FETAL GROWTH RESTRICTION AS PRECURSOR TO ECLAMPSIA- THE CANARY IN THE COAL MINE

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INTRODUCTION

- Hypertensive disorders are a major cause of maternal mortality, claiming the life of one woman every 7 minutes. In India, the causes of maternal mortality are increasingly attributed to hypertensive disorders, with preeclampsia complicating 5-15% of pregnancies and eclampsia complicating 1.5% of pregnancies. [1]
- The ACOG definition of preeclampsia with severe features :
  - systolic blood pressure of 160 mm Hg or more (or) diastolic blood pressure of 110 mm Hg or more on two occasions atleast 4 hours apart
  - Thrombocytopenia
  - Impaired liver function
  - Renal insufficiency
  - Pulmonary edema
  - New onset headache
  - Visual disturbances

CASE REPORT

- A 31 year old patient, with an obstetric score of **G2P1L1** and previous LSCS presented at **31 weeks 6 days** of gestation with **fetal growth restriction(FGR)** which was initially diagnosed at 29 weeks. Ultrasound showed a fetus of 1.45 kg, with Doppler showing **cerebro placental ratio reversal**. The patient was admitted for fetomaternal monitoring.

❖ At admission:
>Grade 1 pedal edema
>Blood pressure: 120/70 mmHg
>Uterus – 28 weeks
>NST – reactive
> Further BP charting: Normal

❖ Day 2 of admission:
- Complaints of epigastric pain, 1 episode of vomiting with BP reading of 140/90 mmHg
- IV Pantoprazole and Ondansetron given
- An hour later: Clear leaking per vagina noted, diagnosis of preterm prelabor rupture of membranes made
- An hour later: Patient experienced an episode of generalized tonic clonic seizure.
- Coarse crepitations on chest auscultation: Pulmonary edema

MANAGEMENT

❖ Immediate management:
- She was resuscitated in left lateral position, oxygen by mask given, and loading dose of magnesium sulphate administered.
- Investigations for pre eclampsia sent
- Despite BP recordings in the high-normal range, preeclampsia with severe features were noted, with fetal growth restriction being the first to be identified

❖ Intraoperatively:
- Emergency LSCS done under general anaesthesia
- live female baby weighing 1.38 kg delivered and shifted to NICU for postnatal monitoring.
- Intra operative ABG showed metabolic acidosis

❖ Post op :
- Patient shifted to ICU
- Extubation was delayed and Inj. Adrenaline and dobutamine were started.
- The patient then sustained cardiac arrest after 5 minutes of entry to the ICU.
- Return of spontaneous circulation was noted after 2 cycles of CPR, inj. Atropine and Adrenaline.

Investigation	Post op day 0 values	Value later(post op)
Platelet count	86,000/µL	4.96 lakh/µL (day 10)
Creatinine	1.29 mg/dL	0.8 mg/dL (day 10)
AST	988 IU/L	248 IU/L (day 7)
ALT	471 IU/L	482 IU/L (day 7)

❖ Further post op course:
- 2D ECHO showed improvement
- Further BP charting-normal, with no antihypertensives required.
- With clinical recovery, and baby shifted to the mother's side, the patient was discharged on postoperative day 20, continued on Carvedilol and advised follow up with cardiology.

❖ Post op day 1:
- With AST-988 mg/dl,ALT-471 mg/dL and platelet count of 86,000/ µL HELLP syndrome diagnosed.
- 2D ECHO- global hypokinesia, dilated left atrium and ejection fraction of 38%- Postpartum cardiomyopathy diagnosed. Carvedilol and torsemide started.

❖ Post op day 2:
- Serum creatine worsened to 3.83 mg/dl.
- Nephrology opinion- Acute kidney injury
- Patient started on injection Lasix and fluid management.

❖ Post op day 3:
- Oxygen requirement decreased, hence patient was extubated

❖ Post OP day 4:
- Ionotropes were tapered and stopped.

DISCUSSION

- Preeclampsia is a "pregnancy-specific syndrome that can affect virtually every organ system".[3] While primarily an obstetric complication, eclampsia requires a concerted effort by a multidisciplinary team to be managed effectively.
- Eclampsia, can be preceded by headaches, blurred vision, epigastric/ right upper quadrant pain, and altered sensorium. Atleast one of these symptoms is present in 59% to 75% cases.[2]
- HELLP syndrome increases maternal and fetal mortality. Typically occuring in third trimester it can also develop postpartum in 30% of cases, as evidenced here.[4]
- Early onset fetal growth restriction(FGR) is diagnosed before 32 weeks of gestation and is linked to maternal vascular malperfusion of the placenta leading to elevated sFlt-1/PlGF ratio, typically seen in early onset FGR and hypertensive pregnancy disorders. Around 70% of women with early onset FGR will develop hypertensive disorders of pregnancy, particularly pre-eclampsia.[5]

CONCLUSION

- Therefore even in normotensive women presenting with fetal growth restriction, strict monitoring of blood pressure and investigations to screen for preeclampsia may be indicated, as evidenced by the above case.

REFERENCES

1. Mathew R, Devanesan BP, Sreedevi NS. Prevalence of hypertensive disorders of pregnancy, associated factors and pregnancy complications in a primigravida population. Gynecology and Obstetrics Clinical Medicine. 2023 Jun 1;3(2):119-23.
2. Espinoza J, Vidaeff A, Pettker C, Simhan H. ACOG Practice Bulletin: Clinical Management Guidelines for Obstetrician-Gynecologists Number 222. Obstet Gynecol. 2020;135(6):e242-e256.
3. Williams obstetrics / [edited by] F. Gary Cunningham, Kenneth J. Leveno, Steven L. Bloom, Catherine Y. Spong, Jodi S. Dashe, Barbara L. Hoffman, Brian M. Casey, Jeanne S. Sheffield.
4. Khalid F, Mahendraker N, Tonismae T. HELLP Syndrome. StatPearls [Internet]. 2023 Jan.
5. Lees CC, Stampalija T, Baschat AA, da Silva Costa F, Ferrazzi E, Figueras F, Hecher K, Poon LC, Salomon LJ, Unterscheider J. ISUOG Practice Guidelines: diagnosis and management of small-for-gestational-age fetus and fetal growth restriction. Ultrasound in Obstetrics & Gynecology. 2020;56(2):298-312.