ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 03 | March - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF INDOMETHACIN THERAPY IN ISOLATED POLYHYDROMNIOS

Obstetrics & Gynaecology

Dr. P. Mounika Postgraduate, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh 534005, India.

Dr. P. Sri Tanaya Professor, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh 534005, India.

Dr. K. Vandana* Professor & HOD, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh 534005, India. *Corresponding Author

ABSTRACT

Aim And Objective Of Study

- To observe the role of indomethacin in symptomatic cases of idiopathic polyhydramnios
- To know maternal and fetal outcome

Materials And Methods: 15 pregnant women with idiopathic and symptomatic polyhydromnios were included in the study and were treated with indomethacin 25mg three times a day.The drug was stopped when there was a decrease in AFI and patient was symptom free or if patient developed any complications. **Results:** Majority of them had good neonatal outcome and delivered at 36weeks of gestational age.There was one neonatal death at<7 days due to severe prematurity, who underwent emergency LSCS at 33 weeks of GA due to fetal distress.There were no maternal complications in all the 15 patients following treatment with indomethacin. **Conclusion:** Indomethacin is effective in the therapeutic management of severe , idiopathic polyhydromnios. Caution should be exercised to balance between the decrease in amniotic fluid and the side effects it could have on fetus.

KEYWORDS

Idiopathic , symptomatic , polyhydromnios , patent ductus arteriosus.

INTRODUCTION

Amniotic Fluid: It is probably of mixed maternal and fetal origin. The water in the amniotic fluid is completely changed and replaced in every 3 hours. The presence of lanugo and epithelial scales in the meconium shows that the fluid is swallowed by the fetus and some of it passes from the gut into the fetal plasma. Amniotic fluid volume is related to gestational age. At 12 weeks- 50 ml ; 20 weeks- 400 ml ; 26-38 weeks- reaches its peak – 1 litre; Thereafter the amount diminishes. Term - 600-800 ml. As the pregnancy continues, further diminishes. Post term- 200 ml at 43 weeks. It has Alkaline Ph and its Specific gravity is around 1.010. Amniotic fluid osmolarity falls with advancing gestation. 250 mOsmol/L indicates Fetal maturity. It is colourless in early pregnancy. At Term, it is pale straw coloured (due to passage of lanugo and epidermal cells) and is Turbid (due to presence of vernix caseosa). Some of the Abnormal colours are Green coloured: meconium stained (fetal distress), Golden coloured: Rh incompatibility, Greenish yellow (saffron): Post maturity, Dark coloured: Accidental Haemmorhage, Dark brown (tobacco juice) : IUD. Composition: water 98-99 % and solid (1-2%). The following are the solid constituents:(a) Organic : Protein – 0.3 mg% NPN- 30 mg % Total lipids- 50 mg% . Glucose – 20 mg %, Uric acid – 4 mg%. Hormones (Prolactin , Insulin and Renin). Urea – 30 mg % , Creatinine – 2 mg%. (b) Inorganic : The concentration of the sodium , chloride and potassium is almost the same as that found in maternal blood. (c) Suspended particles include – Lanugo , Exfoliated squamous epithelial cells from the fetal skin , vernix caseosa , cells from the respiratory tract , urinary bladder and vagina of the fetus.

Amniotic fluid is produced by Transudation of maternal serum across the placental membranes, Transudation from fetal circulation across the umbilical cord or placental membranes, Secretion from amniotic epithelium, Transudation of fetal plasma through the highly permeable fetal skin before it is keratinized at 20th week, Fetal urine, Fetal lung fluid that enters the amniotic cavity add to its volume. Amniotic fluid is removed by swallowing of fetus , Intra membranous absorption of water and solutes (200-500 ml/day) from the amniotic compartment to fetal circulation through the fetal surface of the placenta.

Polyhydromnios: Polyhydromnios is defined as abnormal increase in amniotic fluid > 2000ml /AFI ≥ 24cm / > 95thpercentile for the gestational age. It may be the result of deficient absorption as well as excessive production of liquor amnii , which may be temporary or permanent.

Causes are: Idiopathic (50-60%), Fetal anomalies, Placental causes, Multiple pregnancies, Maternal conditions.

Associated factors include Maternal factors like Diabetes (30%) , Cardiac and renal disease may lead to edema of the placenta leading to transudation; Fetal factors like Congenital fetal malformations (structural and chromosomal) are associated with polyhydramnios in about 20 % cases ; Rh isoimmunisation ; Multiple gestation. The causes of excessive production of liquor amnii may be due to Transudation from the exposed meninges, absence of fetal swallowing reflex, possible suppression of fetal antidiuretic hormone leading to excessive urination, Anomalies like Open Spina Bifida , Esophageal or duodenal atresia , Facial clefts and neck masses , Hydrops fetalis , Aneuploidy and genetic syndromes .

Placental causes include Chorioangioma of the placenta : Tumor growing from a single villus consisting of hyperplasia of blood vessels and connective tissue results in increased transudation . In multiple gestation ,Hydramnios is more common in monozygotic twins , usually affecting the second sac . In TTTS, the recipient twin develops polyhydramnios. However,70% of the cases are idiopathic in origin.

Categorised as mild if AFI is 25 to 29.9 cm , moderate if 30 to 34.9cm and severe if AFI ≥35cm.

Clinical types : Depending on the rapidity of onset , hydramnios may be :

(a) Chronic (most common) : onset is insidious taking few weeks
(b) Acute (extremely rare) : onset is sudden , within few days or may appear acutely on preexisting chronic variety . The chronic variety is 10 times more common than the acute one.

Chronic Polyhydromnios

Symptoms are Shortness of breath, Palpitations, Edema of the legs, Varicosities in the legs or vulva, Hemorrhoids Signs are The patient may be in a dyspneic state in the lying down position and Evidence of preeclampsia (edema, hypertension and proteinuria) may be present

Complications

Maternal- respiratory embarrassment, premature uterine contractions leading to PROM & preterm labour, abruption placenta, malpresentation, umbilical cord prolapse, uterine atony resulting in PPH.

Neonatal- premature birth, low birth weight and respiratory distress.

Type Of Study: Prospective study conducted in ASRAM, from

December 2021 to December 2022

Study Population: Fifteen pregnant women with idiopathic polyhydramnios who presented with symptoms such as respiratory embarrassment, premature uterine activity/premature opening of os were included in the study.

Inclusion Criteria

Women with idiopathic polyhydromnios.

Women with symtoms such as respiratory distress, premature uterine activity/premature opening of os.

Exclusion Criteria

Any congenital anomalies in the foetus, hydrops, multiple gestation and placental anomalies were excluded from the study.

MATERIALS AND METHODS

Patients with symptomatic isolated polyhydramnios were admitted in the hospital, indomethacin was administered orally 25mg three times a day. Baseline investigations such as CBP, RFT, Electrolytes were done and repeated twice weekly, AFI was measured twice a week and fetal 2D-Echo was done before the start of the treatment and then every week to look for premature closure of fetal ductus arteriosus. The drug was stopped when there was a decrease in AFI and patient was symptom free or if any complications like oligohydramnios, fetal distress or gastritis occurred. After birth, neonate was investigated by 2DECHO, RFT and ultrasound for any abnormalities. Neonates were followed for every month till six months of age. Metric data were described as mean+SD.Significance was checked with paired t-test.pvalue of <0.05 was considered significant.

RESULTS

15cases- who were idiopathic and symptomatic were treated with indomethacin.

In our study,therapy was started between 28 and 32 weeks of GA. After treatment with indomethacin,there was symptomatic relief and significant decrease in AFI in all cases. The mean AFI at presentation was 29.9±1.94cm and at the end of treatment it was 17.2 ± 2.75cm, with a mean reduction of AFI of 10.73±2.25cm. All patients were treated for a mean duration of 12.06±3.34days and the duration of pregnancy prolonged by 5.33 ±1.04 weeks. The pvalue was 0.01 statistically significant. Majority of them had good neonatal outcome and delivered at 36weeks of gestational age . There was one neonatal death at <7days of life due to severe prematurity, who underwent emergency LSCS at 33weeks of GA due to fetal distress. There were no maternal complications in all the fifteen patients following treatmentwith indomethacin.

Table 1: Reduction in level of AFI with Indomethacin

Serial number	Gestational Age	AFI at presentation	AFI at the end of Rx	Duration of Rx	Pregnancy-prolonged by weeks	Decrease in AFI cm
202201857	28	30	24	8	6	6
202207458	32	28	18	12	4	10
202205689	27	28	16	14	7	12
202205687	30	32	21	14	4	11
202201254	28	30	22	10	7	8
202203256	31	34	25	12	4	9
202205698	30	32	20	18	5	12
202204587	32	30	20	8	5	10
202204589	29	28	16	10	5	12
202205632	28	30	16	18	6	14
202205671	30	28	3	14	6	14
202203214	32	30	22	7	4	8
202205647	28	27	16	12	6	11
202205684	30	30	18	10	5	12
202205641	30	32	20	14	6	12

Table 2: Neonatal outcome

GA at delivery	Number of cases	Neonatal outcome
Less than 34weeks	1	Neonatal deaths less than 7days
35 to greater than orequal to 37weeks	14	Live births

DISCUSSION

Indomethacin is an NSAID, which causes reversible inhibition of cyclooxygenase enzyme, inhibiting the production of prostaglandins. Crosses placenta & can decrease the production of amniotic fluid by increasing the absorption of fluid by lungs, reduces urine output by reducing renal blood flow & increasing renal vascular resistance. Causes increase in fetal secretion of ADH, which further decreases urine output. The causes of polyhydramnios in our study was mainly idiopathic, which was similar to study performed by Maymonetal. Most of the women belonged to >25yrs of age and majority were multigravida, similar to the study conducted by Tariq Setal. Lallaretal.4 reported that most of the cases are diagnosed between 28 & 36 weeks of GA, but in our study it was diagnosed between 28 & 32 weeks of GA. There was a significant decrease in amniotic fluid when given inidiopathic polyhydramnios similar to study by Abhayankar and Salvi. One neonatal death was reported at<7days of life, due to severe prematuriy who underwent emergency LSCS at 33 weeks of GA due to fetal distress,however we cannot find the obvious reason for the distress. Majority of them had good perinatal outcome similar to the study conducted by Abhyankar Salvi. Indomethacin has raised the concern regarding fetal complications like ductal constriction,IVH & NEC ,maternal side effects like nausea, vomiting and dyspepsia.In our study,there were no such complications observed. The main limitation of our study was that the sample size is small.

CONCLUSION

Indomethacin is effective in the therapeutic management of severe symptomatic, idiopathic polyhydramnios. Caution should be exercised to balance between the decrease in amniotic fluid and the side effects it could have on the fetus. Patients should be regularly monitored with ultrasound and fetal 2DECHO.However, further studies are needed to dictate the optimal dose, duration of treatment and to determine the safety of indomethacin use.

REFERENCES

1. NeibylJR,BlakeDA, White RD, etal.The inhibition of premature labour with indomethacin. AmJObstetGynecol. 1980; 136(8):1014-1019.
2. MamopoulosM, AssimakopoulosE, ReeceEA, etal. Maternal indomethacin therapy in the treatment of polyhydramnios. Am J Obstet Gynecol. 1990;162(5):1225-1229.
3. TariqS,CheemaS,AhmadA,etal.Polyhydramnios: Studyof causesandfetaloutcome. ProfessionalMedJ.2010;17(4):660-664.
4. LallarMeenakshi,AnamulHaq,NandalRajesh.Perinatalout comeinIdiopathic polyhydramnios. Jobstet Gynaecol. 2015;65(5):310-314.
5. AbhyankarS,SalviVS.Indomethacintherapyinhydramnios.J PostgradMed. 2000; 46(3):176-178
6. The Role of Indomethacin in Isolated Polyhydramnios. G.Singham, V. Achanta , Subha R. Samantaray :16 November 2020
7. Relationship of maternal treatment with indomethacin to persistence of fetal circulation syndromeJ Pediatr(1978)
8. Kirshon B, Mari G, Moise KJ. Indomethacin therapy in the treatment of symptomatic polyhydramnios. Obstet Gynecol 1990; 75:202-205.
9. Carmona F, Martinez-Roman S, Mortera C, Puerto B, Cararach V, Iglesias X. Efficacy and safety of indomethacin therapy for polyhydramnios. Eur J Obstet Gynaecol Reprod Biol 1993; 52:175-180.
10. Cabrol D, Landesman R, Muller J, Uzan M, Sureau C, Saxena BB. Treatment of polyhydramnios with prostaglandin synthetase inhibitor (indomethacin) Am J Obstet Gynecol 1987; 157:422-426
11. Indomethacin therapy in the treatment of symptomatic polyhydramnios. Kirshon B, Mari G, Moise KJ Jr.Obstet Gynecol. 1990 Feb;75(2):202-5.
12. Treatment of polyhydramnios with indomethacin.Kramer WB, Van den Veyver IB, Kirshon B.Clin Perinatol. 1994 Sep;21(3):615-30.
13. Kramer WB, Van Den Veyver IB, Kirshon B. Treatment of polyhydramnios with indomethacin. Clin Perinatol 1994; 21:615-630
14. Malas HZ, Hamlett JD. Acute recurrent polyhydramnios - management with indomethacin. Br J Obstet Gynaecol 1991; 98:583-587.
15. 1991 Thieme Medical Publishers, Inc.Treatment of Polyhydramnios with Indomethacin Andrew Gerson, Nancy Roberts, Garrett Colmorgen, Christine Maynard, William Slate, Kaighn Smith.