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MATERNAL OUTCOME OF SEVERE PRE ECLAMPSIA REMOTE FROM TERM(LESS THAN 34 WEEKS OF GESTATION)

Obstetrics & Gynaecology

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ABSTRACT

Background: Hypertensive disorders represent the most common medical complication of pregnancy affecting between 7% and 15% of all gestations and account for approximately a quarter of all antenatal Admissions1. According to world health organisation's systemic review on maternal mortality worldwide, hypertensive disease remains a leading cause of direct maternal mortality. Together with haemorrhage and infection, hypertension forms the deadly triad that contributes to morbidity and mortality during pregnancy and childbirth2.The aim of this study was to identify women who needed early termination of pregnancy due to severe pre-eclampsia in view of maternal interest and to identify the risk factors, indications for termination of pregnancy and morbidity and mortality associated with severe pre-eclampsia. **Materials And Methods** The study design was observational longitudinal study / prospective, conducted over a period of 1 and half year in the Department of Obstetrics and Gynaecology, Govt. Medical College, Srinagar from November 2020 till may 2022, a minimum of 100 cases were included in this study from the start of 3rd trimester (28 weeks to 34weeks).All patients included are the ones that required termination of pregnancy within 72 hours of admission due to various maternal , fetal and obstetric causes. **Results** In our study we have taken 100 patients who presented to us with features of severe pre-eclampsia, out of which there was 1 maternal death due to intracranial hemorrhage. A total of 18 patients required ICU admission for control of blood pressure, eclampsia and for monitoring till they settled back to normal. Most of the patients in our study were primigravidas (48%) in the age group of 25 to 29 years of age ..It was observed that 77 % patients delivered the baby by abdominal termination of pregnancy and the rest by vaginal route.The most common indication for termination of pregnancy in our setup has been uncontrolled BP (33%) not responding to maximum dosage of anti hypertensives followed by eclampsia (13%), colour Doppler changes (13%), IUD (12%), plumonary oedema (6%), anhydramnios (5%), HELLP (4%), abruption (5%), preterm labour (4%), AFD (4%) and renal dysfunction (1%). Most of the patients in our study had uncomplicated resolution (68%) while maternal complications of eclampsia (13%), plumonary oedema (6%), abruption (5%), HELLP (4%), PRES(1%), Renal dysfunction (1%), HELLP with DIC (1%) and one of the patients expired due to ICH. A total of 18 patients in our study were admitted to ICU, 7 % due to eclampsia, 1% due to PRES, 1% due to ICH, 1% due to HELLP with DIC, 6% due to pulmonary oedema and 2% for management of uncontrolled BP. **Conclusion** Maternal outcome of severe pre-eclampsia remote from term requiring early termination of pregnancy due to various causes came out to be good in our setting when timely management and intervention is done . Expectant management requires hospital admission and strict monitoring of the patient .Patients may require multidisciplinary approach and ICU admission but major maternal ,mortality and morbidity was mostly averted.

KEYWORDS

INTRODUCTION

Hypertension in pregnancy is defined as: systolic pressure level of 140mmHg or higher and/or diastolic blood pressure of 90 mmHg or higher (Korotkoff V) . These measurements have to be confirmed on at least two occasions 4 to 6 hours apart but within a maximum of a week period[3,4].

Pre-eclampsia[5]: Hypertension associated with proteinuria greater than 0.3g/L in a 24-hour urine collection or 1+ by qualitative urine examination, after 20 weeks of gestation.

CRITERIA FOR SEVERE PRE-ECLAMPSIA[6]

- BP of ≥160 mm Hg systolic or ≥110 mm Hg diastolic, recorded on at least two occasions at least 4 hours apart (unless antihypertensive therapy is initiated before this time)
- Thrombocytopenia (platelet count less than 100,000 × 109/L)
- Impaired liver function as indicated by abnormally elevated liver enzymes (to twice the upper limit normal concentration), and severe persistent right upper quadrant or epigastric pain unresponsive to medication and not accounted for by alternative diagnoses.
- Renal insufficiency (serum creatinine concentration more than 1.1 mo/dL or a doubling of the serum creatinine concentration in the absence of other renal disease)
- Pulmonary oedema
- New-onset headache unresponsive to medication and not accounted for by alternative diagnoses
- Visual disturbances.

Inclusion criteria:

- Pregnant women with singleton pregnancy and severe hypertensive disorders at 28 to 34 weeks of gestation

Exclusion criteria:

- Pregnancies <28 weeks will be excluded because neonatal mortality for those babies in our ICU is high and subject to limited Resources
- Eclampsia
- HELLP syndrome
- Concurrent medical conditions (renal diseases, diabetes, connective tissue disorders)
- Obstetric complications like vaginal bleeding, PROM, multiple pregnancy, preterm labor.
- Congenital anomalies

Statistical Analysis

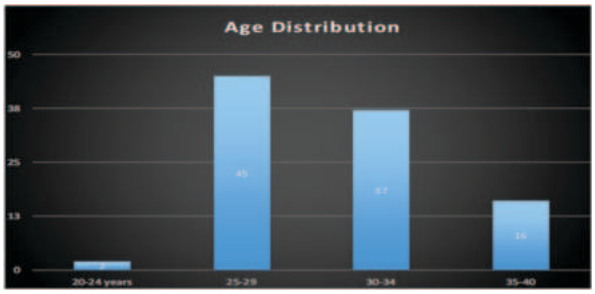
Data will be presented as measures of central tendency. Categorical variables will be described as frequencies and percentages as summarised by chi square test while continuous variables will be summarized as mean and standard deviation

RESULTS:

In our study, most of the participants are in the age group 25-29 years (45%), followed by the age group 30-34 years (37%), 16% of participants are in the age group 35-40 years, and least in the age group 20-24 years (2%)

Majority of the cases in our study were primigravidas, who accounted for 48 (48%) out of 100 cases.

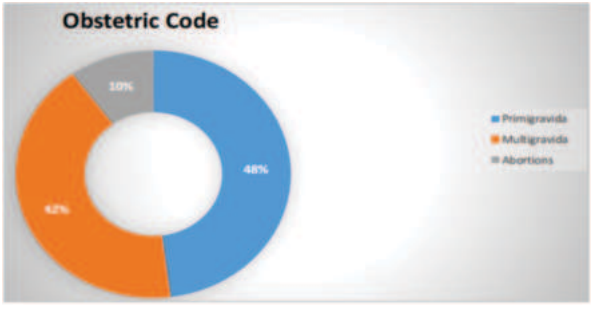
15% were para 1, 12% were para 2 and 15% were para 2 above. History of previous abortions was present in 10% patients



AGE (in years)	Frequency	Percentage
20-24	2	2%
25-29	45	45%
30-34	37	37%
35-40	16	16%

Table 2: Obstetric History (n=100)

Obstetric History		Frequency	Percentage
Primigravida		48	48%
Parity	1	15	15%
	2	12	12%
	>2	15	15%
Previous Abortions		10	10%



Proteinuria is a diagnostic criteria for classifying between gestational hypertension and pre-eclampsia. Proteinuria in the range of 1g/l (dipstick 2+) was seen 69 % of our patients, 3g/l (dipstick 3 +) was seen in 13 % and 0.3g/l (dipstick 1+) in 13 % of the patients.

Table 10: Urine for Protein

Urine for Protein	No. of patients	Percentage
1+	18	18%
2+	69	69%
3+	13	13%

Table 11: Presenting Features

Presenting Features	Frequency	Percentage
Headache	35	35%
Epigastric Pain	21	21%
Blurring of vision	17	17%
Nausea/Vomiting	10	10%
Asymptomatic	17	17%

Patients at the time of admission presented with complaints of headache (35%), epigastric pain (21%), blurring of vision (17%), nausea and vomiting (10%) and 17% were asymptomatic These symptoms are warning signs of impending-eclampsia and if present along with biochemical derangements suggesting end organ damage warrant urgent termination.

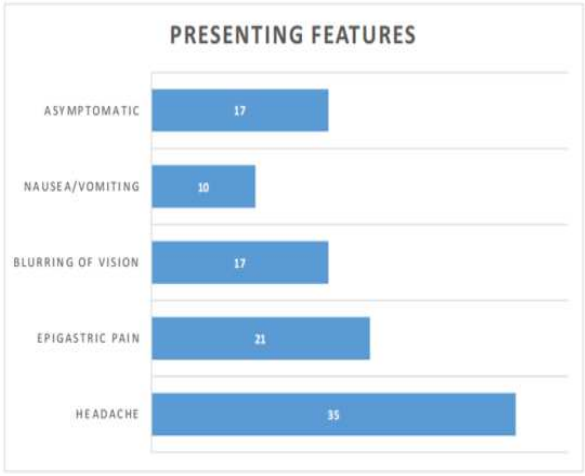


Table 12: Indications for termination of Pregnancy

Indications for termination of Pregnancy	No. of patients	Percentage
Uncontrolled BP	33	33%
Color Doppler changes	13	13%
Eclampsia	13	13%
IUD	12	12%
Pulmonary oedema	6	6%
Abruption	5	5%
Anhydramnios	5	5%
HELLP	4	4%
Preterm labour	4	4%
AFD	4	4%
Renal dysfunction	1	1%

The only treatment of severe pre-eclampsia is delivery of the fetus. However, sometimes this is delayed for monitoring of patient after increasing the dosage of anti hypertensives and providing the fetus with betamethasone exposure for lung maturity. This should be carried out at a tertiary care center with facilities for proper monitoring and maternal interest should not be neglected any time during the course. Indications for termination included uncontrolled BP in 33 %, eclampsia in 13%, colour Doppler changes in 13%, intrauterine death in 12%, plumonary oedema in 6 %, Abruption in 5%, anhydramnios in 5 %, preterm labour in 4 %, HELLP in 4 %, AFD in 4% and renal dysfunction as seen by rising creatinine in 1%.

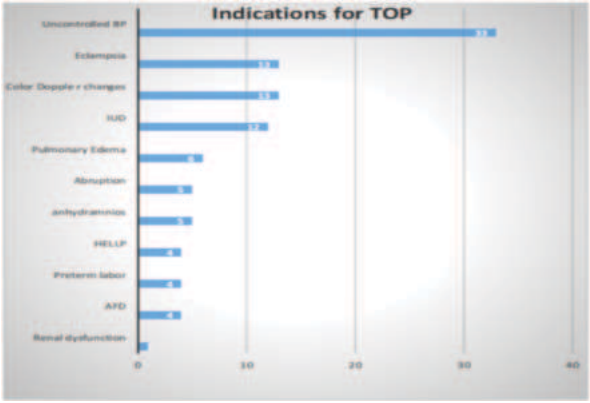


TABLE 13: MATERNAL COMPLICATIONS

Maternal Outcome	No. of patients	Percentage
Uncomplicated Resolution	68	68%
Eclampsia	13	13%
Pulmonary edema (PE)	6	6%
Abruption	5	5%
HELLP	4	4%
Posterior reversible encephalopathy syndrome (PRES)	1	1%
ICH(expired)	1	1%
Renal dysfunction	1	1%
HELLP with DIC	1	1%

The main treatment of pre-eclampsia has always been the delivery of the foetus so most patients have resolution and recovery post-delivery. While 68 % of our patients had an uncomplicated resolution, 13 % had eclampsia, 6 % landed in pulmonary edema, 5% had abruption, HELLP in 4%, HELLP with DIC in 1%, ICH in 1% (expired), PRES in 1% and renal dysfunction in 1%.

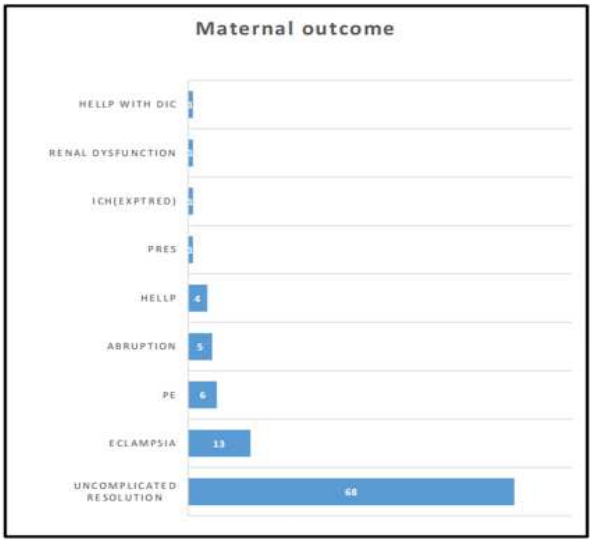


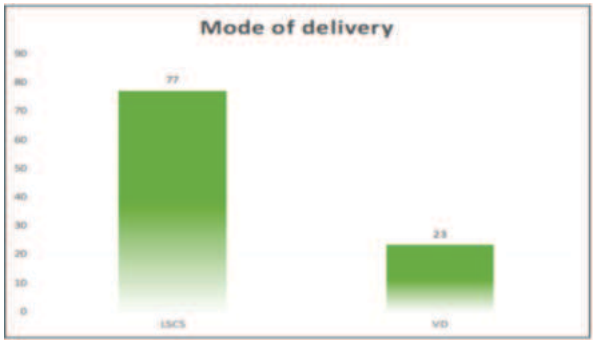
TABLE 14: ICU ADMISSION

Causes of ICU Admission	Frequency	Percentage
Eclampsia	7	7%
Posterior Reversible Encephalopathy Syndrome (PRES)	1	1%
Intracranial Hemorrhage (ICH)	1	1%
HELLP with DIC	1	1%
Pulmonary Edema	6	6%
Uncontrolled BP	2	2%
Total	18	18%

A total of 18 patients in our study were admitted to ICU, 7 % due to eclampsia, 1% due to PRES, 1% due to ICH, 1% due to HELLP with DIC, 6% due to pulmonary oedema and 2% for management of uncontrolled BP.

Table 16: Mode of Delivery

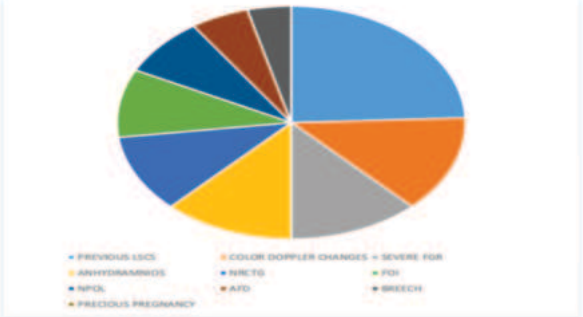
Mode of Delivery	No. of patients	Percentage
LSCS	77	77%
Vaginal delivery	23	23%



As the gestational age of our study falls in the range of prematurity (28 weeks to 34 weeks), at this POG the bishops score is usually poor and most of the patients land in surgery .The mode of delivery in 77 percent of patients was LSCS and 23 percent delivered vaginally

INDICATION FOR LSCS	FREQUENCY (n=77)	PERCENTAGE
Previous LSCS	18	23.3%
Color doppler changes	10	13%
Severe FGR	9	11.6%
Anhydramnios	9	11.6%
NRCTG	8	10.3%
FOI	7	9.1%
NPOL	6	7.8%
AFD	4	5.2%
BREECH	3	4%
Precious pregnancy	3	4%

Out of the 77 lscs the following indications were seen: Previous lscs (23.3%), Color doppler changes (13%), Severe FGR (11.6%), Anhydramnios (11.6%), NRCTG (10.3%), FOI (9.1%), NPOL (7.8%), AFD (5.2%), Breech (4%), Precious pregnancy (4%).



DISCUSSION

Hypertensive disorders of pregnancy are known to cause significant morbidity and mortality in pregnancy. A total of 100 patients were included in this study from the start of third trimester (28 weeks to 34 weeks) and were followed till reaching any fetomaternal outcome .Patients who were admitted with mild to moderate pre eclampsia before 34 weeks and were managed with increased dosage of antihypertensives and monitoring were discharged with controlled BP and normal fetal and maternal parameters were not included in this study.

The patients included are the ones that needed early termination of pregnancy in view of fetal or maternal interest. All of these patients had termination of pregnancy within 72 hours of admission. Majority of the cases in our study were primigravidas, who accounted for 48% of the cases. Out of the rest of the 52% cases, 15% were para 1, 12% were para 2 and 15% were para 2 above. History of previous abortions was present in 10% patients. Nulliparity is an independent risk factor for pre eclampsia. Similar results were reported by **Manjusha Jindal**[7] who found 69.11% patients were primigravidas with significant correlation to parity (p value <.00)

In our study, most of the participants are in the age group 25-29 years (45%), followed by the age group 30-34 years (37%), 16% of participants are in the age group 35-40 years, and least in the age group 20-24 years (2%). Although pre-eclampsia is seen more in women with advanced maternal age[8], in our study it was more strongly associated with primipaternity than with age as most of the patients are in the age group of 25 to 29 years. **Reeta Laminpaa et.al.**[9] in found that women above the age of 35 years exhibited more pre-eclampsia (9.4%) than younger women (6.4%).

The most common gestational age group at presentation of severe pre-eclampsia remained to be 32 to 34 weeks which was 70 %. This was similar to the study done fetal and maternal outcome following expectant management of severe pre-eclampsia remote from term by **Deepak A. V.et.al**[10], where 64.5% patients are in the gestational age group 32 to 34 weeks.

Magnesium sulphate due to its anti-convulsant properties is given to patients who have symptoms of impending eclampsia (headache, epigastric pain, blurring of vision, nausea and vomiting, clonus etc.) or eclampsia. In our study 78 % patients who presented to us with high BP or complained of symptoms of impending eclampsia received loading dose and all maintenance doses of magnesium sulphate according to Pritchard regime and most of them had uncomplicated resolution, preventing eclampsia or the recurrence after an episode of eclampsia .Very few of these had mild side effects of nausea or vomiting . 5 % of the patients recieved only loading dose of magnesium sulphate and all maintenance doses were not given due to loss of deep tendon reflexes or decreased urinary output .No serious maternal complications associated with magnesium sulphate like respiratory depression or cardiac arrest was seen in our study. 17 % of the patients in our study did not receive magnesium sulphate loading or maintenance dose as they did not complain of symptoms of impending eclampsia**. Jeffrey Michael Smith Richard F Lowe et al**[11] conducted a study in 2013 and found that magnesium sulphate prevents seizures and recurrence of seizure without major side effects.

Proteinuria is a diagnostic criteria for classifying between gestational hypertension and pre-eclampsia. In our study Proteinuria in the range of 1g/l (dipstick 2+) was seen 69 % of our patients, 3G/l (dipstick 3+) was seen in 13 % and 0.3gram/l (dipstck 1+) in 13 % of the patients. Although proteinuria has been removed as a diagnostic criterion for severe pre-eclampsia because it has a poor correlation with the maternal and fetal outcomes, however, proteinuria, particularly massive proteinuria, is still considered important when we should clinically determine the initial treatment of pre-eclampsia. In our study it was noticed that patients with proteinuria 3+ were usually the ones that were on high dose antihypertensives and needed early termination before 32 weeks. In a study **by Xin Dong, Wenli Gou et al,**[12] it was found that Time of onset was significantly earlier in patients with proteinuria >3 g/L in a 24 h urine collection, The adverse fetal outcomes appear to be the function of prematurity rather than proteinuria itself.

Patients with severe preeclampsia presented with complaints of headache (35%), epigastric pain (21%), blurring of vision (17%), nausea and vomiting (10%) and 17 percent had no symptoms and were erminated for other indications. Headache was the most common presenting feature, frontal or occipital dull or pulsatile. Headache and scotomas are caused due to cerebral hyperperfusion[13] that has a predeliction for occipital lobe. Blurring of vision, scotomas and floaters are also seen as complaints.Nausea, epigastric or right upper quadrant pain is also seen in severe pre-eclampsia especially in HELLP. These symptoms are warning signs of impending eclampsia and end organ damage. In a study conducted by **Jeffrey D Sperling et al,**[14] they had a similar observation of 39 % of the patients presenting with headache . In our study we had no patient who had complete loss of vision while blurring was complained by 17% who remained stable after termination of pregnancy and had no complaints. 21 percent of our patients complained of epigastric pain of which 4 percent on evaluation had features of HELLP. So out of our 100 patients 83% were symptomatic **Preeclampsia Integrated Estimate of RiSk) study by Tin wingyen et al,**[15] found Of 2023 women who underwent assessment, 52% experienced at least one pre-eclampsia symptom, with 5.2% and 5.3% respectively experiencing an adverse maternal or perinatal outcome.

The only treatment of severe pre- eclampsia that can halt the progression of the disease is delivery of the fetus. Indications for termination in our study included uncontrolled BP not responding to maximum dosage of anti hypertensives in 33%, eclampsia in 13%, colour Doppler changes in 13%, intrauterine death in 12%, plumonary oedema in 6%, HELLP in 4%, anhydramnios in 5%, abruption in 5 %, preterm labour in %, AFD in 4% and renal dysfunction in 1%. However in the study conducted by **Deepak AV et al,**[16] had highest incidence 19% for abnormal bpp and ctg and 15% for uncontrolled BP of 15%, completed 34 weeks in 11% and preterm labour in 8%, HELLP 8% , color Doppler changes in 9%, abruption in 2%, abnormal KFT in 1%

In our study maternal outcome included uncomplicated resolution in 68 %, eclampsia in 13%, 6 % had pulmonary oedema, 5% had abruption, intracranial hemorrhagic and PRES in 1% each .The patient with ICH eventually expired. In a study conducted by **J Nyirenda, L Kasonka et al,**[17] had similar results with uncomplicated resolution in 58.3 %, HELLP and abruption in 10 % each, maternal death in 1%, renal dysfunction in 4.6%, DIC in 2.3 %.

A total of 18 patients in our study were admitted to ICU, 7 % due to eclampsia, 1% due to PRES, 1% due to ICH, 1% due to HELLP with DIC, 6% due to pulmonary oedema and 2% for management of uncontrolled BP.

The mode of delivery was lscs in 77% and 23% had vaginal deliveries. Out of the 77 LSCS, the following indications were seen:
Previous LSCS (23.3%), Color doppler changes (13%), Severe FGR (11.6%), Anhydramnios (11.6%), NRCTG (10.3%), FOI (9.1%), POL (7.8%), AFD (5.2%), Breech (4%), Precious pregnancy (4%). In most cases of severe pre-eclampsia before 34 weeks, induction of labour is unsuccesstul and approximately 80% these women will end up having a caesarean delivery[18].

CONCLUSIONS

In this study of maternal and fetal outcome of severe pre-eclampsia before 34 weeks of gestation while maternal outcome suggests that severe pre-eclampsia can be managed under monitoring and proper anti- hypertensive treatment, till corticosteroids are given to the mother for fetal lung maturity, the fetal outcome however for gestational age 28 to 32 weeks came out poor and that for gestational age 32 to 34 weeks is still better and worth giving a chance for. At any given time with onset of signs and symptoms suggesting worseing of maternal or fetal condition pregnancy was terminated in view of maternal interest or when worsening of fetal condition was suggested where prolongation of pregnancy would not provide any benefit to mother or fetus.

REFERENCES

1. James PR, Nelson-Piercy C. Management of hypertension before, during, and after preg-nancy. Heart. 2004;90:1499-1504.
2. Khan KS, Wojdyla D, Say L, et al. WHO analv-sis of causes of maternal death: a systematic review. Lancet. 2006;367:1066-1074.
3. NHBPEP (National High Blood Pressure Education Program) Work- ing Group on High Blood Pressure. Report of the National High Blood Pressure Education Program Working Group in High Blood Pressure in Pregnancy. Am J Obstet Gynecol. 2000;183:S1–22.
4. American College of Obstetricians and Gynecologists. Diagnosis and Management of Preeclampsia and Eclampsia. Practice Bulletin No.33. Washington, DC: ACOG,

January 2002.
5. National Institute of Health and Clinical excellence. 2010. Hypertension in pregnancy: The management of hypertensive disorders during pregnancy.CG no 107. London: National Institute of Health and Clinical excellence.
6. Gestational Hypertension and Preeclampsia,ACOG Practice Bulletin No. 202. Obstet Gyne-col. 2019;133(1):el-e25.
7. Jindal M, Jindal D, Naik V, Sahasrabhojanee M, Pednekar G. Epidemiology and fetomaternal outcomes in cases of imminent eclampsia and eclampsia- retrospective study. Indian J Obstet Gynecol Res 2021;8(1):39-48
8. Williams obstetrics 26th edition pre eclampsia syndrome risk factors.
9. Lamminpää, Reeta et al. "Preeclampsia complicated by advanced maternal age: a registry-based study on primiparous women in Finland 1997-2008." BMC pregnancy and childbirth vol. 12 47. 11 Jun. 2012, doi:10.1186/1471-2393-12-47
10. Deepak AV, Reena RP, Anirudhan D. Fetal and maternal outcome following expectant management of severe pre-eclampsia remote from term. Int J Reprod Contracept Obstet Gynecol 2017;6:5420-4.
11. Smith, Jeffrey Michael et al. "An integrative review of the side effects related to the use of magnesium sulfate for pre-eclampsia and eclampsia management." BMC pregnancy and childbirth vol. 13 34. 5 Feb. 2013, doi:10.1186/1471-2393-13-34
12. Dong, Xin et al. "Proteinuria in preeclampsia: Not essential to diagnosis but related to disease severity and fetal outcomes." Pregnancy hypertension vol. 8 (2017): 60-64. doi:10.1016/j.preghy.2017.03.005
13. Hypertensive disorders in pregnancy Arias' Practical Guide to High Risk Pregnancy & Delivery.
14. Sperling, Jeffrey D et al. "The Role of Headache in the Classification and Management of Hypertensive Disorders in Pregnancy." Obstetrics and gynecology vol. 126,2 (2015): 297-302. doi:10.1097/AOG.0000000000000966
15. Yen, Tin-Wing et al. "Using clinical symptoms to predict adverse maternal and perinatal outcomes in women with preeclampsia: data from the PIERS (Pre-eclampsia Integrated Estimate of RiSk) study." Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstetrique et gynecologie du Canada : JOGC vol. 33,8 (2011): 803- 809. doi:10.1016/S1701-2163(16)34983-0
16. Deepak AV, Reena RP, Anirudhan D. Fetal and maternal outcome following expectant management of severe pre-eclampsia remote from term. Int J Reprod Contracept Obstet Gynecol 2017;6:5420-4.
17. Maternal Complications of Severe Pre-Eclampsia at a Tertiary Level Hospital In Zambia Medical Journal of Zambia, Vol. 46 (2): 117 - 123 (2019)
18. Publications Committee, Society for Maternal-Fetal Medicine; Sibai BM. Evaluation and management of severe preeclampsia before 34 weeks' gestation. Am J Obstet Gynecol. 2011 Sep;205(3):191-8. doi: 10.1016/j.ajog.2011.07.017. Epub 2011 Jul 20. PMID: 22071049.s