MATERIAL AND METHODS
MATERIAL AND METHODS

The present study was carried out in the 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.

Categorization of cases:

A complete clinical history of all the cases regarding age, socio-economic status, history of present illness, past illness, family history was taken.

A detailed obstetrical history particularly antenatal care and history of previous pregnancy in multigranuda were recorded. Cases were studied into two groups:

(1) Control group:

The control group comprised all the cases attending our patient door with normal pregnancy of different trimesters and non-pregnant healthy females of reproductive age group.

Total number of cases included in this group was fifty.

(2) Study group:

This group comprised the women of threatened abortion, inevitable, habitual and missed abortion and women having preterm labour (Between 20-37 weeks).
Total number of cases included in study group was hundred.

**Following investigations were carried out:**

1. **Blood Examination**: Haemoglobin gm%, blood sugar, VDRL, Grouping ABO, Rh, and blood urea level.
2. **Urine Examination**: Albumin, sugar and microscopic.
3. **Gravindex test**: In cases of threatened, missed and habitual abortion.

Care was taken not to administer any magnesium containing compound prior to the estimation.

**Collection of the samples:**

Three ml of venous blood was taken in a dry vial with autoclaved syringe and needle. Blood was allowed to clot, then tube was rotated between palms for 2-3 times and clot separated. Then test tube was placed in an incubator at 37°C in standing position for half an hour. Test tube is then centrifused and serum was separated. Haemolysed blood samples were discarded. Biochemical study for serum magnesium was done from the separated serum.

**Methods of determination of magnesium:**

Great variety of methods currently used for determining the amount of magnesium present in biological materials testified to the fact that none of them is completely satisfactory.
(1) Titan yellow method.
(2) EDTA, Eriochrome black-T-complexometric method.
(3) Fluorometric method.
(4) Flame spectrophotometry.
(5) Atomic absorption spectrophotometer.

Method used in this study was colorimetric.

**Colorimetric Method** : (Neill and Neely, 1956)

**Principle** :

Protein free precipitate was heated with titan yellow solution which produces a red colour complex with magnesium.

Gum ghatti was used as a colour stabilizer and calcium was added which intensified the colour as well as makes allowance for the effect of calcium present in serum.

**PROCEDURE** :

**Test** : Mix 1 ml serum and 5 ml water in a centrifuge tube add 2 ml of sodium tungstate solution and 2 ml of 2/3 N sulphuric acid.

Mix well and centrifuge after 10 minutes. Take 5 ml of supernatant and 1 ml of water in another tube.

**Standard** : Take 2.5 ml water, 2.5 ml of working standard sodium and 1 ml of calcium chloride solution in a tube.
Blank: 5 ml water and 1 ml calcium chloride in a tube.
To all these tubes add 1 ml gum ghâtti, 1 ml titan yellow
solution and 2 ml of 4 N sodium hydroxide solution. Mix
well after each addition. Keep for about 30 minutes. Measure
the absorbance using green filter (520nm) against the reagent
blank.

\[
\text{S. Magnesium} = \frac{T}{S} \times 2.5
\]
(Mg per 100 ml)

Interpretation: Normal serum range is between 1.7-2.2 mg/
100 ml.