MATERIAL AND METHODS
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The present study was carried out on 150 antenatal patients from outdoor or admitted in Department of Obstetrics and Gynaecology in Collaboration with the Department of Biochemistry M.L.B. Medical College and Hospital Jhansi over a period of one year from December 2001-December 2002.

Cases were studied into two groups.

1. Control group (C) :- The control group comprised of all the cases attending outdoor or admitted in ,with uneventful pregnancy of different trimesters. Total numbers of cases included in this group were fifty.

2. Study group (S):- This group comprised of 100 cases of high risk pregnancy including.

S1 – Cases of threatened abortion (27 cases)
S2- Preterm labour(43cases)
S3- Pregnancy induced hypertension(30cases).
S1 – Threatened abortion where patients came with initial weeks of amenorrhea with spotting but the process had not advanced (Ut–Os Closed) to the stage of non recovery & usually patients responded to conservative management.

S2 – Preterm labour cases included patients presenting with labor pain before 37 complete weeks. i.e. with uterine contraction at least once in 10 min lasting for at least 30 sec with cervical dilatation and effacement.

S3-Pregnancy induced hypertension cases characterized by development of hypertension to an extent of >140/90 mm Hg with edema or proteinuria or both after 20th week of gestation. Total Number of cases in study group was hundred.

For proper evaluation, categorization and subsequent management a complete clinical history of all cases regarding:

Age, socioeconomic status, history of present illness, past illness, history of any drug intake, family history was taken.

- A detailed obstetrical history particularly antenatal care and history of previous pregnancy in multigravida was recorded.

Through examination of all patients was done including:
• General examination, systemic examination followed by per abdomen
& pervaginum examination was done (where required).

Following investigations were carried out.

1. **Blood Examination** :- Haemoglobin gm%, ABO/Rh, Random blood
sugar, VDRL, and blood urea.

2. **Urine Examination** : Urine albumin, sugar and microscopic
examination.

3. **Serum magnesium estimations** :-

Those cases were taken who were not given any magnesium
containing compound prior to the estimation.

**COLLECTION OF THE SAMPLES** :-

Three ml of patients blood was taken in a dry vial with sterile needle
and syringe. Blood was allowed to clot, then was rotated between palms
for 2-3 minutes and clot was separated. The test tube was placed in an
incubator at 37°C in standing position for half an hour. Test Tube was then
centrifuged and serum was separated.

Hemolysed blood samples were discarded. Biochemical study for
serum magnesium was done from separated serum.
METHODS OF DETERMINATION OF MAGNESIUM:

Great variety of methods are currently being used for determining the amount of magnesium present in biological material testified to the fact that none of them is completely satisfactory.

1. Titan yellow method / Colorimeter method.
2. EDTA Erichrana black T compleximetric method.
3. Fluorometric method.
4. Flame spectrophotometry.
5. Atomic absorption spectrophotometry.

Method used in this study used colorimetric means using gumghatti agent.

Colorimetric method (Neil & Neely 1956)

**Principle:**- Protein free precipitate was heated with titan yellow solution which produced a red colour complex with magnesium.

Gumghatti was used as a colour stabiliser and calcium was added which intensified the colour as well as makes allowance for the effect of calcium present.

**PROCEDURE :-**

**TEST (T) :** Mix 1 ml serum and 5ml water in a centrifuge tube add 2ml of sodium tungustate solution and 2ml of 2/3 N sulphuric acid.
Mix well and centrifuge after 10 minutes take 5ml of supernatant and 1ml of water in another tube.

**STANDARD (S):** - Take 2.5ml water 2.5ml of working standard solution and 1ml of calcium chloride solution in a tube.

**BLANK:** - 5ml of water and 1ml of calcium chloride in a tube. To all these tube add 1ml of gumghatti, 1ml titan yellow solution and 2ml of 4N sodium hydroxide solution. Mix well after each addition.

Keep for about 30 minutes. Measure the absorbance using green filter (520nm) against the reagent blank.

\[
S. \text{Magnesium} = \frac{Tx2.5 \text{ mg/100ml}}{S}
\]

**INTERPRETATION:**

Normal serum range is between 1.7 – 2.2mg/100ml protein free precipitate With titan yellow solution it produces red colour complexes if magnesium is present. Gumghatti is used as a colour stabilizer and intensifies the colour as well as makes allowance for the effect of calcium present in serum.
ORAL MAGNESIUM SUPPLEMENTATION:-

Oral magnesium was given in nearly 43 patients after ruling out other pathology and selecting candidates who were expected to report back.

Magnesium salt with following components was given

- Calcium citrate - 1000mg/
- Vit D3 - 200 IU
- Magnesium hydroxide with 100mg elements Magnesium
- Zn - 4.0 mg equivalent

It was given in dosage of one tablet thrice daily to 23 patients, while 20 were given Calcium salt alone. Their serum magnesium levels were estimated. Limited no. of patients came for follow up and their serum magnesium levels and pregnancy outcome was noted and further evaluated.
WORKING PROFORMA

1. Name
2. Age
3. Date of admission/date of discharge
4. Booked/unbooked
5. Education
6. Parity
7. Gestation in weeks
8. Subgroup of cases (threatened abortion / preterm labour / PIH)
9. History of vaginal bleeding
10. Haemoglobin in gm%
11. Blood group / Rh typing
12. VDRL
13. Random blood sugar levels
14. Urine routine & microscopic, urine culture & sensitivity
15. Liver function test
16. Kidney function test
17. Serum magnesium levels.
18. Oral magnesium supplementation.