ORIGINAL ARTICLE

Maternal and Perinatal Outcome in Patients with Cholestasis of Pregnancy

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Abstract

The current study was undertaken to determine the effects of obstetrical cholestasis on the mother and fetus. 150 pregnant patients presenting with pruritis and having deranged liver function tests were taken for this study. 150 patients diagnosed with ICP were studied. The prevalence of the disease was 1.006%. Maximum number of patients were primigravida and in age group of 21-25 years. Pruritis was present in 58.67% of patients and was noted more in winter. Jaundice was seen in 28.67% of patients. Onsent of labour was spontaneous in 50.67% of patients and preterm delivery in 10% of patients. Induction of Labour was done in 39.33% of patients. Vaginal delivery occured in 57.33% of patients. 10% patients had elective LSCS due to obstetrical indication while as 28.82% had LSCS due to fetal distress i.e. meconium and fetal bradycardia. 11patients had PPH. IUD was seen in 2.67% of patients and 16% of neonates required NICU admission and out of 24 NICU admissions, 62.5% were due to meconium aspiration syndrome. Obstetric cholestasis is associated with increased perinatal mortality and morbidity if delivered after 38 weeks. An attempt to deliver prior to 38 weeks may improve perinatal outcome.

Key Words

Obstetrics Cholestasis, Pruritis, Jaundice, Pregnancy Outcome

Introduction

Cholestasis is defined as decrease in bile flow due to impaired secretion by hepatocytes or obstruction of bile flow through intrahepatic or extrahepatic bile ducts. Intrahepatic cholestasis of pregnancy is a condition characterized by pruritis in the second half of pregnancy. It persists until delivery after which it caeses promptly. A genetic background is suggested by family clustering and demographic variation, with highest incidence reported from Chile Bolivia (6%-27%) and Sweden (1- 1.5%) (1). Cholestasis is a rare disease and rates vary dramatically with overall prevalence estimated as 1 in 1000 to 1 in 10,000 pregnancies in North America, Asia and Australia (2). The incidence of obstetric cholestasis varies from 1% to1.5% of pregnancies in Europe (3). The etiology of obstetric Cholestasis is multifactorial and genetic. Environment and hormonal factors have important roles (4). Prevalence in w4w1omen of Indian Origin is 5% (5). The prevalence may have seasonal cycles and may be more prevalent in winters (6) .

Intrahepatic cholestasis of pregnancy can have devastating consequences for the fetus with perinatal mortality reaching upto 11% - 20% in untreated cases. (7). Obstetrics cholestasis classically manifests itself in 2nd or 3rd trimester of pregnancy with generalized pruritis but without any skin rash being the main complaint. Pruritis begins in the palms and soles with progression to arms and legs eventually reaching trunk and face. Jaundice is relatively uncommon complication, except in most severe and prolonged cases (8). Although the maternal outcome is invariably good, but an increased fetal risk has been reported namely preterm delivery, low birth weight babies, bradycardia, meconium staining of liquor, fetal distress, Intrauterine death of fetus and increased perinatal mortality (9) .

The mechanism of premature labour and meconium staining of liquor has been attributed to elevated bile acids in circulation. (10). Bile acids especially cholic acid, cause a dose dependant vasoconstrictive effect on isolated human placental chorionic veins, an abrupt decrease in oxygenated blood flow to fetus, leading to fetal distress and IUD (11). The hallmark of cholestasis is evaluated by measuring aminotrans ferases , alkaline phosphatase and bilirubin.

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Material and Methods

A prospective study was carried out in 150 patients with obstetric cholestasis of pregnancy for one year in SMGS Hospital, Govt. Medical College Jammu. Patients who fulfilled the inclusion criteria i.e. having pruritis and deranged LFT were taken in the study. Besides demographic data, complete history regarding evaluation of risk factors including history of oral contraceptives intake, gallstone and family history of IHCP was taken. The gestational age in week at which pruritis occurred was noted. Jaundice was noticed on examination. Patients investigations like complete blood profile, coagulation profile and hepatic viral serology were done.The gestational age , the onset of labour and the mode of delivery was noted. Intrapartum complication were observed.Neonatal outcome and complications like meconium aspiration and fetal distress along with admission of newborn to nursery or NICU was analyzed. All the collected data was analyzed.

Results

The prevalence of the disease was 1.0067%. Maximum number of patients were primigravidas and in the age group of 21-25 years and mean age was 25.79 years (*Table-1&2*). The cardinal symptom of ICP was Prurititis after 28 weeks of gestation (about 58.67%) and was noticed more on palms and soles during winters (*Table-3&4*). There was significant rise in the serum bilirubin level which was noticed in 28.67%. The aminotoranse ferase levels were also significantly raised, upper level being AST > 300mg/dl and was 100-200 in 33.33% of patients. The serum ALP was 400-600 in 38% of patients (*Table-5*). Out of 150 patients 10% had preterm delivery 50.67 had spontaneous onset of labour and mean gestational age was 38 weeks 5 days. Induction of Labour was done in 39.33% of patients. Maximum number of patients i.e. 57.33% had vaginal delivery. LSCS was done in 38.67% and in 10% LSCS was done for obstetrical indication. 4% of Patients underwent instrument delivery. Intrapartum complication in the form of meonium Staning was observed in 25.33% and LSCS was done for the same in 17% of patients. Perinatal outcome was uneventful in 65.33% of patients. Poor perinatal outcome was observed in 34.67% of neonates. Four patients had IUD and one patient had still birth. 10% of the neonates had low birth weight and A/S was favourable in majority of neonates and 24 new born babies required admission in NICU because of meconium aspiration.

Discussion

This study describes the nature and outcome of obstetric cholestasis. The true incidence may be varying because intrahepatic cholestasis of pregnancy is not assessed commonly and pruritis is overlooked easily when clinical symptoms may be mild or develop near term. The prevalence of obstetric cholestasis was 1.0067% in this study, while the incidence of 1.24% was reported by Keyon *et.al* in the Indian population (12). Sabina *et.al*, reported an incidence of 1.2% in Pakistani population (13). On analyzing the data the maternal mean age in our study was 25.79 years; this was consistent with the study of Ray Aloknada *et.al* who found mean age of 24.7 years in his study (14). The maximum number of patients were primigravida (37.33%). M Padmaja *et.al*. found in his study that ICP was present in primigravida (71.8%) (15), while as Singh also found that 52% of patients were primagravidas (16).

73.33% of patients were having symptoms during winter while as only 26.67% presented with pruritis during summers. In the present study 28.67% had elevated bilirubin and LFT was mildly deranged in maximum number of patients (*Table-5*).These findings were consistent with the findings of Sabeena Rashid *et. al.* (13). Mean gestational age was 38 weeks 5 days in our study, while as Michelle Rook *et al*. found mean gestational age of delivery as 37 weeks (17).

Preterm delivery was noted in 10 % of patients. The higher incidence of preterm delivery was because of induction of labour before 37 weeks of pregnancy due to worsening of pruritis. Alsulyman OM *et al* found 14% incidence of preterm labour (18).

Maximum number of patients had spontaneous onset of labour and in 59 patients i.e. (39.33%) induction of labour was done because of cholestatsis of pregnancy. Ray Aloknanda had reported in his study that 68.75% had spontaneous onset of labour, while as Heinonen *et al* , found 12.5% had undergone induction of labour for cholestasis of pregnancy (19). In our study, pregnancy outcome was good in induced group i.e. 65.78% had vaginal delivery and LSCS was done in 34.22% patients.Ray Aloknanda *et al* (19) found LSCS rate in induced group as 33.3% which was higher than in spontaneous onset group.Maximum number of patients had vaginal delivery and LSCS was done in induced group due to meconium and fetal brady cardia. Fetal distress was common after 38 wks of gestation. Kenyon *et al* (12) reported LSCS in 36% of his patients. ICP of pregnancy poses little risk to mother but there is a significant risk to fetus such as preterm delivery, fetal bradycardia, meconium staining and IUD also. Hani A *et al* found increased incidence of fetal asphyxia in patients with IHCP (20). Maternal morbidity i.e. PPH was seen in 7.33% of patients. Incidence of PPH was less in our study because of routine administration of

Table 1. Distribution of Patients According to Age

AGE (in years)	NO. OF PATIENTS	% OF PATIENTS
≤ 20	9	6
21 – 25	71	47.33
26 – 30	56	37.33
> 30	14	9.34
TOTAL	150	100

Table 2. Distribution of Patients According to Parity

PARITY	NO. OF PATIENTS	% OF PATIENTS
P – 0	94	62.67
P – 1	38	25.33
P – 2	12	8
≥ P – 3	6	4
TOTAL	150	100

Table 3. Distribution of Patients According to Season at the Onset of Symptoms

SEASON	NO. OF PATIENTS	% OF PATIENTS
WINTERS	110	73.33
SUMMERS	40	26.67
TOTAL	150	100

Table 4. Distribution of Patients According to Gestational Age at the Onset of Pruritis

GA (in weeks)	NO. OF PATIENTS	% OF PATIENTS
< 28	7	4.67
28 – 32	42	28.0
32 – 36	88	58.67
≥ 36	13	8.66
TOTAL	150	100

Table 5. Distribution of Patients According to Liver Function Tests

LFT	NO. OF PATIENTS (n=150)	% OF PATIENTS
S. BILIRUBIN (mg/dl.)		
0.2 – 0.6	62	41.33
0.6 – 1.0	45	30.00
1.0 – 1.4	33	22.00
≥ 1.4	10	06.67
AST (IU/L)		
0 – 100	46	30.67
100 – 200	59	39.33
200 – 300	30	20.00
≥ 300	15	10.00
ALT (IU/L)		
0 – 100	63	42.00
100 – 200	50	33.33
200 – 300	27	18.00
≥ 300	10	06.67
S. ALP (IU/L)		
< 200	24	16.00
200 – 400	53	35.33
400 – 600	57	38.00
≥ 600	16	10.67

vitamin K injection to patients. Vit. K helps in the synthesis of various clotting factors. Sabeena et al also found PPH in 20% of patients while as Ray Aloknanda *et. al.* (14) found higher incidence of PPH (25%). Poor perinatal outcome was seen in 34.67% neonates. Out results were consistent with the study of Michell Rook *et al.* (17) who reported fetal complication in 33% of patients with ICP, while as M. Padmaja found meconium staining

Table 6. Maternal Outcome in Cholestasis of Pregnancy

MATERNAL OUTCOME	NO. OF PATIENTS (n=150)	% OF PATIENTS
PRETERM DELIVERY	15	10.00
SPONTANEOUS ONSET OF LABOUR	76	50.67
INDUCTION OF LABOUR	59	39.33
VAGINAL DELIVERY	86	57.33
LSCS	58	38.67
INSTRUMENTAL DELIVERY	06	4.00
MEUCONIUM STAINED LIQUOR	38	25.33
ABRUPTION	03	2.00
PPH	11	7.33

Table 7. Perinatal Outcome in Cholestasis of Pregnancy

PERINATAL OUTCOME	NO. OF NEONATES (n=150)	% OF PATIENTS
IUD	04	2.67
FETAL DISTRESS	09	6.00
MEUCONIUM	38	25.33
STILL BIRTH	01	0.67
LOW BIRTH WEIGHT	15	10.00
A/S < 7	08	5.33
NICU ADMISSIONS	24	16.00

in 17.8% of patients. In this tudy, 24 Neonates (16%) required admission in NICU because of meconium aspiration and prematurity. Keyon AP *et. al.* (12) reported 14% NICU admission.

Conclusion

Obstetric cholestasis occurs in the final months of pregnancy with pruritis as a cardinal symptom. It is associated with increased maternal morbidity and perinatal mortality and morbidity. Close monitoring in antenatal period and induction of labour at 37-38 weeks may improve perinatal outcome.

References

1. Lammert F, Marshall HU. Intrahepatic Cholestatis of pregnancy, Molecular Pathogensis, diagnosis and management. *J Hepatal* 2000; 33: 1012-21
2. Nicholas AA. Cholestasis of Pregnancy. A review of the evidence. *J Perintal Neonatal Nurs* 2005: 19; 217-25
3. Milkic Wiaz PE, Williamson CJ. Obstetric Cholestasis. *BMJ* 2002; 324: 123-4
4. Hunt CM, Shara AJ. Liver Diseases in Pregnancy. *Am Family Physician* 1999;59: 3-5
5. Royal College of Obstetrics and Gynecologists Green Top 43 (19.5.11). Avaiable at : https://www.rcog.org.uk/globalassets/documents/guidelines/gtg_43.pdf Accessed on Jan, 2014
6. Hay JE. Liver diseases in Pregnancy. *Hepatology* 2008; 47(3): 1067-76
7. Chohan A. Miscellaneous medical disorders. Funda mentals of Obst. (ed) Lahore MAE Publication, 2005.pp.130-40.
8. MCDonald J. Cholestasis of Pregnancy. *J Gastroenterology* 2003; 6 : 132-8
9. Glantz A, Marschell HU. ICP relationship between bile acid levels and fetal complication rates. *Hepatology* 2004 ;40(2): 467-74
10. John Studd (edt) . Progress in Obstetrics and Gynaecology Vol. 16(edt), Churchill Livingstone/Elsevier, 2005 - Gynecology - .pp. 431
11. Catherine Nelson-Piercy. (edt) Handbook of Obstetric medicine 3rd Edition Vol-2 (2006) , Churchill Livingstone/ Elsevier, 2005 - Gynecology - .pp. 345
12. Kenyon AP, Nelson P. Obstetric cholestasis outcome with active management , a series of seventy cases. *BJOG* 2000 ;109: 282-8.
13. Sabeena R. Obstetric cholestasis. *Ann Inst Med Sci* 2009; 5(4) : 214-15.
14. Ray A, Tata R. Nature and outcome of pregnancy in obstetric cholestasis. *Obst Gynaecol India* 2005;55(3): 247-50.
15. Padmaja M, Gupta A. A Study of Obstetric cholestasis. *J Obst & Gynae India* 2010; 60(3): 225-31.
16. Singh G, Sindu MK. Cholestasis of Pregnancy : A prospective Study. *MJAFI* 2008; 64: 343-45
17. Rook M, Vargas J, Caughey A, *et al.* Fetal outcome in pregnancies complicated by IHCT in a Northern California Cohart. *PLoS ONE 2012;* 7(3): e28343.
18. Alsulyman OM, Quzounian JG. IHCP Perinatal outcome associated with expectant management. *Am J Obstet Gynaecol* 1996; 175: 957-60
19. Heinonen SS. Reproductive risk factors of fetal asphyxia at delivery, a population based analysis. *J Clinical Epidemol* 2001;54: 407-10
20. Hani A, Shobaili AL. Obstetrical and fetal outcome of a new management strategy in patients with intrahepatic cholestasis of pregnancy. *Arch Gynaecol Obstet* 2011; 283: 1219-25.