MATERIAL AND METHODS
The present study was carried out in the department of Obstetrics and Gynaecology, M.L.B. Medical College, Jhansi in active collaboration with the department of Pathology and department of Paediatrics over a period (of 11 months) from 28th May'82 to March '83. The case material for the present study was obtained from the mothers and their new borns delivered in M.L.B. Medical College Hospital.

The study comprised of 80 cases, out of which 30 served as control, 40 were administered oxytocin and caesarean section was done in 10 cases.

The cases were classified in 4 broad groups.

1. **CONTROLS** :
   The control cases comprised of spontaneous onset of labour who were not given oxytocin.

2. **ACCELERATED LABOUR** :
   Spontaneous onset of labour was expedited by oxytocin.

3. **INDUCED LABOUR** :
   Labour was induced by Syntocinon drip.

4. **CAESAREAN SECTION** :
   This was done in cases of -
   i) Cases of elective caesarean section.
   ii) Failed induction.
   iii) As an emergency measure.
**SELECTION OF CONTROLS:**

30 cases of spontaneous onset of labour served as controls. The criteria for selection was:

1. The gestational period as assessed by the last menstrual period was beyond 37 weeks.
2. The mothers had a normal antenatal period.
3. There was no history of use of oral contraceptives.
4. There was no blood group incompatibility.

**SELECTION OF ACCELERATED LABOUR CASES:**

Labour was accelerated in 20 cases and the criteria of selection was:

1. All the cases were of full term pregnancy and the antenatal period was uneventful.
2. There was spontaneous onset of labour but because of uterine inertia syntocinon was given to expedite labour.
3. There was no history of oral pill intake or blood group incompatibility.

**SELECTION OF INDUCED CASES:**

Labour was induced in 20 cases and the criteria of selection was:

1. Gestational age was 37 weeks or more.
2. No blood group incompatibility was detected.
3. There was no history of intake of oral pills.
4. Inducibility was assessed by Bishop's score. A score of more than 7 was preferred. The inducibility of cervix was done by the Bishop's scoring method (1964).
<table>
<thead>
<tr>
<th>DILATATION</th>
<th>0</th>
<th>1-2</th>
<th>3-4</th>
<th>5-6</th>
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<tr>
<td></td>
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<td>1</td>
<td>2</td>
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<thead>
<tr>
<th>EFFACEMENT %</th>
<th>0-40</th>
<th>40-60</th>
<th>60-80</th>
<th>80+</th>
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<tr>
<th>STATION</th>
<th>-3</th>
<th>-2</th>
<th>-1+0</th>
<th>+1+2</th>
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<tr>
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<tr>
<th>CONSISTENCY</th>
<th>FIRM</th>
<th>MEDIUM</th>
<th>SOFT</th>
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<td></td>
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<tr>
<th>POSITION</th>
<th>POSTERIOR</th>
<th>MID</th>
<th>ANTERIOR</th>
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<tbody>
<tr>
<td></td>
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0-5 = Unfavourable  
6-13 = Favourable

**SELECTION OF NEWBORNS:**

The study was conducted on 80 newborns. The criteria for selection of the newborns was:

1. They were a product of full term pregnancy and had weight more than 2.5 kg.
2. There was no evidence of foetal distress at birth and the Apgar score in all cases was more than 7 at 1 minute.
3. During the period of observation in the hospital there was no evidence of asphyxia, sepsis or development of large cephalhaematomata.
4. Blood group incompatibility was ruled out.

**HISTORY AND EXAMINATION:**

A detailed clinical history and examination was done in each case.
HISTORY OF PRESENT PREGNANCY:

Besides noting the age and parity the following points were noted. 
1. Development of oedema during the three trimesters of pregnancy. 
2. Any bleeding per vaginum. 
3. Date of quickening. 
5. Exposure to radiation (X-rays).

HISTORY OF PAST ILLNESS:

Special reference was given to the history of jaundice, intake of oral pills, or any drug which could cause jaundice. Any blood transfusion received in the past was also noted.

MENSTRUAL HISTORY:

The date of the last menstrual period was noted when the previous cycles were regular. The expected date of delivery was calculated and the gestational age was assessed.

OBSTETRICAL HISTORY:

A detailed account of the previous pregnancies was taken, with special emphasis on the following points. 
1. Number of pregnancies. 
2. Antenatal period. 
3. Labour details. 
4. Puerperium
5. Sex and birth weight of the baby.
6. Whether the child was living or dead and in the latter the cause of death was noted.

EXAMINATION OF THE MOTHER:

A thorough general and systemic examination was done.

ABDOMINAL EXAMINATION:

1. The fundal height was noted and correlated with the period of amenorrhoea.
2. Uterine contractions were felt and the duration, intensity and number in 10 minutes along with relaxation was noted.
3. The presentation, as well as the degree of engagement, was looked for.
4. The foetal heart was auscultated noting its rate, rhythm and intensity.

PER VAGINUM EXAMINATION:

A. The pelvis was assessed by noting the following:
   1. Trying to reach the sacral promontary.
   2. The hollow of sacrum.
   4. Ischial spines prominent or not.
   5. Assessing the forepelvis and measuring the subpubic arch.
   6. Transverse diameter of the outlet.

B. The condition of cervix was noted and Bishop's scoring done.
METHODS OF INDUCTION:

The pre requisite for induction were:
1. Gestational age beyond 37 weeks.
2. Positive oxytocin sensitivity test.

OXYTOCIN SENSITIVITY TEST:

This was carried out to determine the response of the uterus to minute amounts of oxytocin as devised by Smyth (1958).

The basic uterine activity was recorded by external tocography for 15 minutes. Then 0.01 I.U. of syntocinon was injected intravenously and repeated every minute for 10 doses or until uterus responded with a strong contraction. The uterus was said to be sensitive if it responded to 0.02 I.U. of syntocinon or less.

PROCEDURE OF INDUCTION:

A soap water enema was given before starting the I/V drip except in cases where there was early rupture of membranes. The patient was asked to evacuate the bladder.

The labour was induced by the method described by Theobald (1948). The drip was started with 0.5 I.U. of syntocinon in a bottle of 5% dextrose at the rate of 10 drops per minute. After every 30 minutes 0.5 I.U. of syntocinon was added to a maximum of 2 units at 10 drops per minute or till effective uterine contractions (i.e., 3 in 10 minutes) were established which ever was earlier. The dose of syntocinon was maintained as such for 1 hour after delivery. Sedation with injectiondiazepam
was given in 6 cases. Sweeping of membranes and amnion-
atomy was done in 10 cases along with the drip.

A syntocinon chart was maintained, noting the
following every 15 minutes.

<table>
<thead>
<tr>
<th>Time of starting synt.</th>
<th>Units</th>
<th>Number of drops</th>
<th>Pul.</th>
<th>Uterine contractions</th>
<th>Rel. axation</th>
<th>Foetal sensation</th>
<th>Hyper tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>the non minute drip</td>
<td></td>
<td></td>
<td>B.P.</td>
<td></td>
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The time of rupture of membranes was recorded and
the colour of liquor noted. The duration of 1st and 2nd
stages was noted. The progress of labour was noted by
the following points:

1. The frequency of uterine contractions in 10 minutes
and relaxations in between.

2. Descent of the foetal head as palpated per abdomen-
ally.

3. Noting the position of the anterior shoulder.

4. Descent in the position of the foetal heart.

5. Per vaginum examination noting the rate of cervical
dilatation i.e. 1 cm/hr. after the latent phase of 6
hours for nullipara and 4 hours for multipara as described
by Friedman (1978). The descent of the head in relation
to the ischial spines also gives an idea of the progress
of labour.

In cases of foetal distress the drip was disconti-
nued. If there was failure of conservative management
immediate delivery was done either by forceps application
or caesarean section depending up on the condition of cervix
and the stage of labour. However, these cases were exclud-
ed from the study.

**EXAMINATION OF NEWBORN** :

Just after birth the baby was examined for Apgar
score sex, birth weight and for evidence of any life
threatening congenital anomalies.

Subsequently, during the study period of five
days in the hospital, a thorough systemic examination
was done, for evidence of Jaundice, fever, sepsis,
asphyxia and cephal-haematoma.

**GESTATIONAL AGE ASSESSMENT** :

The gestational age of the baby was determined by :

1. History of L.M.P.
2. Examination of the various morphological criteria.

**GESTATIONAL AGE** :

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<tbody>
<tr>
<td>1. Nipple</td>
<td>Not palpable</td>
<td>3-4mm</td>
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<tr>
<td></td>
<td>(34 weeks)</td>
<td>(34-36 weeks)</td>
</tr>
<tr>
<td>2. Planter crease</td>
<td>Ant 1/3rd</td>
<td>ant 2/3rd</td>
</tr>
<tr>
<td></td>
<td>(36 weeks)</td>
<td>(37-38 weeks)</td>
</tr>
<tr>
<td>3. Ear cartilage</td>
<td>Not formed</td>
<td>Formed</td>
</tr>
<tr>
<td></td>
<td>(36 weeks)</td>
<td>(36-40 weeks)</td>
</tr>
<tr>
<td>4. Hair</td>
<td>Short fuzzy</td>
<td>Long coarse + cartilagenous</td>
</tr>
<tr>
<td></td>
<td>(37 weeks)</td>
<td>(37 weeks)</td>
</tr>
<tr>
<td>5. External</td>
<td>Male – undescended testis</td>
<td>descended testis</td>
</tr>
<tr>
<td></td>
<td>(37 weeks)</td>
<td>(at term)</td>
</tr>
<tr>
<td>Female</td>
<td>Labia majora</td>
<td>Labia majora</td>
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<tr>
<td>does not cover the minora</td>
<td>covers the minora</td>
<td></td>
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<tr>
<td>(37 weeks)</td>
<td>(at term)</td>
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INVESTIGATION IN THE MOTHER:

1. Routine TLC, DLC, Hb, ABO grouping + Rh typing was done by Dacie's method (1974).
2. Urine for albumin and sugar.
3. Stool for routine examination.
4. Serum bilirubin before and after delivery in cases where induction was done.

INVESTIGATION IN THE BABY:

1. Serum bilirubin from the cord blood at time of delivery as well as from the femoral vein on the 5th day.
2. Blood grouping was also done.

ESTIMATION OF SERUM BILIRUBIN:

Serum bilirubin was measured by the diazo method of Vanden Bergh as described by Harold Varley, 1975.

PRINCIPLE:

The method of detection and quantitative estimation of serum is based on the formation of purple compound azobilirubin, when bilirubin reacts with the diazo reagent. This is termed as Van den Bergh reaction which consists of 2 parts, the direct and indirect reaction.

MATERIAL USED:

1. Diazo reagent:

This was freshly prepared by adding 0.3 ml of solution B to 10 ml of solution A.

Solution A: 1 gm of sulphanilic acid is dissolved
in 15 ml of concentrated hydrochloric acid and made upto 1 litre of water.

Solution B: 0.5 gm of Sodium Nitrite is dissolved in water and made upto 100 ml.

2. Bilirubin standard:

This was prepared by dissolving 10 mg of bilirubin in 100 ml of chloroform.

PROCEDURE:

Estimation of conjugated bilirubin:

5.4 ml of water was added to 0.2 ml of serum and 2.8 ml of this was pipetted out into a second tube for use as the blank. To the test solution, 0.7 ml of the diazo reagent was added while 0.7 ml of sulphanilic acid solution was added to the blank and both were allowed to stand for 5 minutes. This was then read at 540 millimicrons or using a green filter.

CALCULATION:

\[
\text{Mg of conjugated bilirubin/100 ml} = \frac{\text{Reading of unknown}}{\text{Reading of standard}} \times 10 \times 1.05
\]

Conjugated bilirubin has a lower extinction in water so the factor 1.05 was introduced.

Estimation of Total bilirubin:

3.5 ml of methyl alcohol was added to each tube and read after standing for 5 mins. 0.2 ml of bilirubin standard was added to 3.5 ml of methanol and then 0.7 ml of diazo reagent was added to 2.6 ml of water and mixed with it and read after 5 mins. against a water blank.
Calculation:

Total bilirubin = \( \frac{\text{Reading of unknown}}{\text{Reading of standard}} \times 20 \)

Estimation of unconjugated bilirubin:

The difference between the total and conjugated bilirubin gave the unconjugated bilirubin.

To reduce the loss of bilirubin with the protein precipitate the test solution was mixed with 0.25 ml of saturated ammonium sulphate and centrifuged. This was then read in the colorimeter using a green yellow filter or at 540 mu wavelength.