

Congenital Birth Defects Among Perinatal Deaths: Findings from Child Health and Mortality Prevention Surveillance (CHAMPS) Bangladesh

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Background

- Every year globally 240,000 neonates die from congenital birth defects (CBDs)
- Approximately 7.4% stillbirths are attributed to CBDs worldwide¹
- About 90% of children born with CBDs come from low- and middle-income countries

Objective

- To estimate the prevalence of CBDs in Bangladesh using postmortem Minimally Invasive Tissue Sampling (MITS)
- To explore the common presentations of CBDs

Method

- CHAMPS Bangladesh site is in Baliakandi Upzilla, a rural sub- district of Rajbari district
- The objective of CHAMPS is to investigate the causes of stillbirths and causes of deaths among children under 5 years old
- CHAMPS uses laboratory and clinical data including verbal autopsy and photographs to determine cause of death
- Determination of Cause of Death (DeCoDe) panel review the data and assign underlying, immediate and morbid causes of death (“causal chain”)

Results

- DeCoDe panel determined causes of 298 perinatal deaths from March 2018 to February 2022
- A CBD was considered the underlying cause in 10 deaths and antecedent or morbid cause in 11 others
- Birth Defects were present in the causal chain of 10 stillbirths and 11 (0-7 days) deaths

Anencephaly and gastroschisis were the main NTDs and musculoskeletal system abnormality, respectively

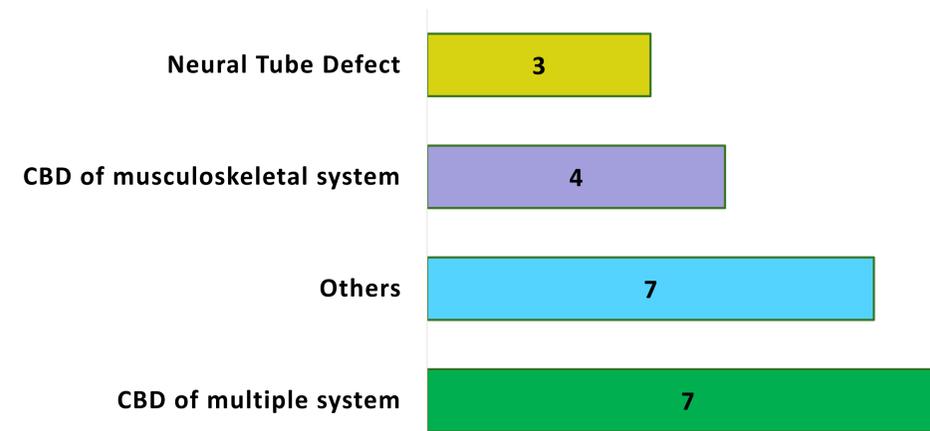


Figure 1: Common presentation of CBDs



Figure 2: Gastroschisis



Figure 3: CBD affecting multiple system



Figure 4: Anencephaly

Common maternal characteristics

- Around 90% (19/21) mothers were < 30 years of age
- Only 9% (2/21) of mothers had previous history of birth defects
- Hypertension was detected in 19% (4/21) of the mothers
- Gestational diabetes was identified among 5% (1/21) mothers

Screening and Early detection

- Ultrasound investigation was available for 12 mothers
- In 6 of the 12 mothers, CBD was detected

Panel recommendation on prevention

- In six out of ten cases where CBD was the main cause of death, the CBD was preventable
- Major prevention recommendations were-
 - Pre-conceptual Counselling
 - Folic acid supplementation
 - Ultrasound/scan for early detection and follow-up care

Conclusion

- Different genetic, infectious, environmental and nutritional factors are related to CBDs
- CBDs can be prevented through sufficient folic acid supplementation, adequate pre & periconceptual screening and care
- Our study highlights the need for better understanding of risk factors and strengthening research on major CBDs

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