View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Pakistan Journal Of Neurological Surgery

ORIGINAL ARTICLE

Maternal Concepts and Practices of Antenatal Care in Patients with Spinal Dysraphism

BILAL KHAN,[1] MUHAMMAD USMAN KHAN,[1] WEFAQULLAH[2]
Akram Ullah,[2] Mumtaz Ali[2]
[1]Neurosurgery Unit, Govt. Naseer Ullah Babar Memorial Hospital, Peshawar
[2]Department of Neurosurgery, Lady Reading Hospital, Peshawar

ABSTRACT

Objective: *To know about the antenatal care practice and concepts of the mothers who are having child with Spinal Dysraphism.*

Materials and Methods: *This was a cross sectional study conducted in the Department of Neurosurgery, Lady Reading hospital Peshawar between July 2013 and January 2014 (seven months). All patients who were having a spinal dysraphism were approached and history was taken from the mother or chaperon. The patients included all who presented to the out patients clinic, those admitted for surgery, and who had a surgical complications like the tethered cord syndrome. The patient's name, gender, address, age of the mother, maternal views about antenatal care, time of first antenatal visit if any, history and time of folate intake, number of total children and the serial number of the child affected. Other variables like socio-economic status, educational status of the mother was also noted. The data was entered and analyzed using SPSS version 17 and was expressed in tables and charts.*

Results: *During the study period 67 patients' particulars were noted. The age range was from 3 days to 12 years, there were 36 males and 31 females with a male to female ratio approaching nearly 1:1. The mother's age range was from 18 to 43 years and the socioeconomic status was low income in 43 patients. 23.73% of mothers have no idea of antenatal care, 34.32% mothers were not having any history of antenatal care, and only 22.38% were having a prenatal visit in the first trimester of pregnancy. 25 mothers were not having history of folate intake and only 8 (11.94%) were having positive history of taking in the first trimester. 18/67 (26.86%) of the affected children were the first child and the rest were the second or third.*

Conclusion: *none of the mother had enough knowledge and practices to prevent MMC. The first antenatal visit and folate intake was not at proper time to prevent MMC. If the woman with children been advised about folate intake, at least a third of the patients been prevented, since in majority it was the second child affected.*

Key Words: *Spinal dysraphism, concept, practices, antenatal care, maternal.*
Abbreviations: *MMC: Myelomeningocele. HC: Hydrocephalus.*

INTRODUCTION

Spinal Dysraphism is a group of congenital anomalies in which midline spinal structure fails to fuse. Myelomeningocele (MMC) is the most common type, so hereafter we refer the spinal dysraphism as the MMC. It's a primary neurulation defect, which also includes Myelocele, cranioschisis, anencephaly.[1] Patients with spinal bifida has a low quality of life compared to those who do not have spinal dysraphism, because they also have associated other anomalies like hydrocephalus (HC), urinary incontinence, ambulation problems and hind brain herniation like Chiari Malformation type II.[2-3] The survival rate is 90% up to 1 year, 45% by fourth decade[4]. Major causes of death Chiari II, restricted Lung disease, sepsis (more likely if sensory level upper than T_{11}) and shunt complications. In Pakistan, studies are scarce on the incidence of the MMC, two studies from the same center in different time

Date of Submission: 15-10-2017
Date of Printing: 11-09-2017

periods showed the incidence of around 1.8 to 2.3/ 1000 deliveries.[5-6]

Since MMC has a significant fiscal and social brunt on the family and society, it can be prevented by simple steps like the addition/intake of the folic acid in the first trimester, because it is required for the formation of a mature nervous system in the humans. An adequate amount of folic acid not only reduces the incidence of congenital malformation of the human brain like spina bifida, anencephaly and encephalocele; but also decreases incidence of congenital heart diseases and cleft palate[5]. The rationale behind this study was to know whether the mother who had a children with spinal dysraphism or MMC, had knowledge and practices enough to prevent a NTD, as proper antenatal care and knowledge has an implication on reduction of MMC.

MATERIALS AND METHODS

This was a cross sectional study conducted in the Department of Neurosurgery, Lady Reading hospital Peshawar between July 2013 and January 2014 (seven months). All patients who were having a spinal dysraphism were approached and history was taken from their mother or the chaperon. The study included all presented to the out patients clinic, those admitted for surgery and all those with surgical complications like the tethered cord syndrome. Patients who do not remember their antenatal history were excluded from the study. The patient name, gender, address, age of the mother, maternal views of the antenatal care, time of first antenatal visit if any, history and time of folate intake, number of total children and the serial number of the child affected. Other variables like socio-economic status, educational status of the mother were noted. Patients with other congenital neural tube defects like anencephaly and encephalocele were not included. The data was entered and analyzed using SPSS version 17 and was expressed in tables and charts.

RESULTS

During the study period 67 patients were evaluated and their particulars noted. The age range was from 3 days to 12 years and the mean age was 1.3 ± 0.9 years. Candidates who came to the department with a complication of MMC repair like tethered cord syndrome were of higher age than others. The study included 36 males and 31 females, having a male to female ratio approaching nearly 1:1.

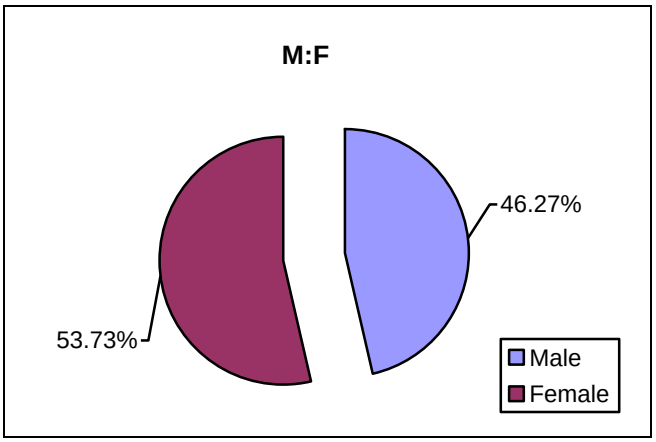

Fig. 1: *Shows the male to female ratio which is approaching 1.1.*

The maternal age range was from 18 to 43 years. the socioeconomic status was classified according to the monthly income into three groups as low (10-15k pm), medium(15-30k pm) and high medium (30-50k pm) most of the patients were from low income 64.16% (43). 23.73% of mothers have no idea of antenatal care, 34.32% mothers were not having any history of antenatal care, and only 22.38% were having a prenatal visit in the first trimester of pregnancy only, being aware of it after missing their menstrual period as shown in figure 2 and 3. Not even a single pregnancy was planned.

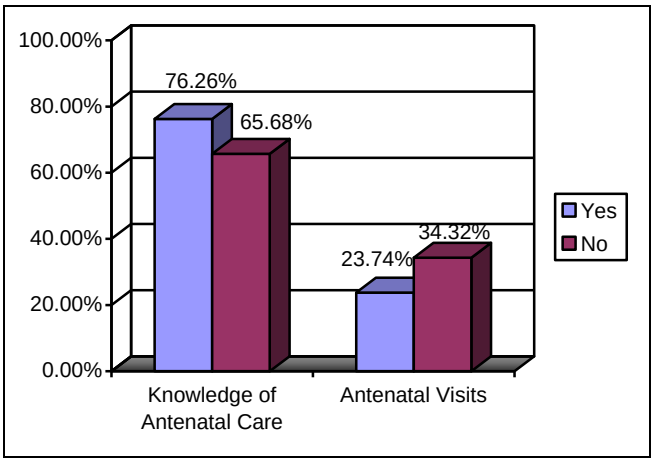

Fig. 2: *This figure shows the knowledge of the antenatal care and the visit paid by mothers for the antenatal care. Around 76% of mothers had knowledge of antenatal care and only 66% had antenatal visits.*

Further rectification on the depth of knowledge showed that only 10.3% of the mothers had knowledge

about the possible role of antenatal care in preventing the condition. About the antenatal visit it was revealed that majority of the visit were in the third trimester as shown in figure 3, which were inadequate to reduce the incidence of MMC.

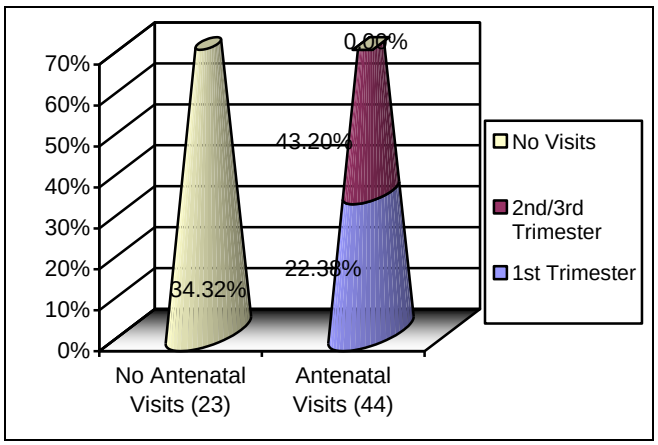

Fig. 3: *The graph shows the timings of antenatal visit; it can be seen that majority of the visits were in the second and third trimester, after the stage of primary neurulation, and unable to prevent any neural tube defect. Even, the visits in the first trimester were too late as the woman had missed here first period and by that time the primary neurulation has been completed.*

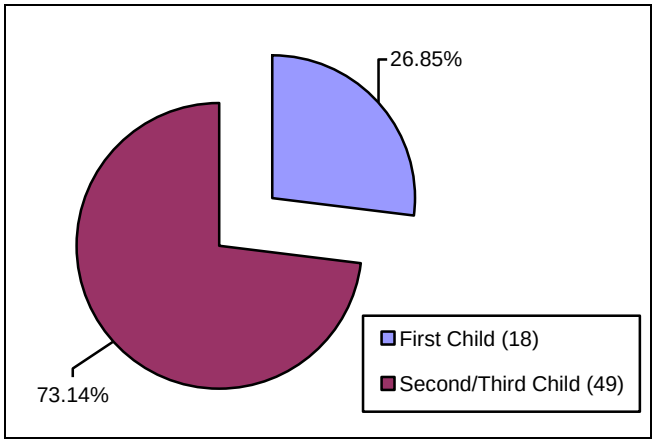

Fig. 4: *The affected child is shown here. In majority of the cases as shown it was the second or the third child affected which could been prevented by simple advice of taking a 400mcg of folic acid daily.*

25 mothers were not having history of folate intake and only 8 (11.94%) were having positive history of taking in the first trimester. 18/67 (26.86% of the affected children were the first child and the rest were the second or third.

DISCUSSION

Folate deficiency has been implicated as established cause in the formation of neural tube defects (NTD). In 1992, the United States Public Health Service recommended that all women of childbearing age consume 400 micrograms (mcg) of folic acid daily to reduce the risk of having a pregnancy affected by birth defects known as neural tube defects (NTDs).[8] Overall, a 46% reduction in prevalence was shown[7]. Since myelomeningocele is a primary neurulation defect, which starts at day 17 and ends on day 28th of gestation by closure of the caudal neuropore, the folate levels should be adequate before the day 17 for proper nervous system development.[9-10]

Pakistan, yet so far do not have any mandatory food fortification with folic acid and has an incidence of spinal bifida at around 1.8 to 2.4/1000 live births.[5-6] With a population of about 190 million and a crude birth rate of 29/1000, we can estimate an annual incidence of spina bifida at around 9-12000/ year.[11]

In our study among 67 patients, the male to female ratio was approaching 1.1:1. Our study population was from low income in majority as shown in 43 (64.64%) of the patients. The socio-economic status was poor in 73%, in a study by Shafqat T,[12] and in 66% by Nisar N.[13] Since all the studies were conducted in public hospitals, where most of the low income population seek the antenatal care, that's why represent a greater population of the study. Overall, Pakistan has a population around 36% living below poverty line.[11]

In our study the practice and concept of antenatal care were evaluated to know if they were enough to prevent NTD in the subjects of mother with spinal dysraphism. Overall, 76.67% of the studied population had knowledge enough about the antenatal care, mentioning it mandatory for the mother. A study from the same institution showed the knowledge level was as in general population.[12] Only 10% of the mother showed the importance of antenatal care, and expressed that the condition could have been prevented by timely antenatal visits, in a study the population awareness of the significance of antenatal care was around 80%.[12-13]

The antenatal visits were paid by 44 (65.67%) of the mothers. Most of them were in the second or the third trimester, only 22.38% were in the first trimester. Since, to prevent the neural tube defect the mother folate level should be enough at the 18th day of gestation,

at the beginning of primary neurulation,[8] we can assume that none of the mothers were having an antenatal care at the proper time to prevent a neural tube defect. Studies among pregnant woman showed that 87% of them had antenatal care, surprisingly the percent of women seeking an antenatal care decreases with subsequent pregnancies (60% for the first viz-a-viz 35% for the fifth pregnancy); the mean time was 3 months for the rich and 7 months of gestation for the poor,[14] all showing a practice not able to prevent a neural tube defect.

Folate intake was positive in only 8 (11.94%) of the mothers during the first trimester, and even it was taken after their first antenatal visit, paid after missing a period. The folate concentration and intake is important at a stage if one plans a pregnancy.[8-9] In our country unintended pregnancies are around 50%,[15] so women are not aware of being pregnant until they miss their periods, that's why preliminary measures are not taken and neither the woman takes folate before conception. Since mandatory folate intake is also not practical in our country,[8] furthermore; in western societies there is an overwhelming practice of induced abortion in cases with neural tube defects,[8] this is also not commonly practiced in our country, these contributes to the increased incidence of MMC in our society.

Only 18 out of the 67 (26.86%) were the first child affected, and the rest all were second or third child. It comes out to be something of very dismay, since a mother already having a child should have been educated about the preventive measures, and importance of folic acid. The current data reflects the very fact that mothers are very random in taking an advice on the antenatal care, and lost interest in subsequent pregnancies,[13,14,16] as cited earlier.

CONCLUSION

None of the mother had enough knowledge and practices to prevent MMC. The first antenatal visit and folate intake was not at proper time to prevent MMC. If the woman with children been advised about folate intake/antenatal care, at least a third of the patients been prevented, since in majority it was the second child affected.

Address for Correspondence:
Dr. Bilal Khan
Department of Neurosurgery, Govt. Naseer Ullah Babar Memorial Hospital, Peshawar
Email; bkafridi675@yahoo.com Cell#03149192558

REFERENCES

1. Dias MS, Partington M. Embryology of myelomeningocele and anencephaly. Neurosurgery Focus, 2004; 16 (2): 1-16. http://thejns.org/doi/pdf/10.3171%2Ffoc.2004.16.2.2
2. Bier JA, Prince A, Tremont M, Msall M. Medical, functional, and social determinants of health-related quality of life in individuals with myelomeningocele. Dev Med Child Neurol. 2005; 47: 609–612.
3. Wang JC, Lai CJ, Wong TT et al. Health-related quality of life in children and adolescents with spinal dysraphism: results from a Taiwanese sample. Childs Nerv Syst. 2013 Sep; 29 (9): 1671-9. Doi: 10.1007/s00381-013-2117-5. Epub 2013 Sep 7.
4. Bartonek A, Saraste H, Danielsson A .Health-related quality of life and ambulation in children with myelomeningocele in a Swedish population. Acta Paediatr. 2012; 101 (9): 953-6. Epub 2012 Jun 19.
5. Karim R, Wahab S, Akhtar R, Jamala F, Jabeen S. Frequency and pattern of distribution of antenatally diagnosed congenital anomalies and the associated risk factors. J Postgrad Med Inst. 2014; 28 (2): 184-8.
6. Qazi G. Relationship of selected prenatal factors to pregnancy outcome and congenital anamalies. J Ayub Med Coll Abbottabad, 2010; 22 (4): 41-511.
7. Wals DP, Tairou F, Allen MIV, et al. Reduction in Neural tube defects after folic acid fortification in Canada. N Eng J Med. 2007; 357: 135-42.
8. http://www.cdc.gov/mmwr/preview/mmwrhtml/00019479.htm
9. Prevention of neural tube defects: results of the Medical Research Council Vitamin Study. MRC Vitamin Study Research Group. Lancet, 1991 Jul. 20; 338 (8760): 131-7.
10. Devine O, Hao L, et al. Population red blood cell folate concentrations for prevention of neural tube defects: Bayesian model. BMJ, 2014; 349: g4554.
11. http://data.worldbank.org/country/pakistan
12. Shafqat T, Fayaz S, Rahim R, Saima S.Knowledge and awareness regarding antenatal care and delivery among pregnant women. J. Med. Sci. 2015; 23 (2): 88-91.
13. Nisar N, White F. Factors affecting utilization of antenatal care in reproductive age group women (15 – 49 years) in an urban settlement of Karachi. Pak Med Assoc. 2003; 53: 47-53.
14. Agha S, Tappis H. The timing of antenatal care initiation and the content of care in Sindh, Pakistan. BMC Pregnancy Childbirth, 2016 Jul. 27; 16 (1): 190. Doi: 10.1186/s12884-016-0979-8.
15. Sathar Z, et al. Induced abortion and unintended pregnancies in Pakistan. Studies in Fam Plan, 2014; 45 (4): 471-91.
16. https://www.unicef.org/rosa/Pakistan_PPTCT_Fact_Sheet.pdf (antenatal visit)

AUTHORS DATA

Name	Post	Institution	E-mail	Role of Authors
Dr. Bilal Khan		Neurosurgery Unit, Govt. Naseer Ullah Babar Memorial Hospital, Peshawar	bkafridi675@yahoo.com	Data Collection
Dr. Muhammad Usman Khan				Table
Dr. Wefaq Ullah		Department of Neurosurgery, Lady Reading Hospital, Peshawar		Paper Writing
Dr. Akram Ullah				Data Collection
Dr. Mumtaz Ali				Overall Supervision

Date of Submission: 15-07-2017
Date of Printing: 11-09-2017
Peer Reviewed by Dr. Muhammad AKmal, Dr. Nabeel Chaudary and Chief Editor Prof. Dr. Muhammad Anwar Chaudary and others.