949 and 2000 were included there was no evidence of an inherited predisposition to SB transmitted from mother to daughter [2]. Quite a lot is still not known to the world about sudden IUD. Many IUDs remain unexplained despite autopsy; the rates vary from around 30 to 60% depending on interpretation of significance of features [3]. In Japan, it was reported that IUD due to fetal abnormalities reduced, but IUD associated with umbilical cord abnormalities increased relatively [4]. Migrant women's overall increased risk of adverse pregnancy outcome SB, NND is well known. Autopsy in the prenatal, perinatal and paediatric setting helps to establish the cause of death. But to get consent for autopsy is also not easy. In a study just over 50 % of bereaved parents said they will consent to a standard autopsy (either minimally invasive autopsy (MIA), non –

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invasive autopsy (NIA) or both). The qualitative study by James [5] suggested that parents value MIA because of lack of incision. Less invasive methods of autopsy may be more acceptable to bereaved parents than a standard autopsy. A lot of action oriented research is needed.

Worldwide reduction of ENND has significantly lagged behind other Millennium Developmental Goal achievements. Sudden unexplained ENND continues to be a dilemma. In a study early NND contributed to 73% postnatal deaths [6].

Most common reported causes of NNDs are perinatal asphyxia, severe neonatal infections, complications of preterm births like respiratory distress syndrome, Intraventricular hemorrhage or necrotizing enterocolitis**.** Although in preterm babies survival rates have improved in high income countries many preterm newborns still die because of lack of adequate care in many low and middle income countries. Early preterm birth (EPB, less than 34 weeks) is the main cause of neonatal death and severe disability [7]. Most women who experience EPB are at low risk. The severe consequences of EPB, high cost and need for clinical expertise in existing strategies of prevention are obvious reasons for attempts at prevention. Implementation of omega 3 long chain polyunsaturated fatty acids (omega -3 LCPUFA) supplements in pregnancy is now a feasible and cost-effective public health strategy [8, 9]. The Cochrane review concluded the minimum effective dose is 500 mg of DHA each day from week 12 of pregnancy [9]. Omega -3 LCPUFA is not a drug nor is it covered by a patent. It can be manufactured easily in accredited health food supplement factories. A lot needs to be researched about many development issues in those who survive after being born very very preterm. In a multicountry study of the 38 countries with high quality data preterm births increased since 2000 in 26 countries and decreased in 12 countries [10]. Preterm birth rates were 9.8 % (8.3 to 10.9%) in 2000, and 10.6 % (9 to 12 %) in 2014. Complications of preterm births accounted for 35% of NNDs. Haas [11] reported that understanding the complexities of cost-effective interventions becomes increasingly important. A lot of research is needed about iatrogenic unwanted preterm births.

A lot of awareness about IUD and immediate neonatal death, amongst population and even health providers is essential. For prevention of SB it is essential to have preconception literacy and care, quality pregnancy management, antepartum fetal surveillance. World health organization [12] has recently changed its antenatal guidelines with 5 antenatal care visits between 34 to 40 weeks mainly to prevent IUD, SB. It is essential to have quality care as problem is not only numbers, it is contents and quality of antenatal and intranatal care. Also there are issues like placental bed thrombosis, true knot in umblical cord, cord entanglement, beyond health care. It is essential to take proper efforts to know the possible causes. Health system needs to respond.

Preconception care offers a window of opportunity to introduce a positive agenda for better outcome for baby. In diabetics preconception counseling and planning to achieve better glycemic control in pregnancy can do a lot. When FGR is identified antenatally, there are fetal assessment tests such as non stress test, biophysical profies, and umblical artery doppler assessment which can be used to assess risk. First trimester screen, medical history, demographic data, mean arterial pressure, uterine artery pulsatile index and pregnancy associated plasma protein A can help in predicting FGR which is a major cause of SB. The most common approach, using serial measurement of the fundal height has very limited sensitivity and specificity [13]. There are numerous other challenges in identification of FGR. For neonatal safe survival, some simple interventions can be life saving in any setting like keeping babies warm, with skin to skin contact, exclusive breastfeeding, immunization. Mothers of small premature babies could play a vital role in their baby's survival. There is consistent evidence that pregnancies conceived less than 19-24 months after a live birth are at increased risk o adverse outcomes [14]. Nevertheless, WHO recommendations endorse an interval of at least 24 months after a live birth, and 12 months after a miscarriage, [15] before becoming pregnant again, but there are no recommendations for the optimal interval after a stillbirth (fetal loss after mid-pregnancy).

Further women do not know the differences between disorders/factors, which cause IUD and immediate NND. So, they do not tell the details. Even health providers do not go in depth during questioning about the loss, which could be intrauterine or during birth or immediately after birth. Etiology could be different. If cause is not known then track of

appropriate investigations is not taken which leads to a lot of unnecessary investigations, a lot of stress to the woman and family and the health providers not being able to prevent recurrence. So it is essential that women are sensitively asked about exactly what happened to get desired information and accordingly take action. It is essential to create awareness in community, especially women of reproductive age.

REFERRENCES

[1] E. M McClure Saleem S, Goudar S, Moore L Janet, Ana Garces, Stillbirth rates in low-middle income countries 2010 - 2013: A population-based, multi-country study from the Global Network in Reproductive Health 12 Suppl 2(Suppl 2): S7 June 2015

[2] Dr Andrea MF. Woolner MBChB Inherited predisposition to stillbirth: an intergenerational analysis of 26, 788 mother-daughter pairs Obstet Gynecol 2019; 10: 1016. https://doi.org/10.1016/j.ajog.2019.01.215

[3] J. MAN, Stillbirth and intrauterine fetal death: factors affecting determination of cause of death at autopsy, Ultrasound Obstet Gynecol 2016; 48: 566-573 Published online 26 October 2016 in Wiley Online Library (wileyonlinelibrary.com). https://doi.org/10.1002/uog.16016

[4] H Takita J. Hasegawa *et al.* Couses of intrauterine fetal death are changing in recent years. 2018 J. Perinat. https://doi.org/10.1515/jpm-2016-0337

[5] D James Improving the uptake of prenatal, perinatal and paediatric autopsies 2019. https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1111/1471-0528.15618?af=R

[6] L. Lehtonen, Gimeno A, Parra-Llorca A *et al.* Early neonatal death: Achallenge worldwide. 2017. Semin Fetal Neonatal Med. 153-160. Doi: 10.1016.j.siny.

[7] Martin JA, Osterman MJK. Describing the increase in preterm births in the United States, 2014-2016. NCHS Data Brief 2018; 1-8

[8] Makrides M, Gibson RA, Mcphhee AJ *et al.* Effect of DHA supplementation during pregnancy on maternal depression and neurodevelopment of young children: a randomized controlled trial. JAMA 2010; 04: 1675-1683. https://doi.org/10.1001/jama.2010.1507

[9] Middleton P, Gomersall JC, Gould JF *et al.* Omega 3 fatty acid addition during in pregnancy. Cochrane Database Syst Rev 2018; 11: CD003402. https://doi.org/10.1002/14651858.CD003402.pub3

[10] S Chawanpaiboon Global, regional, and national estimates of levels of preterm birth in 2014 https://www.ncbi.nlm.nih.gov/pubmed/30389451 by - 2019

[11] Hass DM. The importance of cost considerations in preterm birth trials 2019 10.1111/1471-0528.15646. https://doi.org/10.1111/1471-0528.15646

[12] World Health Organization2018 - apps.who.int/iris/bitstream/-10665/260399/1/9789241550277-eng.pdf

[13] Caughey AB BJOG. Fetal growth restriction - improving the screening test.2019 Jan 16. doi: 10.1111/1471-0528.15614. [Epub ahead of print] https://doi.org/10.1111/1471-0528.15614

[14] Conde – Agudelo A. Rosas – Bermudez A. Kafury-Goeta AC Birth specing and risk of adverse perinatal outcomes: a meta – analysis. JAMA. 2006; 295: 1809-1823. https://doi.org/10.1001/jama.295.15.1809

WHO Report of a WHO technical consultation on birth spacing: Geneva, Switzerland13-15 June 2005. World Health Organization, Geneva; 2007 http://apps.who.int/-iris/handle/10665/69855

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