

Original Article

## PREVALENCE AND MANAGEMENT OF ANENCEPHALY AT DIVISIONAL HEADQUARTER HOSPITAL FAISALABAD

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### ABSTRACT

**Objective:** To determine the prevalence, establish diagnosis & management of anencephaly.

**Design:** A prospective cross sectional study done over a period of one year (01.06.1999 to 31.05.2000).

**Setting:** Antenatal ward of Obstetric & Gynaecology Unit-II, Punjab Medical College, Divisional Headquarter Hospital (DHQ), Faisalabad.

**Subject:** Thirteen pregnant ladies having fetuses with neural tube defect (NTD) admitted in antenatal ward of DHQ Hospital.

**Main outcome measures:** Prevalence of anencephaly diagnosis, establishing any risk factor and possible causative factors.

**Results:** Prevalence of anencephaly was 3.2 per 1000 births and that of spina bifida 2 per 1000 births, 100% anencephalic and 80% infants of spinabifida were diagnosed by ultrasonography. 62% cases underwent termination of pregnancy through vaginal route. Maternal diabetes was found in 12% cases. Female sex was predominant in anencephalic fetuses (61.50%).

**Conclusion:** Improved maternity services, with facilities for prenatal diagnostic techniques for detection of anencephaly and early termination of affected fetuses can help curtail this congenital anomaly with its associated perinatal mortality. Prevalence can be decreased by giving folic acid supplementation before pregnancy & in first trimester.

**KEY WORDS:** Anencephaly, Prevalence, Diagnosis, Management.

### INTRODUCTION

Anencephaly is a fatal congenital developmental abnormality involving upper parts of

neural tube that develops between day 22 to 25<sup>th</sup> of fetal life. Approximately 60% fetuses die before birth & none survives beyond two weeks postnatally. Overall incidence of anencephaly is 1 per 1000 births<sup>1</sup>, with considerable variation throughout the world. The incidence is highest in Northern Ireland, Wales and Scotland<sup>2</sup>.

The etiology is multifactorial as some genetic & environmental factors like diet are said to be involved<sup>2</sup>. A large protective effect of folic acid supplementation on the recurrence of Neural tube defects (NTD) has been demonstrated<sup>3</sup>. Known risk factors for neural tube defects are maternal age & weight, racial factor, history of previous child with neural tube defect, uncontrolled diabetes mellitus and intake of drugs like antiepileptics<sup>4</sup>. The commonest associated malformations with anencephaly are spina bifida, cleft lip & palate & club foot.

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Table-I: Prevalence of neural tube defects/1000 birth

<i>Congenital Malformation</i>	<i>No. of Cases</i>	<i>Prevalance/1000</i>
Anencephaly	8	3.2
Spina bifida	5	2
Total NTDs	13	5.2

Table-II: Maternal age &amp; neural tube defects in 2471 births (Total 13 Cases)

<i>Maternal Age</i>	<i>No. of Cases</i>	<i>Prelance/1000</i>
< 25	3	2.31
25 - 29	7	5.38
30 - 35	2	1.54
36 - 40	1	0.78
All ages	13	5.26

**Antenatal Diagnosis of Anencephaly**

The sensitivity of ultrasonography for NTD is highest for anencephaly (100%) & lowest for spina bifida (80%). Only one case out of 13 NTD was not detected on routine antenatal ultrasound (Table-III).

**Outcome of Pregnancies**

Out of 13 singletons with neural tube defect, there were 8 terminations of pregnancies (61%). One patient aborted spontaneously (8%). Three cases had spontaneous vaginal deliveries (23%) at or near term and one case needed caesarean section due to placenta praevia major degree (Table-IV).

One patient out of 8 with anencephalic babies turned out to be diabetic (12.5%). Intake of folate was poor. Among the affected babies eight were females and five males.(Table-V)

**DISCUSSION**

In this study prevalence of anencephaly was 3.2/1000 whereas reported incidence of

Omphalocele has also been described<sup>5</sup>. Antenatal diagnosis relies on the failure to demonstrate cranial vault and finding of frog like appearance, bulging eyes, large tongue and very short neck. The diagnosis can be made as early as 12<sup>th</sup> week on ultrasonography<sup>1</sup>. Prevention and management of anencephaly include, dealing with known risk factors & prenatal counseling of affected couple regarding termination of pregnancy<sup>6</sup>. Birth prevalence of NTD has continued to decline due to early antenatal diagnosis & elective termination of affected pregnancies<sup>7</sup>. Periconceptual use of folic acid reduces first occurrence as well as recurrence of NTD.<sup>8</sup> This study was undertaken to determine the prevalence of anencephaly and to examine causative & associated risk factors.

**PATIENTS AND METHOD**

The study was carried out for one year, during this period 2471 babies were born of which 13 had NTD. The subjects included were pregnant women admitted through outpatient department or through emergency in labour ward of DHQ Hospital, Faisalabad with the diagnosis of anencephalic fetus based on clinical evaluation & ultrasonography.

Thorough history, clinical examination and lab investigation were carried out. Termination of pregnancy was then carried out after counseling and patient's consent.

**RESULTS****Prevalence of Neural Tube Defects (NTD)**

Out of 2471 deliveries in the period of study thirteen babies had NTD. The prevalence being 5.26/1000. Eight out of 13 (61%) fetuses were anencephalic giving birth prevalence of 3.2/1000 births (Table-I).

**Maternal Age & N.T.D.**

Prevalence of anencephaly decreased with increasing maternal age, being lowest in women 35 years & over (7.8%) Table-II.

Table-III: Antenatal diagnosis of neural tube defects

Diagnosis	Total No. of Cases	Detected by USG	Percentage
Neural Tube Defect	13	12	92.3
Anencephaly	8	8	100
Spina bifida	5	4	80

Table - IV: Outcome of neural tube defects regarding mode of delivery

Outcome of singleton pregnancies with NTDs	No. of Cases	Percentage
Termination of Pregnancy	8	62
Spontaneous abortion	1	7.5
Spontaneous vaginal deliveries at or near term	3	23
Cesarean section	1	7.5

Table-V: Sex ditribution in neural tube defects

Malformation	Total (No.)	Female		Male	
		No.	%	No.	%
Anencephaly	8	6	75	2	25
Spina bifida	5	2	40	3	60
Total NTDs	13	8	61.5	5	38.5

anencephaly is 1/1000 births<sup>1,9</sup>. Because of multi-factorial etiology, prevalence of anencephaly varies considerably in different parts of world<sup>10</sup>.

In developed countries the birth prevalence of anencephaly and other neural tube defects is decreasing due to pre-natal counseling, an-

tenatal screening and selective termination of affected pregnancies at earlier gestation<sup>7</sup>. Women of reproductive age planning pregnancy take prophylactic dose (0.4 mg/day) of folic acid and those with previous history of NTD babies take therapeutic dose of folic acid (4mg/day) as recommended by U.S. Public Health Services. The reasons for higher prevalence in our circumstances may be attributed to lack of prenatal counseling, absence of prophylactic folic acid use, failure of early diagnosis and termination of affected pregnancies.

In this study prevalence of anencephaly appeared to decrease with increasing maternal age, which correlates with maternal age specific prevalence of NTDs. in UK<sup>7</sup>. The exact reason for this is unclear. An excess of female sex among fetuses with anencephaly was observed which compares favourably with the study of Khourey et al, but is in contrast to those of Eurocat Study in which no difference was found<sup>11</sup>. Antenatal diagnosis for anencephaly was 100% as compared with 80% detection of spina-bifida, as it requires high resolution ultra sonography and skill of sonographer.

As regards mode of termination of pregnancies affected with NTD (62%) were terminated before term. This finding correlates with report on birth defects in UK.<sup>7</sup>

## CONCLUSION

Improved maternity services, use of prenatal diagnostic techniques & early termination of affected fetuses will help reduce the prevalence of this lethal congenital abnormality at birth.

Pre-pregnancy & 1<sup>st</sup> trimester folic acid supplementation can help decrease the prevalence.

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