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STUDY OF NEONATAL COMPLICATIONS IN NEWBORNS OF MOTHERS WITH PREGNANCY INDUCED HYPERTENSION

Pathology

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KEYWORDS

Introduction

One of the most catastrophic event in neonatal practice is haemorrhagic diathesis. The neonatologist is exposed to a number of conditions where the complications like disseminated intravascular coagulation, sepsis, intracranial haemorrhage arise. [1,2] Most of the parinatal haemorrhages now observed in neonates born to high risk mothers i.e. mothers with pre-eclampsia, abruptio placenta, are due to intravascular coagulopathies [3].

Severe hypertension in pregnant women before 36 weeks of gestation is a multisystem disease & is a threat to the well being of mother as well as her child. Because of improved antenatal & postnatal care, incidence of toxemia of pregnancy & its outcome is much reduced. The problem of haemorrhagic diathesis in newborn born to hypertensive mother, especially its etiological aspect have attracted many workers.

The major adverse outcome with pre-eclampsia is either due to prematurity because of need for early delivery or the consequence of growth retardation in utero. An abnormally small placenta with a reduced flow leads to intrauterine growth retardation & increased risk of asphyxia during labour 1. Perinatal death is commonly due to placental infarcts, abruptio placente, intrauterine asphyxia & prematurity [4,1].

So the present study was undertaken to evaluate neonatal complications in newborns of mothers with pregnancy induced hypertension.

Material &Methods:

A total number of 160 cases admitted in wards & NICU in Shri. Chhatrapati Shivaji Maharaj General Hospital, Solapur were studied over a period of 10 months. The selection of cases was done with the help of paediatrician, after taking detailed history & doing through clinical examiniation of newborns. The cases comprised of two groups of newborns . Group I included 80 cases as control. All were newborns of normotensive mothers within 7 days after birth. Coagulation tests were done in all these neonates. Group II included 80 newborns born to hypertensive mother. This group is further divided as newborns born to mothers with gestational hypertension, mild and severe pre-eclampsia and eclampsia. Both groups of mother and infants were free from major illness Newborns born to mothers with gestational hypertensive Bledding Time was done using Ivy's Method. Whole blood clotting time was done using Lee & White method [5,6,7]. Prothrombin time, Partial thromboplastic time with kaolin Thrombin Time, Fibrinogen Determination in semiautomated coagulation analyser Hemostar XF 2.0. Platelet Count was done by (By Sysmex Kx 21 Cell Counter). FDP :- Semiquantative latex agglutination test by TULIP

Results :

This study was carried out in Chattrapati Shivaji Maharaj General Hospital Solapur during the period of March 99 to January 2000. Total 160 cases were studied out of which 80 cases were of control group i.e. neonates born to normotensive mothers & 80 cases were neonates born to hypertensive mothers.

In this study group of 80 cases of PIH. 30 cases were of preterm neonates of PIH mothers (37.5%) & remaining 50 (62.5%) were of term neonates of PIH mothers.

The test group was further subdivided as neonates born to mothers with gestational hypertensive comprising 18 cases (22.5%), with pre-eclampsia (mild+severe :32+24) 56 cases (70.0%), & with edampsia 6 cases (7.5%).

Table No. 1
Distribution of cases in subgroup

Group	Number of Cases	Percentage
Gestation hypertensive	18	22.5%
Mild PET	32	40.0%
Severe PET	24	30.0%
Eclampsia	06	7.5%
Total	80	100%

Table No.1 shows 22.5% cases of neonates born to mothers with gestational hypertension, 40% neonates born to mothers with mild pre-eclampsia, 30% neonates born to mothers with severe pre-eclampsia & 7.5% neonates born to mothers with eclampsia.

Table No.2

Neonatal Complications.

Complications	Number of cases in study group n=80	Number of cases in control group n=80	Total	Percentage
Bleeding tendency	2	-	2	2.5%
Birth Asphyxia	16	-	16	20%
Respiratory Disteress	1	-	1	1.25%
Hyperbilirubinemia	3	-	3	3.75%
Sepicemia	-	-	-	-

This table is showing complication of bleeding tendency in 2.5% neonates, birth asphyxia in 20% neonates, respiratory distress in 1.25% neonates & hyperbilirubinemia in 3.75% in our study.

DISCUSSION

Many workers have tried to stress the importance of various coagulation tests in relation with normal neonates & neonates of toxemic mothers. Also they have tried to co-relate coagulation defects with possible etiopathogenesis. The data seems to provide evidence that neonates of eclampsia are associated with DIC, where as evidence for a co-relation between coagulation abnormalities in newborns of preeclampsia & DIC is scanty. Some investigators considered that not only DIC in neonates is characteristic of changes of toxemia of pregnancy but it also plays major role in pathogenesis of coagulation abnormalities in neonates.

In present study 80 neonates of PIH mothers were studied & 80 neonates as control were studied.

Neonatal thrombocytopenia :- Has been associated with maternal hypertension. Thrombocytopenia is observed in term as well as preterm neonates. So thrombocytopenia might be the earliest manifestation of neonatal diseases.

Howard Kleckner et al (1977) observed eight neonates of 17 pre-eclamptic mothers having thrombocytopenia[8]. Weinstein Louis (1982) observed thrombocytopenia with platelet count below 1.5 lakh/cmm in 8 out of 29 neonates. Brazy et al (1982) observed thrombocytopenia in 36% neonates & platelet count below 50,000/ cmm in 10% neonates [9].

Sibai et al (1983) observed reduced platelet count common in preterm neonates in 8 out of 30 (27%), platelet count was below 1.4 lakh/ cmm indicating preterm neonates are at a risk for thrombocytopenia [10,11].

Thiagarajan et al (1984) observed thrombocytopenia in 46.1% neonates, 2 neonates having platelet count below 71,000/cmm & 4 neonates having platelet count between 1.5 – 1.59 lakh/cmm [12].

Engle & Rosenfeld (1984) observed thrombocytopenia in 15% neonates in 3 out of 20 neonates count was below 1 lakh/cmm [13].

Sibai et al (1986) observed thrombocytopenia in 21 neonates (26%) with platelet count below 1.5 lakh/cmm

Burrow & Andrew (1990) observed thrombocytopenia in 20% preterm neonates born to hypertensive mothers.[14]

Narayan et al (1994) observed reduced platelet count in 30% neonates. Thrombocytopenia was explained by DIC in 30% neonates [15].

Agarwal et al (1994) observed thrombocytopenia in 56.6% cases with platelet count below 1.5 lakh/cmm [16].

In the present study thrombocytopenia, platelet count below 1.5 lakh/cmm observed in 37 cases (46.25%).

Nineteen full term neonates out of 50 were having thrombocytopenia & 18 preterm neonates out of 30 were having thrombocytopenia.

Present study correlates with previous studies of Agarwal, Kleckner, Weinstein, Thigarajan 56.6%, 47%, 27%, 46.1% respectively.

As discussed in pathophysiology of thrombocytopenia fall in platelet count is due to increased consumption of platelets, platelet emboli occurring in microcirculation of placenta.

Neonatal Complications :-

Weinstein (1975) observed respiratory distress in 2 out of 29 neonates & hyperbilirubinemia in 12 out of 29 neonates [17].

Lipsitz (1971) observed 1 min, APGAR score < 5 in 66.6% neonates born to mothers treated with MgSO4 [18].

Kleckner et al (1977) observed intracranial haemorrhage in 2 out of 10 neonates (20%). He also be observed jaundice in 4 out of 9 neonates (44.4%), DIC in 3 out of 8 neonates (37.5%) [8].

Brazy (1982) observed DIC in 3 out of 28 neonates (10%) [9].

Sibai et al (1983) observed birth asphyxia in 3 out of 30 (10%) preterm neonates (1%) & intracerebral haemorrhage in 5 out of 50 neonates (10%) low APGAR score in 2 neonates (10%) [10].

S. Narayan et al (1994) observed cerebral & GI haemorrhage in 2 out of 20 neonates (10%), Aspiration pneumonia in 2 out of 20 (10%) neonates & septicemia in 10% neonates 15. DIC was seen in 6 neonates (30%).

Agarwal et al (1995) observed DIC in 26.6% neonates DIC was indicated by prolonged PT, PTTK, TT, FDP & decreaed fibrinogen levels & platelet count[2].

In present study birth asphyxia is seen in 16 neonates (20%), 4 out of 6 (66.6%) neonates born to mothers treated with Magnesium Sulphate are having 1 min. APGAR < 5.

Respiratory distress is seen in 1 neonate (1.75%) & hyperbilirubinemia in (3.75%) 3 neonates.

DIC is suspected in 20 (25%) neonates, having prolonged PT, PTTK, TT & reduced platelet count. Out of 20 neonates DIC was confirmed in 3 (15%) neonates, in which fibrinogen levels were reduced.

Two out of 20 (10%) thrombocytopenic neonates were having bleeding tendancy. One had intracerebral haemorrhage and the other had bleeding from skin puncture site. Our study exactly corelate with previous studies of Lipsitz, Kleckner as regard to APGAR score & bleeding tendancy respectively.

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