"PROPHYLACTIC ANTIBIOTIC TREATMENT DURATION IN PRETERM PREMATURE RUPTURE OF MEMBRANE 7 DAYS VERSUS UNTIL DELIVERY"

A Dissertation submitted by

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In partial fulfilment of the requirements for the award of degree of

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I hereby declare that this dissertation/thesis **titled "PROPHYLACTIC ANTIBIOTIC TREATMENT DURATION IN PRETERM PREMATURE RUPTURE OF MEMBRANE :7 DYAS VERSUS UNTIL DELIVERY"** is a bonafide and genuine research work carried out by me under the guidance of DR. SHOBHA SHIRAGUR , Professor, Department of Obstetrics and Gynaecology, Shri. B. M. Patil Medical College, Hospital & Research Centre, Vijayapura.

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ABSTRACT

BACKGROUND: Preterm prelabour rupture of membrane(PPROM) accounts for 2-3% of all complicated pregnancies and is one of the major causes of preterm deliveries.

AIM AND OBJECTIVE: To evaluate and compare maternal and neonatal outcomes in women with PPROM treated with prophylactic antibiotics for 7 days versus until delivery.

MATERIALS AND METHOD:A total of 110 pregnant women of 26 weeks 0 days to 36 weeks 6 days gestation diagnosed with PPROM receiving prophylactic antibiotics for 7 days(Group1) and until delivery(Group2) were included in study. Details regarding the duration of ROM, prophylactic antibiotics used were recorded. Both maternal and neonatal outcomes were assessed and analyzed.

RESULTS: There was a notable difference in the incidence of persistent amniotic fluid leakage between the two groups. 56.3% of patients who received a 7-day antibiotic treatment experienced active leakage and 81.8% was seen in the antibiotics-until-delivery group. This difference was found to be statistically major($p<0.002$). CPAP was not required in 74.5% of Group1 and 72.7% of Group2. A larger number of newborns of Group1 needed HFNC support compared to Group2($p=0.015$). 72.7% of Group1 didn't need O_2 hood and 83.6% in Group2. There was a notable difference between the two groups($p = 0.037$; $\chi^2 = 6.6$, $df = 2$), suggesting that how long the antibiotics are given might impact needing oxygen support in neonates. 52.7% needed hospital stay for 1-3

days, in Group1 and 30.9% in Group2 with a statistical significance of (p = 0.048).

CONCLUSION: A 7-day course of prophylactic antibiotics treatment in PPROM is as effective as continued therapy until delivery with benefits of reduced hospital stay and antibiotic associated risks.

KEYWORDS: PPROM, prophylactic antibiotics, maternal outcomes, neonatal outcomes.

ABBREVIATIONS

S.No	ABBREVIATION	EXPANSION
1	PPROM	PRETERM PREMATURE RUPTRE OF MEMBRANE
2	IV	INTRAVENOUS
3	PPH	POST PARTUMHAEMORRHAGE
4	WHO	WORLD HEALTH ORGANISATION
5	NICU	NEONATAL INTENSIVE CARE UNIT
6	CPAP	CONTINUOUS POSITIVE AIRWAY PRESSURE
7	BIPAP	BILEVEL POSITIVE AIRWAY PRESSURE
8	RDS	RESPIRATORY DISTRESS SYNDROME

9	NEC	NECROTIZING ENTEROCOLITIS
10	CP	CEREBRAL PALSY
11	MMP	MATRIX METALLOPROTEINASES
12	FIRS	FETAL INFLAMMATORY RESPONSE SYNDROME
13	TNF	TUMORNECROSIS FACTOR
14	PCR	POLYMERASE CHAIN REACTION
15	IF	INFLAMMATORY MEDIATORS
16	FM	FETAL MEMBRANE
17	DNA	DEOXY RIBONUCLEIC ACID
18	AF	AMNIOTIC FLUID
19	GA	GESTATIONAL AGE
20	LSCS	LOWER SEGMENT CAESAREAN SECTION
21	PBP	PENICILLIN-BINDING PROTEIN
22	IL	INTERLEUKINS
23	CRP	C-REACTIVE PROTEIN
24	CBC	COMPLETE BLOOD COUNT

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INTRODUCTION

INTRODUCTION

"Previously referred to as preterm premature rupture of membranes, preterm prelabour rupture of membrane (PPROM) defines spontaneous membrane rupture before 37 completed weeks and before labour onset"[1].

PPROM mainly for 2-3% of all complicated pregnancies and is one of the major causes of preterm deliveries[2].

Risk factors for PPROM include intrauterine infection at early gestational age,oxidative stress- induced DNA damage and premature cellular senescence, inappropriate prenatal care, nutritional deficiency during pregnancy, low body mass index, lower socioeconomic status, sexually transmitted diseases, vaginal bleeding and smoking[3].

Complications do occur in both mother and neonate[2]. Maternal complications include chorioaminonitis, abruptio placentae and postpartum infection. Neonatal complications include respiratory distress syndrome (RDS), neonatal sepsis, cerebral palsy and necrotizing enterocolitis (NEC)[4].

Due to changes in hormonal and vaginal environment, imbalance occurs in the vaginal flora followed by colonization by potentially harmful microorganisms which include E. coli, Streptococcus sp, Mycoplasma hominis, Ureaplasma urealyticum[5].

In order to prevent neonatal and maternal morbidity and mortality, efforts are made to prolong the latent period between PPROM and the onset of labor and also to prevent infection-associated complications[6].

It is commonly known that the most effective way to extend the time between ROM and delivery in individuals with PPROM[3] is to treat them with antibiotics. When broad-spectrum antibiotics are administered to women with PPROM, pregnancy is prolonged and some short-term newborn morbidities are decreased. Although a number of antibiotic regimens have shown promise for PPROM, it is uncertain which is the most effective. [7].
Selection of antibiotic regimen and the duration of the treatment vary among hospitals. When compared to a 7-day regimen, prolonged use of antibiotic treatment until delivery will be more beneficial[8].

In this current study in order to have a better understanding for proper selection and duration of course of antibiotic regimen, a prophylactic antibiotic therapy with intravenous ceftrixone, metranidazole and oral clarithromycin in patients with PPROM was conducted**.**

AIMS AND OBJECTIVES:

- Primary Aim:

To investigate the optimal duration of antibiotic treatment for PPROM we compared neonatal morbidity and infantile neurological outcomes between two

groups of PPROM patient who received antibiotic treatment for 7 days or until delivery.

- Secondary

To know the maternal and neonatal complications:

Maternal- Chorioamnionitis

Fever

Sepsis

Postpartum Hemorrhage (PPH)

Neonatal- Neonatal Intensive care Unit (NICU) admission

Continuous Positive Airway Pressure (CPAP)

Bilevel Positive Airway Pressure (BIPAP)

Ventilatory Support

Nenatal deaths

REVIEW OF LITERATURE

Previously referred to as preterm premature rupture of membranes, Preterm prelabour rupture of membrane (PPROM) defines spontaneous membrane rupture before 37 completed weeks and before labour onset[1].

ANATOMY OF THE CHORIO-AMNIOTIC MEMBRANES

The amnion consists of five distinct layers that extend from inside towards the exterior of the maternal uterine cavity. From inside the fetus towards the external uterine cavity there are five distinct amnion layers beginning with (1)

an inner amniotic epithelial layer and moving through (2) basement membrane then (3) compact layer followed by (4) fibroblast layer before terminating at (5) intermediate layer that faces the chorion9. Human amnions lack blood vessels together with nerves while being present in primates. Amniotic epithelial cells secrete collagen types III and IV in addition to fibronectin and laminin to create the connection with the following amnion layer (basement membrane). The fourth and thickest fibroblast layer from the amnion develops the compact layer by secreted type I and III collagen fibers. The intermediate layer neighboring the chorion and amnion serves as the contact point where it contains type III collagen.

proteoglycans and glycoproteins10. A microscope examination of these membranes may need proper preparation because their fine and very obscure junctions can lead to membrane separation (Figure 1), which makes evaluation difficult sometimes10. The chorion exists in a greater volume compared to amnion yet demonstrates weaker tensile properties. The three-part structure of the placenta includes the reticular layer containing collagen types I, III, IV, V and VI and beneath it lies the basement membrane supported by collagen type IV, fibronectin and laminin, which is then followed by tissue cells that direct their polarity toward maternal decidua.9

EMBRYOLOGY OF THE CHORIO-AMNIOTIC MEMBRANES

At the stage before 12 weeks gestation the amnion exists inside a gestational sac which holds the chorion within separate chorionic fluid and contains both fetus and amniotic fluid within a double sac structure11. During the early stages of pregnancy the amnion receives its oxygen supply together with nutrients through both the surrounding amniotic fluid and chorionic fluid until the point when chorionic spaces combine. Medical separation always remains simple between these adjacent membranes although the tissues never combine at a cellular level. The normal gestational period for chorionic space fusion extends

from the 12th to the 14th week of pregnancy according to studies 11,12 yet in some cases fusion delays could occur through the 15th week. Second-trimester chorio-amniotic separation exists as a detectable condition through high resolution ultrasound. Scientific evidence shows that a delay in chorio-amnion membrane fusion provides indications of chromosome abnormalities in fetuses13. A common surgical complication leads to the separation between chorionic layer and amniotic membranes14. During post-delivery care the medical staff conducts manual separation of the chorioamniotic membranes from one another. We consider the fusion of chorionic and amniotic membranes results from the overlapping membranes which occurs when the amniotic sac expands to eliminate chorionic space between the 12th–15th weeks of pregnancy. The bonded membranes develop a fine fibrous network. This defect that involves one membrane commonly exists due to absence of fetal membranes fusion (Pre-PPROM) throughout

pregnancy.10

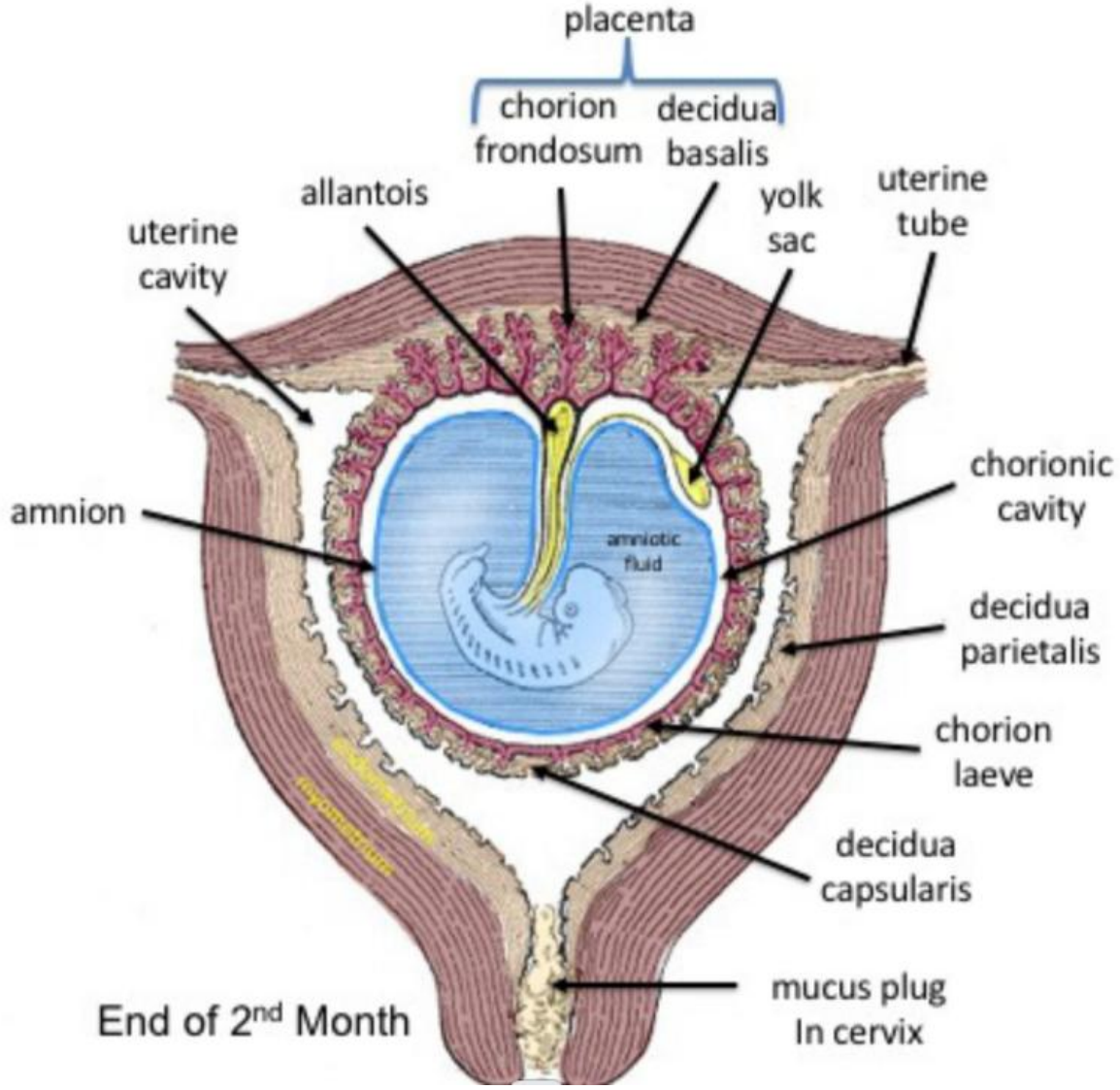

Figure 1

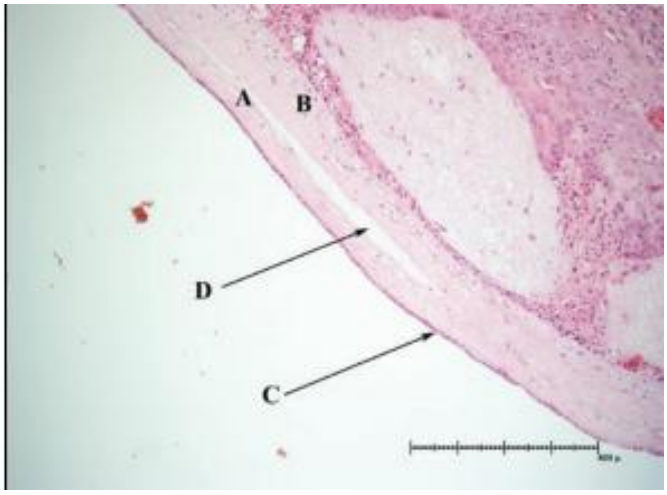

Figure 2: Chorio-amniotic membranes. (A) amniotic membrane, (B) chorionic membrane, (C) amnion epithelium, (D) very fine fibrous network developing after overlapping of the membranes during the 12th–15th weeks' gestation.

DEFINITION OF PPROM:

A spontaneous rupture of the membrane occurring before 37 full weeks and prior to the commencement of labour is referred to as preterm prelabour rupture of membrane (PPROM).

The term "preterm premature rupture of membranes" refers to foetal membrane rupture that takes place prior to 37 weeks of gestation.

Prolonged rupture of membranes occurs when they rupture for more than twenty-four hours prior to delivery1.

Preterm premature rupture of membranes (PPROM) accounts for 2% to 3% of all difficult pregnancies and is one of the main causes of preterm deliveries. Its incidence is roughly 10%, with 7% occurring at full term.

RISK FACTORS OF PPROM:

Although many factors can increase the risk of PPROM, its cause is not fully understood[15]. The risk factors of PPROM are:

1) Poor socio-economic state

2) Lack of education,

3) Smoking,

4) Difficult working conditions,

5) African ethnicity[16,17]

6) Maternal age ,

7) Increased or decreased body mass index (BMI)[16,18,10],

8) A history of PPROM,

9) A history of prematurity,

10) Mmultiple pregnancies,

11) Nulliparity,

12) The interval between pregnancies (<6 or >60 months),

13) Cervico-isthmic abnormalities,

14) Genital infections

15) Hydramnios.[18,11,13,14]

ETIOLOGY:

(1) The following are potential causes: (1) increased membrane friability; (2) decreased membrane tensile strength;

(3) multiple pregnancies; (4) cervical incompetence; (5) polyhydramnios; (6) infection, including lower genital tract infections, urinary tract infections, and chorioamnionitis;
(7) Cervical length less than 2.5 cm; (8) Previous preterm labour; 9) Low body mass index (below than 19 kg/m2).[1]

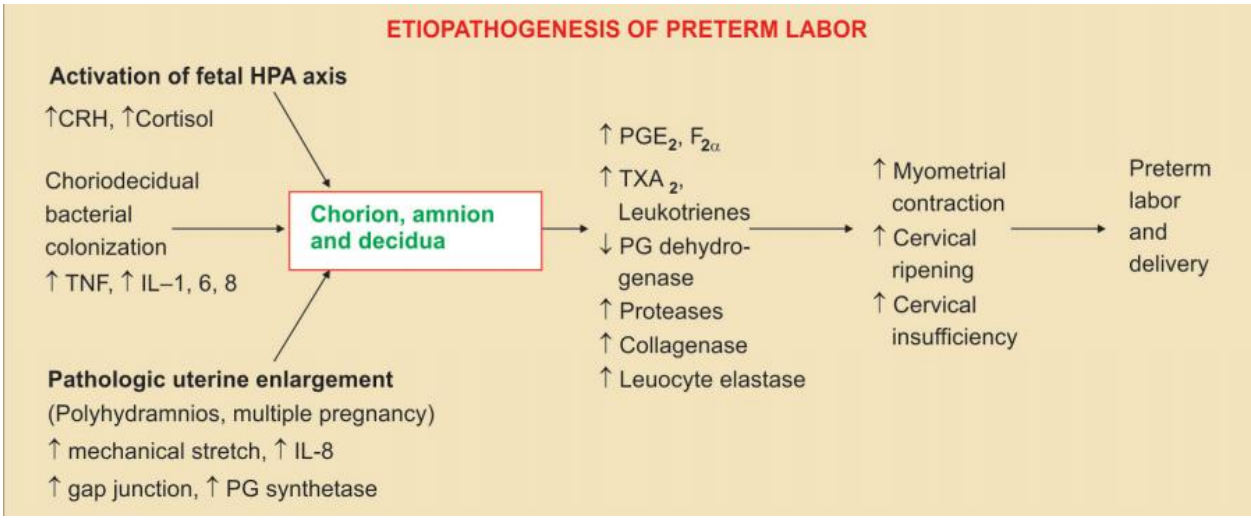

Figure:3

PATHOGENESIS OF PPROM:

What Causes Premature Rupture of Fetal Membranes?

Structural Changes

The most common place where the amniotic membranes break during PPROM is right above the cervix, where the membranes cover the cervical area. At this spot, the amniotic membranes are often changed in structure, making them more likely to tear, and they can also be filled with bacteria. But here's something interesting: not all PPROM cases follow this typical pattern. Some patients who test positive for PPROM actually have a normal amount of amniotic fluid when checked by ultrasound. These patients tend to have a better outcome. They're somewhat similar to those who experience PPROM after fetoscopic surgery.

These patients may have a more favorable situation than those with classic PPROM because, in their case, the membranes are usually disrupted mechanically, without the inflammation or infection issues seen in regular PPROM.

Altered membrane morphology

PPROM is associated with marked swelling and disruption of the collagen network within the compact, fibroblast and spongy layers.[23] MMP-1, MMP-8, and MMP-9 are among the enzymes that have been linked to the mechanisms of membrane rupture; this has been supported by numerous studies that have assessed the enzyme's content in the amniotic fluid using both enzymatic and immunoassay techniques. Matrix metalloproteinases (MMP), or collagenases, degrade interstitial collagens, acting preferentially on collagen type I. Maymon et al. described that preterm premature rupture of membranes (in both, the presence and absence of infection) was associated with an increase in concentrations of MMP-1 in the amniotic fluid MMP-1 concentrations. [24] Spontaneous rupture of membranes in preterm gestation, but not in term gestation, was associated with elevated amniotic fluid concentrations of MMP-8. [25]

Vadillo-Ortega et al. proposed that MMP-9, a 92-kDa type IV collagenase, may be activated in some situations. Patients with preterm labour and intact membranes who were delivered at term exhibited lower MMP-9 concentrations than those with PPROM, according to Athayde et al.

Women with microbial invasion of the amniotic cavity had higher median MMP-9 concentrations than did those without microbial invasion regardless of membrane status (preterm labor: 54.5 ng/mL, vs. <0.4 ng/mL and in PPROM patients 179. 8 ng/mL, vs. 7.6 ng/mL, $P < 0.001$). [26] Maymon et al. also demonstrated that microbial invasion of the amniotic cavity in women with PPROM was associated with a significant increase in the concentration of the active forms of MMP-9 and a decrease in the concentration of the active forms of MMP-2. [27] Preterm PROM is associated with an increased concentration of neutrophil elastase in the amniotic fluid concentration of neutrophil elastase and with a reduced concentration of secretory leukocyte protease inhibitor. [28] According to Romero et al., foetuses with preterm PROM have lower levels of

IL-1β, sTNF-R1, and sTNF-R2 than foetuses with preterm labour and intact membranes, but higher levels of an enzyme (MMP-9), which is implicated in the mechanism of membrane rupture. The authors suggested that the role for the fetus in the genesis of preterm PROM deserves consideration. [29] The exact trigger, secreted by chorio-amnionic cells to induce MMP-9 expression is not known, but bacterial products and/or the pro-inflammatory cytokines, IL-1β and tumor necrosis factor (TNF-α), may act as a paracrine or autocrine signals for these metalloproteases in pregnancies, complicated with intra-amniotic infection. [30] Romero et al. did not find TNF-α in the amniotic fluid of women without intra amniotic infection regardless of the presence or absence of term or preterm labor. On the other hand, the amniotic fluid of 11 of 15 women with preterm labor and intraamniotic infection had measurable TNF. This cytokine stimulated prostaglandin E2 biosynthesis by amnion cells in monolayer culture in a dose-dependent fashion [31]. Foetal inflammatory response syndrome (FIRS) foetuses had significantly greater mean foetal plasma concentrations of soluble tumour necrosis factor receptors TNF-R1 and TNF-R2 than foetuses without the syndrome, even after controlling for gestational age and foetal membrane status. Fetuses of patients who delivered within 72 h of cordocentesis had significantly higher concentrations of TNF-R1 and TNF-R2 receptors than those with longer latency periods. [32] If the PPROM tests are positive, it might be challenging to distinguish between cases where only one of the two membranes is compromised and "high-PPROM" with an undiminished volume of amniotic fluid. We hypothesise that these "pre-PPROM" circumstances account for a significant percentage of cases when a normal amount of amniotic fluid is present along with an inaccurate diagnosis of "high-PPROM." Systemic antibiotic medication and hospitalisation till delivery are examples of "aggressive" interventions that may be avoided without causing any harm in certain patients with pre-PPROM who show no symptoms of infection.

Complications of invasive procedures and fetoscopic surgeries.

Amniotic fluid leak after the amniocentesis or after fetoscopic surgery [33] suggests that in some cases the PPROMs could have two distinct phenotypes:

(a) “Classic PPROM” in the supra-cervical area with anhydramnion. In some cases, the classic

PPROM could occur because of the high PPROM with amniotic fluid leak which damages the mucus plug in the cervix.

Several conditions fall under the high PPROM category which comprise distant membrane defects from cervical os along with normal fluid volume and satisfactory baby outcomes both with and without PPROM biochemical test results and instances of high PPROM along with depleted amniotic fluid.

volume because of leakage of amniotic fluid (positive PPROM test). We recommend that the definition of “high-PPROM” should cover conditions that damage both membranes when these defects remain below the cervical os. The positive gradient pressure from amniotic fluid works on the membranes at the orifice to maintain their position opposite to the uterine wall so the amniotic fluid does not leak even though the amniotic membrane contains a defect. When the defected amnion covers the cervix it protects against ascending infections which leads to minimal chorioamnionitis and fetal inflammatory response syndrome (FIRS) and other risks. The diagnostic test for high PPROM without leaking is achieved through fetoscopy using an operative sheath with defects that persist throughout pregnancy. Pathogenesis of PPROM should include the situations where either single membrane or both membranes suffer damage or rupture prior to PPROM occurrence. Differentiating between PPROM with normal amniotic fluid volumes and highPPROM situations proves challenging for medical professionals because positive PPROM tests can neither explain the situations nor differentiate between them. **Inflammation**

Histological chorioamnionitis complicates almost half of all PPROM cases that occur prior to 34 weeks' gestation. [33] Yu et al. published a report of pregnancies with PPROM at <34 weeks and noted a rate of chorioamnionitis of 17.8%. [34] The latency period exceeded 7 days in only 24.3% of cases.

(a) Microbial involvement

Romero et al. found that FIRS (defined as a fetal plasma IL-6 concentration of >11 pg/mL) was present in 20% of patients with preterm labor and intact membranes and in 38.4% of patients with PPROM. [32] Microorganism-positive amniotic fluid cultures were present in 21.6% of cases. Foetal plasma concentrations of TNF-R1 and TNF-R2 were significantly elevated in response to the FIRS. [32] Because endotoxin and TNF-α treatment cause soluble TNF-α receptors to shed, the authors hypothesised that microbial metabolites and cytokines generated during the foetal inflammatory response syndrome may be the reason of the increased availability of soluble TNF receptors. Changes in soluble TNF-α receptor concentrations in foetal plasma may be linked to the emergence of a systemic

FIRS rather than colonization of the amniotic cavity with microorganisms. [32] DiGiulio and the team looked at the amniotic fluid from 204 patients who had PPROM, using some pretty cool methods like PCR and cultures. They found that 34% of the cultures, 45% of the PCR tests, and 50% when combining both methods showed there was a microbial invasion in the amniotic cavity. They actually revealed more bacterial types using PCR, identifying 44 different species-level phylotypes, and a bunch of these hadn't been grown in a lab before. When they saw a positive culture, it had a relative risk of about 2.0 for histologic chorioamnionitis, and positive PCRs showed a risk of 2.1. Plus, having a positive PCR was linked to a higher chance of necrotizing enterocolitis (NEC) and respiratory distress syndrome, and it also correlated with lower average birth weights.

[35] According to research by Kacerovsky and colleagues, the presence of non-Lactobacillus bacteria in the cervical microbial community of patients with PPROM likely to cause a significant inflammatory response in the cervix and increases the likelihood that germs will enter the amniotic cavity. In essence, a form of PPROM that is associated with significant inflammation is linked to both histology chorioamnionitis and microbial invasion. [36] It turns out that the likelihood of seeing inflammation in the amniotic fluid, whether or not it is caused by bacteria, increases with the early occurrence of PPROM in pregnancy.The prevalence of microbial inflammation in cases with PPROM at <25 weeks' gestation was 64% vs. about 17% between 33 and 35 weeks. [37] *Sneathia amnii* (28.5%) and *Ureaplasma* species (14.3%) are the most commonly identified bacteria in PPROM patients. [37] Viral invasion of amniotic cavity has also been observed in rare cases. [38] Interestingly, from the evolutionary perspective, the microbial causes of PPROM differ between humans and their close relatives – non-human primates. [39] The most common technique for determining the cause of amniotic membrane rupture is still bacterial culture. The problem is that new research indicates that it really misses a lot more cases than PCR—just 27.1% for culture against a staggering 72.9% for PCR [35, 40]. Furthermore, up to 91% of genital mycoplasma may go undetected if amniotic fluid culture is your only method [41]. In comparison to traditional bacterial culture, PCR offers several advantages: it is far more sensitive, it can identify specific species and serovars even when the bacteria are no longer alive (so it will still show up even if you have taken antibiotics), and it produces findings much more quickly—typically within 24 hours. DiGiulio et al. discovered that the prevalence of microbial invasion of the amniotic cavity during PPROM was 34% in culture, 45% in PCR, and 50% in combining the two techniques. Some of the PCR-detected kinds are typically found in the mouth (like Rothia dentocariosa) or the gut (like Coprobacillus sp.), while others are linked to vaginal bacterial vaginosis (like Atopobium vaginae).

A positive PCR indicates a relative risk of 2.1 for histologically confirmed chorioamnionitis, whereas a positive culture indicates a risk of 2.0. Lower average birth weights and greater prevalences of respiratory distress syndrome (RDS) and NEC are associated with those positive PCR results. respiratory distress syndrome (RDS) and NEC are associated with those positive PCR results. [35]. Microorganisms can gain access to the amniotic cavity even in patients with intact membranes [35, 42]. The bacteria found in the cervical culture may not be the same as those found in the amniotic cavity. According to Baldwin et al., there was little association between the placental microbiome of PPROM patients and the mother vaginal microbiota, and there was a high degree of individual variability [43]. The common infections found in the PPROM patients, including Peptoniphilus and Prevotella species, were identified by the authors. Both the Lactobacilli species deficiency and the antibiotic treatment used for PPROM did not completely eradicate the presence of these pathogenic species till delivery.

(b) Inflammatory mediators (IMs)

Both the induction of uterine contractility and the disturbance of FM integrity are caused by IMs. In reaction to an invasion by a pathogen, they are generated as a physiological maternal defence mechanism.. Reactive oxygen species and IMs, such as prostaglandins, cytokines and

proteinases are playing an important role in the FM thinning and apoptosis [21, 44, 45]. Apoptosis follows the onset of extracellular matrix degradation, suggesting that

it is a consequence and not a cause of FM disruption [2]. In patients with chorioamnionitis, apoptotic amniotic epithelial cells are attached to granulocytes, suggesting that the immune response might accelerate cell death in the FM [2]. Dutta et al. analyzed the DNA damage in

PPROM patients and found higher numbers of cells with DNA damage, pro-senescence stress kinase (p38 MAPK) activation and signs of senescence [46]. The inflammatory response induced in these cases is secondary to cytokines production. The inflammatory mediators and production of matrix degrading enzymes such as matrix metallo-proteinases, elastases, catepsins, (which induce amniotic epithelial cell apoptosis), and TNFs are implicated in mechanisms, responsible for the PPROM in the second trimester [6, 37]. Despite the obvious involvement of inflammatory mediators in PPROM, the maternal serum C-reactive protein in women with PPROM is not correlated with subsequent chorioamnionitis and has a poor prognostic value for development of intrauterine inflammation [47].

(c) Mechanical stretch

Overlapping the cervix, the chorioamniotic membranes at term have a weak zone that shows signs of enhanced collagen remodelling and apoptosis. Although preterm FM is weaker overall than term FM, it does have a weaker region [48]. Preterm uterine contractions or over distention of fetal membranes in polyhydramnios situations increase the risk of PPROM [2, 6]. The developmental events, leading to early contractions, could be different from those, leading to early rupture of the membranes [48]. Kumar et al. postulated, that the stretch forces alone are not entirely responsible for FM weakening, as the force generated by contractions are not adequate to rupture FM without pre-weakening [48]. This point of view supports our definition of the pre-PPROM. Stretch forces, including acute stretch, induce a number of genes related to apoptosis and MMP activation [48]. The separation of the amnion from choriodecidua occurs as an integral part of the FM rupture process [49]. Moore and the team discovered that fibulins 1, 3, and 5—these cool proteins that help build bridges in the extracellular matrix—were hanging out with the main microfibrillar networks in the amnion. They noticed that each type of fibulin

was less abundant in the amniotic part of the FM weak zone. It turns out that both amniotic epithelial and mesenchymal cells make all three fibulins, and their levels drop when TNF-α is around [50]. So, one reason collagen in the FM breaks down faster could be that when certain collagen molecules start to break down, the stress has to go somewhere and gets passed on to the neighboring molecules, which might end up tearing apart. If this happens a lot, it could lead to a major mess in the tissue [49]. This makes you wonder if mechanical stress could actually cause the collagen fibers to weaken by messing with the molecules that keep Type 1 collagen organized, like decorin, biglycan, and other fibulins. Joyce and colleagues thought that the breakdown of FM collagen could also be made worse by mechanical stress [49].

Genetic and iatrogenic factors

(a) Genetic components

The single-nucleotide polymorphism of the tissue inhibitor of MMP-2 in mothers and haplotypes for alpha-3 type-IV collagen isoform precursor are associated with a higher rate of PPROM [51, 52]. Fujimoto et al. investigated, whether polymorphism at −1607 MMP-1 promoter in the MMP-1 is functionally significant for MMP-1 expression in amnion cells and in case of PPROM [53]. The scientists discovered that patients with PPROM and those in the control group had significantly different genotype and allele frequencies of the neonates diagnosed with the −1607 MMP-1 promoter polymorphism. In amnion cells, the promoter activity of the 2G allele is higher. A polymorphism that increases the risk of PPROM, this allele makes amnion cells more susceptible to stimuli that cause MMP-1 [53]. EDS type IV is brought on by mutations in COL3A1 (2q31), while Ehlers-Danlos syndrome types I and II are caused by mutations in COL5A1 (9q34-q34.3) and COL5A2 (2q14-q32), which encode α chains in type V collagen. These mutations increase the risk of PPROM in the foetus by 40–58%, which is significantly higher than the risk in

the general population [54]. Haplotypes of *COL4A3* single-nucleotide polymorphisms (SNPs) in the mother were associated with PPROM [54]. There are cell host-dependent differences in MMP-9 promoter activity related to CA-repeat number. That fetal carriage of the 14 CA-repeat allele is associated with PPROM in the African-American population [55]. An initial case-control study demonstrated that the *SERPINH1* −656 T allele is significantly more frequent in African-American neonates born from pregnancies complicated by PPROM as compared with controls [55]. The *SERPINH1* −656 minor T allele shows up more often in African populations and African Americans compared to European Americans (12.4% vs. 4.1%). Wang and the team discovered a new 12-bp deletion NT_033927.7: g.5495364_5495375del in the 5′-flanking region of the *SERPINH1* gene, which boosts promoter activity. This 12-bp deletion is linked to that minor "T" allele of the −656 C/T SNP, which actually reduces promoter activity in amnion fibroblast cells and comes with a much higher risk of preterm birth due to PPROM. Interestingly, in a case-control study, the 12-bp deletion appeared to offer some protection against PPROM, seemingly counteracting the effects of the SERPINH1 −656 "T" allele [56]. There's a functional SNP in the promoter of the *SERPINH1* gene that increases the risk of preterm premature rupture of membranes specifically in African Americans [57]. And, genetic variation in the MMP1 promoter is also tied to the risk of PPROM [58]. DNA methylation at a particular site (−1538) in the MMP1 promoter in amnion was reduced in fetal membranes that ruptured prematurely [58]. A novel T > C single SNP [AF007878.1 (MMP1):g.3447T > C] was discovered in the MMP1 promoter by Wang et al. The minor C allele's decreased promoter function was reported to be protective against PPROM in a case-control study [58]. The scientists came to the conclusion that, in addition to genetic diversity, epigenetic changes like DNA methylation also affect MMP1 expression regulation and the likelihood of a poor obstetrical outcome.

(b) Iatrogenic preterm premature rupture of membrane (iPPROM)

After the introduction of chromosome analysis to clinical medicine [59], the mid-trimester amniocentesis has become the most common invasive prenatal diagnostic technique offered to pregnant women at increased risk of chromosomal abnormalities [60]. studies have examined the procedure-related complication rate and fetal loss rate following amniocentesis. The estimated procedure related risk is generally reported to be 1% and 0.06%, respectively [61, 62], but the rate is affected by various factor[s] [21] such as the presence of vaginal bleeding in early pregnancy [63, 64] and operator's experience [65]. The risk of fluid leak (PPROM) after amniocentesis is relative low (1%–2%). Risk of PPROM after the fetoscopy correlates with the degree of FM damage: the smaller the fetoscopic sheath, the lower the risk of the PPROM [66–70]. The ability of chorio-amniotic membranes to repair themselves following injury is limited in humans and animals [67, 71]. Gratacos et al. did not find any evidence of spontaneous membrane healing after fetoscopy in humans suggesting that the membrane defect persists until delivery [33]. Recent studies found that there is a relationship between the access hole size and the rate of PPROM as a complication of fetoscopic surgery [68, 72]. A study by-----et al have stated that a four-fold reduction in the rate of the access trauma of chorio-amniotic membranes by application of smaller fetoscopic devices with a 1 mm flexible optic [66], however, the risk of PPROM before 32/0 weeks could not be reduced to less than 10% of our cohort [67]. Other factors, such as number of interventions, number of entries to the uterine cavity, duration and difficulty of the procedure, operator experience, membrane friction by the manipulation during the procedure, gestational age at intervention and placental location, cervix length, presence of vaginal infection are also important factors in PPROM [67, 72].

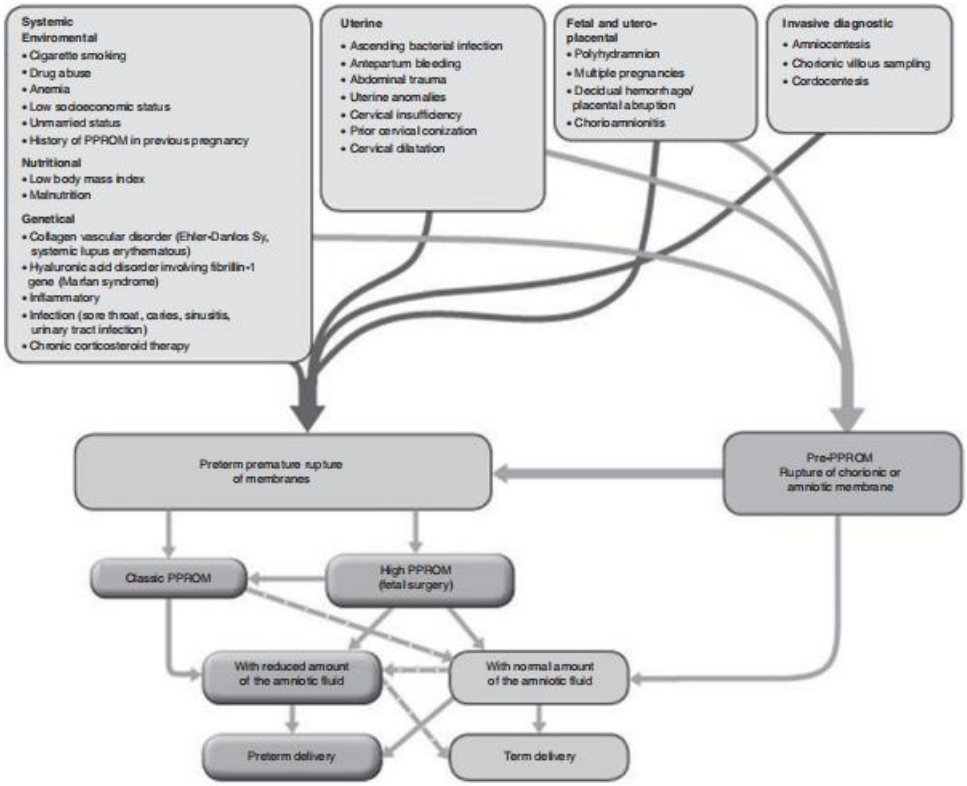

Figure 4: categorisation of PPROM in the second trimester. "Pre-PPROM" when PPROM tests are positive and just one of the two membranes ruptures. "High PPROM" refers to a chorio-amniotic membrane defect that is situated above the internal cervical os. Although the volume of amniotic fluid in cases with "high PPROM" may be normal, fetoscopy regrettably fully satisfies the diagnostic requirements of the high PPROM without leak. The rupture of the chorioamniotic membranes in the supra-cervical region with anhydramnion and a worsening of the situation is known as "classic" PPROM. In certain instances, a high PPROM with amniotic fluid leakage that damages the cervical mucosal barrier may cause the typical PPROM.

CLINICAL FEATURES OF PPROM:

SYMPTOMS:

1) Leakage of fluid from vagina is the classic symptom, which may be colourless or at later stages, may contain vernix. The amniotic fluid leakage may be exacerbated by erect posture and straining of abdominal muscles.

2) Uterine contractions commonly follow PPROM.

SIGNS:

Demonstration of amniotic fluid leakage from the vagina.[73]

DIANGOSIS OF PPROM:[73]

1) Non-invasive tests

2) Invasive tests.

Non-invasive tests: These are done on vaginal fluid. These include:

a) pH Test:

i. Litmus paper turns blue when in contact with alkaline amniotic fluid.

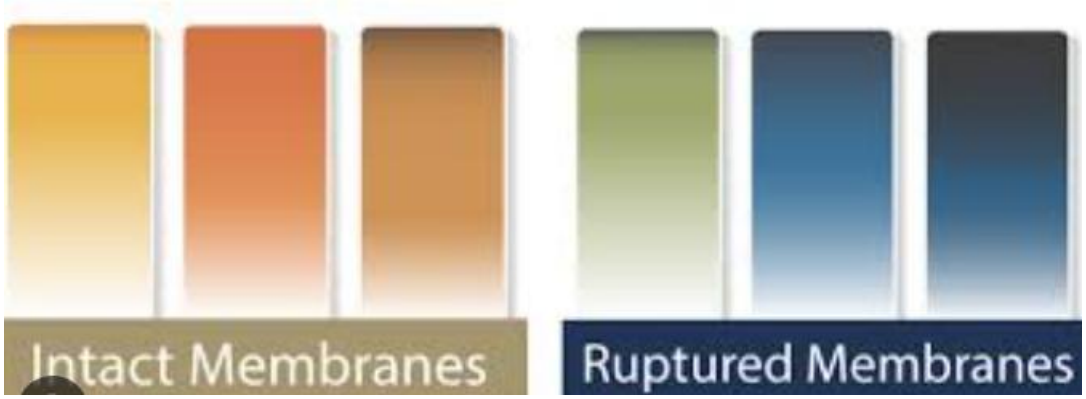

Figure:5

ii. Bromothymol blue turns green.

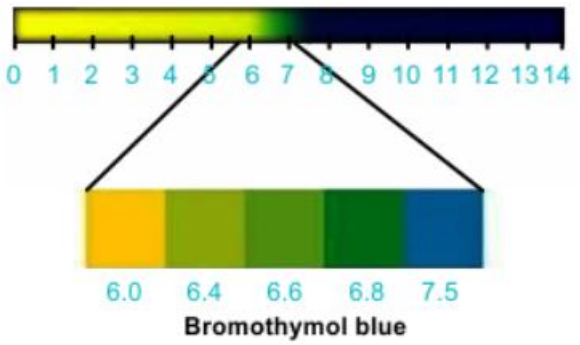

Figure:6

iii. Nitrazine test: Alkaline pH of amniotic fluid will turn nitrazine paper blue in case of PPROM. False positive result can be observed in the presence of blood and infection.

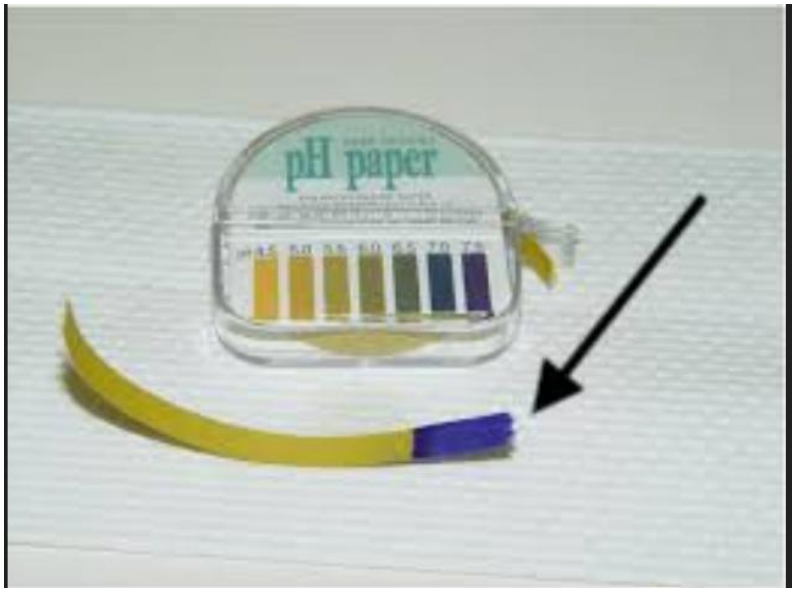

Figure:7

b) Fern Test: If ferning is seen on the slide of test fluid, PPROM is present.

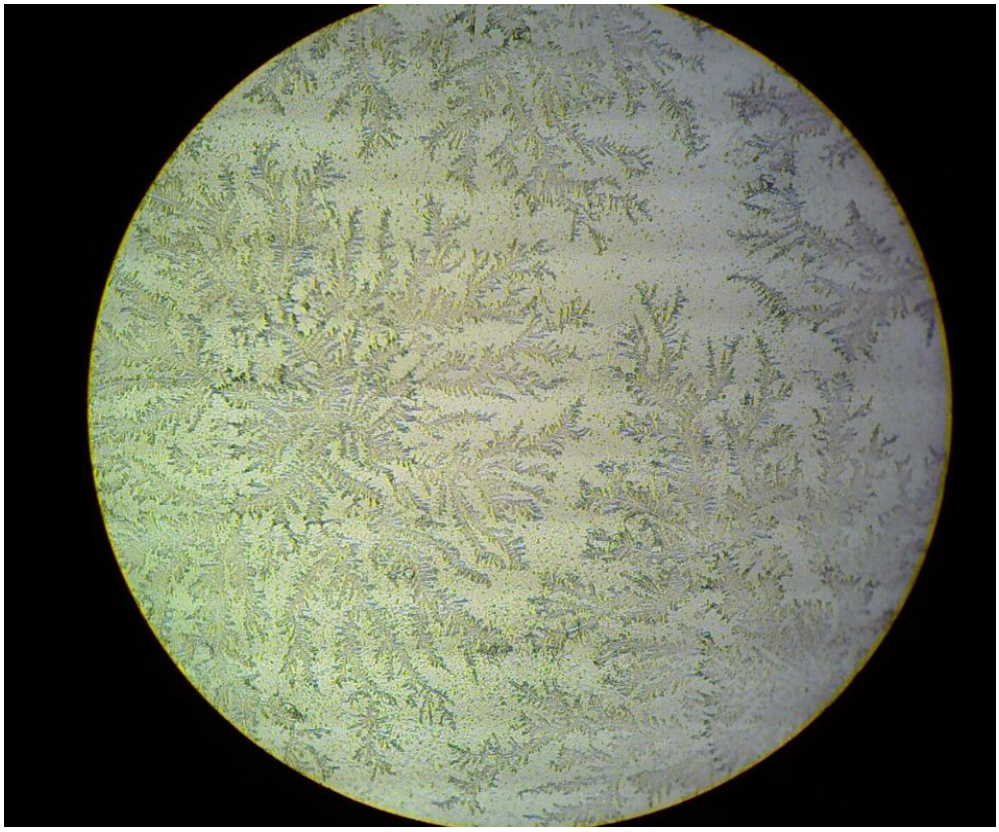

Figure 8

c) Amniotic fluid sampling from vaginal secretions:

Lee et al. described a transcervical amniotic fluid collector for the assessment of amniotic fluid in PPROM patients [74]. The authors designed Yoon's AF Collector™ to collect paired AF samples from PROM patients through transabdominal amniocentesis and this device was patented under Korea 10-1170053-0000. The research analyzed three protein substances namely α-fetoprotein (AFP) and β-human chorionic gonadotrophin (β-hCG) and prolactin. Studies showed an established relationship between the protein content detected from amniocentesis samples and those obtained using the transcervical device. The analysis of amniotic fluid proteins AFP and -hCG and prolactin was conducted by IRMA using commercial kits that originated from Immunotech in Prague (Czech Republic) and Shinjin in Seoul (Korea). The evaluation of AI-6 and TNF-α levels in vaginal secretions among 99 women with PPROM

occurred in the research published by Kunze et al. [80]. AI-6 and TNF-α vaginal secretion measurements showed higher median values among patients with FIRS according to the results. The levels of IL-6 and TNF-α in amniotic fluid serve as good indicators to identify fetal inflammatory response syndrome along with histologic funisitis while potentially aiding patient care management in cases of premature rupture of membranes.. The noninvasive techniques of sampling amniotic fluid from vaginal secretions facilitates daily measurements and bedside assessment of cytokines and could be in this respect preferable to invasive amniocentesis [75]. Using a vaginal fluid collector makes it feasible to identify vaginal fluid cytokines during normal clinical procedures. Following a postpartum assessment of FIRS, foetal cord blood IL-6, CRP, and histological indicators of chorioamnionitis, we initiated a prospective randomised "MuMFI-PPROM" study at the University Medical Centre in Halle, Germany. The study involved daily monitoring of vaginal fluid IL-6, AFP, and foetal ECG (Clinical Trials.gov ID: NCT02702297).

Ultrasound examination[76]

The ultrasound examination plays an important role in the diagnosis of PPROM as well as the prediction of the fetal outcome. The presence of oligo or anhydramnion with deepest vertical amniotic pocket <2 cm related to the PPROM in mid-trimester, worsens the already poor neonatal outcome by increasing the risk of pulmonary hypoplasia [77]. A typical finding in cases of "classic" PPROM that are worsened by breech or transverse foetal presentation is anhydramnion. After foetal urination, there may be brief and occasionally sporadic pockets of amniotic fluid because the foetal head may momentarily obstruct the site of the torn membranes in patients with a vertex presentation.

Invasive tests:

Amnio-infusion of indigo carmine

Invasive techniques such as amniocentesis and the so-called amnio-dye (tampon) test, which involves infusing indigo carmine into the amniotic cavity, are further diagnostic procedures. When the blue colour appears on the tampon within 30 minutes of the injection, the test is deemed successful [78]. After the injection of dye in the amniotic sac, the maternal urine may also turn blue, which might lead to a false-positive result. Sosa et al. described the amnio-dye test with a 12-h interval after intraamniotic indigo carmine instillation [79]. Adekola et al. reported, that the patients with a positive amnio-dye test had a procedure-to-delivery interval of 2 days (1–10.5 days) and a histologic acute chorioamnionitis and funisitis in 78% of cases [78]. Fetal swallowing of some microbial-colorized solutions might lead to the possible adverse effect on fetal development [20]. The use of methylene blue dye is contraindicated due to risk of fetal methemoglobinemia (hyperbilirubinemia and hemolytic anemia) and increases neonatal morbidity [20]. The combination of normal amniotic fluid volume and positive PPROM-tests could enable the diagnosis of "pre-PPROM" using a negative amnio-dye test. High-PPROM diagnosis enables healthcare providers to establish relatively less intensive therapeutic approaches.

Immunoassay of placental alpha macroglobulin 1

The US Food and Drug Administration (FDA) recently authorized placental alpha macroglobulin 1 (PAMG-1) as a diagnostic tool for PPROM because this 34-kDa glycoprotein originates from decidua. The glycoprotein known as PAMG-1 exists abundantly in amniotic fluid at levels between 2000 ng/mL and 25,000 ng/mL but shows less frequent distribution in maternal blood at concentrations between 5 ng/mL and 25 ng/mL and in non-PPROM affected cervix tissues at concentrations below 0.005 ng/mL to 0.2 ng/mL. Research trials need to validate the prospective efficacy of PAMG-1 testing for PPROM detection since the test has already found application in certain hospital settings. Brazilian researchers Sosa et al revealed that after performing intraamniotic

trans-abdominal dye injection for 12 hours PAMG-1 testing with PROM patients achieved 100.0% sensitivity and 99.1% specificity along with 96.3% positive predictive value and 100.0% negative predictive value and 74.6 ± likelihood ratios. The PAMG-1 immunoassay evaluation of vaginal fluid produced measurement results which equated to the detection of indigo carmine inside the amniotic cavity [79].

COMPLICATIONS:

Maternal complications include:

1) Chorioaminonitis,
2) Abruptio placentae and
3) Postpartum infection.

Neonatal complications include:

1) Respiratory distress syndrome (RDS),
2) Neonatal sepsis,
3) Cerebral palsy and
4) Necrotizing enterocolitis (NEC)[5].

The length of latency, gestation at PROM, and the severity of oligohydramnious all have a major impact on the chances of foetal and newborn morbidity and mortality. The mother's main concern is the possibility of infection. Prematurity, foetal distress, cord compression, deformation, and abnormal pulmonary development resulting in pulmonary hypoplasia and pulmonary hypertension are among the prenatal and neonatal complications of PROM. There is evidence linking both PROM and extended rupture of membranes to infectious morbidities in the mother, foetus, and infant. In preterm pregnancies with prolonged PROM, the risk of clinically noticeable chorioamnionitis appears to be highest during the first 72 hours and diminishes as delay increases.

According to accumulating evidence, subclinical infection may precede PROM and be a contributing factor to this condition [2].

Racial differences have been appreciated among women with PPROM. An increased incidence has been demonstrated specifically among black patients from 5.1% to 12.5% which is contrasted with correspondingwhite groups of 1.5% to 2.2%[6]. Socioeconomic parameters have not been found to directly influence the occurrence of PPROM[7].The role of smoking and sexual activity in producing PPROM are still points of some cotroversy. Reduced rates of PPROM have been linked to deficiencies in vitamin C, copper, zinc, and body mass index (BMI), which measures general nutritional status. Vaginal bleeding and PPROM appear to be somewhat strongly associated, with risk being two to seven times higher than in control patients. Cervical parameters, multifetal preganacy, poor obstetric history, preexisting medical conditions like maternal hypertension or diabetes and genital tract infection have been suggested to have some roles on PPROM[3]. With respect to racial, nutritional, and cultural differences between developed and developing countries, this study was conducted to detect the prevalence of neonatal complications following PROM and the role of the duration of rupture of membranes in producing these morbidities and mortalities in neonates in our hospital[76].

MANAGEMENT OF PPROM:

The management of PPROM requires an approach to balance the benefits of prolongation of the pregnancy against the risk of intra-amniotic infection and its consequences for the mother and infant [37, 80].

ANTIBIOTICS AND PROBIOTICS

Identification of potentially modifiable risk factors and strategies, which are associated with successful prolongation of pregnancy, complicated by pre-viable PPROM and oligohydramnios, are needed for the improvement of

treatment strategies [81]. When fluid leakage occurs as a consequence of minimally invasive fetoscopic surgery, expectant management is used to extend the latency period of pregnancy. Monitoring of the first indications of infection (maternal and foetal heart rate, maternal body temperature, and laboratory results) is required when procedure-related leakage occurs, but generally speaking, amniotic fluid leakage following a sterile invasive procedure is less likely to cause an obstetrical issue than spontaneous PPROM.

Prolongation of pregnancy beyond completion 34 weeks of pregnancy to reduce the risk of neonatal complication and demise has been reported following procedure-related PPROM [82, 83, 84, 85], whereas labor induction is recommended following spontaneous PPROM after 34 weeks' gestation. Yudin et al. published recommendations of antibiotic therapy in PPROM in Canada (Society of Obstetricians and Gynaecologists [SOGC]) [86]. Women who are not in labour should receive antibiotics after PPROM at ≤32 weeks' gestation to prolong pregnancy and reduce maternal and newborn morbidity.
150 suitable patients out of 662 were randomly assigned to one of two groups in a study by Ji-Hee et al.: 7-day and until-delivery. They found that, when compared to a 7-day regimen, extended antibiotic therapy with cefazolin and oral clarithromycin till delivery was linked to a lower incidence of composite newborn morbidities and Respiratory Distress Syndrome (RDS)1.

- Han-Ying Chen et al. investigated 133 women with PPROM through research showing that antibiotic therapy should start with intravenous third-generation cephalosporins for 48 hours followed by 500 mg amoxicillin orally for five days alongside 1g azithromycin orally at admission. 2

- Elsa Lorthe and colleagues (2022) analyzed antibiotics used as prophylaxis for PPROM in 492 pregnant patients who carried singletons.

The study investigated whether distinct obstetric or neonatal results appeared after PPROM. Third-generation cephalosporin-based antibiotic prophylaxis proved superior to amoxicillin use for preterm premature rupture of membranes from 24-31 weeks by producing better newborn survival rates while avoiding significant neonatal complications without evidence suggesting third-generation cephalosporin contributes to resistant pathogen-related neonatal sepsis[3].

- According to a study by J. W. Kim et al. (2020), 110 out of 186 women received treatment with third-generation cephalosporins and metronidazole, while 76 women received treatment with third-generation cephalosporins and clarithromycin. The results indicated that there was no difference between the two regimens in terms of the latency period and improved neonatal outcomes, and they might not have any impact on oxidative stress changes.
- Lee et al. found that the combination of ceftriaxone, clarithromycin and metronidazole prolonged the latency period, reduced acute histologic chorioamnionitis/funisitis, and improved neonatal outcomes in patients with PPROM, especially with a intra-amniotic infection/inflammation assessing by positive amniotic fluid culture and/or an elevated amniotic fluid MMP-8 concentration (>23 ng/mL) [87, 88]. This antibiotic combination was also associated with a more successful eradication of intra-amniotic inflammation/infection and prevented secondary intraamniotic inflammation/infection more frequently than an antibiotic regimen which included ampicillin and/or cephalosporins in patients with PPROM [88].

CEFTRIAXONE:

Ceftriaxone belongs to the classification of third generation cephalosporins.

Cephalosporins represent a versatile group of β-lactam antibiotics that have been widely used in clinical practice for decades to manage bacterial infections. Over five generations, cephalosporins have demonstrated efficacy against a broad spectrum of pathogens, including both gram-positive and gram-negative bacteria.

They offer even broader coverage against gram-negative bacteria, particularly those resistant to first- and second-generation cephalosporins. These antibiotics are especially valuable for treating serious infections such as bacterial meningitis, sepsis, and hospital-acquired infections.

Mechanism of action:

Cephalosporins are bactericidal antimicrobials that disrupt bacterial cell wall synthesis, leading to bacterial cell death. The bacterial cell wall is composed of peptidoglycan, a structure stabilized by cross-linking units via penicillin-binding proteins (PBPs), also known as peptidoglycan transpeptidases. Cephalosporins, derived from the fungus Cephalosporium sp., contain a β-lactam ring that binds to these PBPs, inhibiting their function. This prevents the cross-linking necessary for cell wall stability, ultimately resulting in bacterial lysis. However, bacteria like Staphylococcus aureus can develop resistance to cephalosporins. One mechanism of resistance involves altering the structure of PBPs. Another widespread resistance mechanism involves the production of β-lactamases, enzymes that cleave the βlactam ring, preventing the antibiotic from attaching to the PBP and inactivating it. To overcome this resistance, βlactamase inhibitors such as avibactam and tazobactam are combined with certain cephalosporins (e.g., ceftazidime/avibactam and ceftolozane/tazobactam) to extend their activity against resistant bacteria.

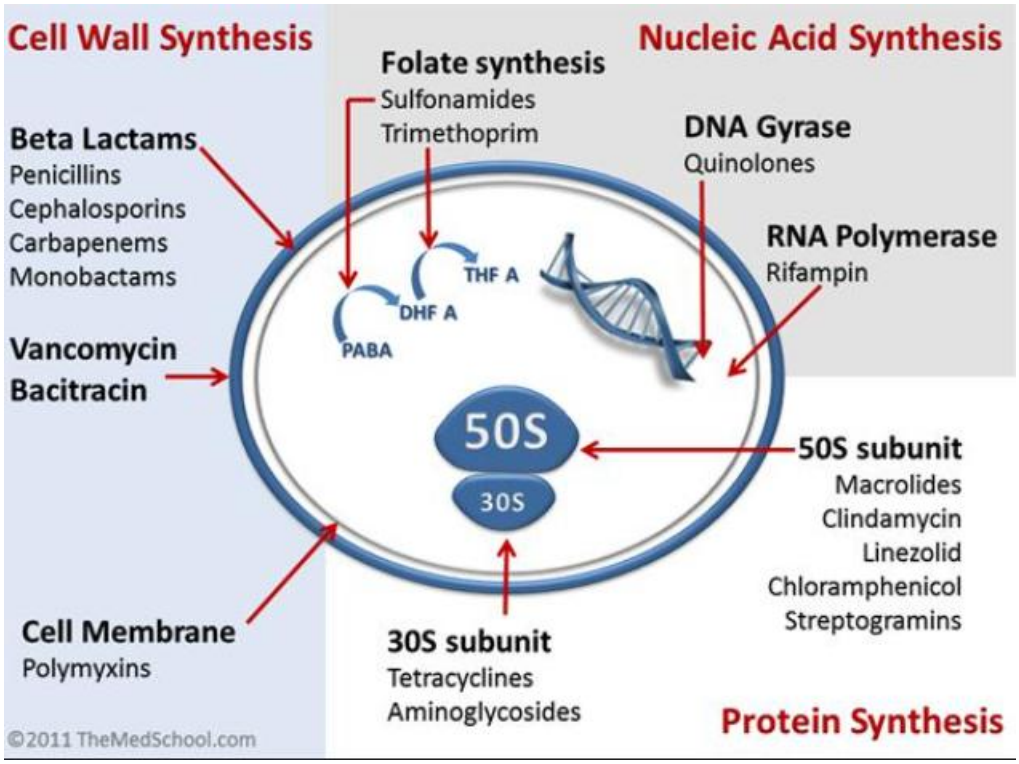

Figure 9:Mechanism of action of cepalosporins

Pharmacokinetics:

Cephalosporins are administered either orally or parenterally. Some of them, such as ceftriaxone, cefotaxime, ceftazidime, and cefepime, demonstrate effective penetration of the blood-brain barrier, making them valuable for treating bacterial meningitis. They are also distributed across various body fluids and tissues, including high concentrations in the synovial fluid, placenta, and aqueous humor after systemic administration. Ceftriaxone, cefoperazone, and ceftazidime exhibit significant biliary excretion, which can influence their pharmacokinetics and dosing. They are primarily excreted via renal pathways, necessitating dosage adjustments in patients with renal insufficiency. Exceptions include cefoperazone and cefpiramide, which are mainly excreted in bile. Ceftriaxone, with its mixed renal and non-renal elimination, requires careful consideration in patients with both renal and hepatic impairment. The use of probenecid, a drug that inhibits renal tubular secretion, can prolong the half-life

of cephalosporins by reducing their renal clearance, similar to its effect on penicillins.

Adverse Effects Common Adverse Reactions:

Cephalosporins are generally well-tolerated, with the most frequent adverse effects being mild and related to the gastrointestinal system, including nausea, vomiting, loss of appetite, and abdominal pain.

Hypersensitivity Reactions: Frequency: Infrequent, but more common in first- and second-generation cephalosporins. Symptoms: Rash, hives, and swelling, with rare cases leading to anaphylaxis.

Cross-Reactivity: Patients with penicillin allergies may react to cephalosporins, especially first- and secondgeneration, due to structural similarities in their R-groups. Cross-reactivity is less common with third-generation and later cephalosporins.

Drug-Induced Immune Hemolytic Anemia (DIIHA): Mechanism: Cephalosporins like cefotetan and ceftriaxone can bind to red blood cell membranes. If the immune system creates antibodies against the drug, it leads to hemolysis.

Disulfiram-like Reactions: Cephalosporins containing a methyltetrazole-thiol side chain (e.g., cefamandole, cefoperazone, moxalactam) inhibit aldehyde dehydrogenase, causing acetaldehyde buildup after alcohol consumption, mimicking a disulfiram reaction.

Vitamin K Deficiency: Mechanism: Some cephalosporins inhibit vitamin K epoxide reductase, reducing the synthesis of active vitamin K, leading to hypoprothrombinemia and bleeding risk. Pseudomembranous Colitis: Association: Commonly linked to clindamycin and ampicillin but also occurs with cephalosporins, particularly third-generation agents.

Drug-Drug Interactions Warfarin Interaction: Mechanism: Cephalosporins with an N-methyl-thiotetrazole (NMTT) side chain (e.g., cefotetan, cefamandole) interfere with vitamin K metabolism, increasing the risk of bleeding when combined with warfarin. Additionally, ceftriaxone may elevate INR levels, increasing bleeding risks.

Furosemide Interaction: Effect: Combining cephalosporins with furosemide heightens the risk of nephrotoxicity.

Aminoglycoside Interaction: Nephrotoxicity Risk: Coadministration of cephalosporins with aminoglycosides, particularly cefepime, increases the potential for nephrotoxicity. However, the exact synergistic nephrotoxic mechanism remains unclear.

Contraindications Cephalosporin or Penicillin Allergy:

Contraindicated: Patients with a history of anaphylaxis to cephalosporins or penicillins. Cross-reactivity is primarily due to similar side chains, not the β-lactam ring. Management Guidelines: According to the American Academy of Allergy, Asthma & Immunology (AAAAI) and the American College of Allergy, Asthma, and Immunology (ACAAI):

For non-anaphylactic allergies: Direct challenges to cephalosporins with different side chains are recommended.

For anaphylactic reactions: A negative cephalosporin skin test is advised before administering cephalosporins with different R1 side chains. If penicillin allergy is documented, structurally different cephalosporins may be given without additional testingCeftriaxone in Neonates: Hyperbilirubinemia:

Contraindicated in neonates with hyperbilirubinemia, as ceftriaxone displaces bilirubin from albumin, raising the risk of jaundice.

Calcium Interaction: Ceftriaxone can form precipitates with calcium, which may cause fatal lung or kidney damage in infants younger than 28 days[89].

CLARITHROMYCIN:

The protein synthesis inhibitor group known as macrolides demonstrates significant medical value because they work within human clinical practices. Macrolides derive from different ring sizes of macrocyclic lactones which incorporate one or more attached residues from deoxy-sugar or amino sugar elements[90].

Mechanism of action:

The compounds function as antibiotics because they attach themselves to bacterial 50S ribosomal subunits to block protein production during synthesis. The broad-spectrum effect of macrolides occurs because they have high ribosome-binding affinity and bacterial ribosomes show strong structural similarity across bacterial species. Erythromycin discovery in 1950 resulted in derivative development that produced medicinal compounds which improved their bioavailability characteristics and acid stability properties and their pharmacokinetic profiles. Researchers developed familiar macrolide antibiotics from azithromycin and clarithromycin through the second generation of these

compounds[90].

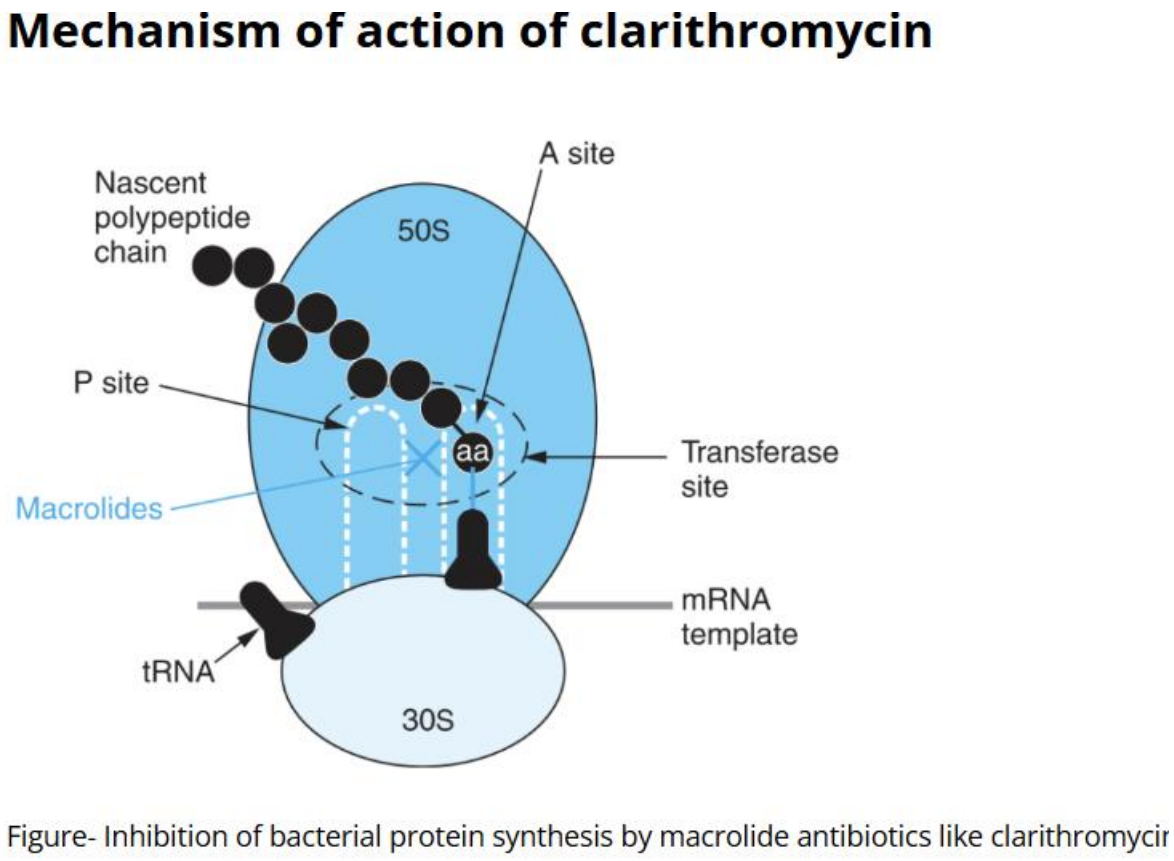

Figure 10:Mechanism of action of Clarithromycin

Pharmacokinetics:[91]

Macrolides are adequately absorbed from the upper GI tract. As they are acid labile, they must be administered as Enteric-coated tablets. Food may delay their absorption. They are widely distributed in the body, partially metabolized in liver and excreted in bile(shanbhag). Clarithromycin stays stable in acid conditions better than erythromycin while its rapid absorption leads to an oral bioavailability rate of about 50% that becomes slightly reduced due to first pass metabolism but food does not impact total absorption levels. Clarithromycin distributes to tissues slightly better than erythromycin while its metabolism follows saturation kinetics which results in the drug staying in the body longer as dosages rise (range from 4-6 hours at low doses to 6-9 hours at higher doses). An active metabolite production enables physicians to administer

clarithromycin treatment two times per day. About one third of oral clarithromycin will pass through urine unchanged while liver and kidney failure Category D (kdt) does not require dose adjustment.

Antimicrobial spectrum:[92]

This antimicrobial has a limited target spectrum that specifically attacks gram positive bacteria together with a few gram negative strains yet shares many identical bacterial targets as penicillin G. Clarithromycin shows high potency against Str. pyogenes and Str.pneumoniae and N. gonorrhoeae along with Clostridia, C. diphtheriae and Listeria but resistance against penicillin-resistant Staphylococci and Streptococci has developed for it as well. The antibacterial spectrum of clarithromycin includes bacteria which penicillin normally affects yet are not susceptible including Campylobacter, Legionella, Branhamella catarrhalis, Gardnerella vaginalis and Mycoplasma. A wide range of organisms demonstrates medium-level sensitivity to H. ducreyi as well as H. influenzae, B. pertussis, Chlamydia trachomatis, Str. viridans, N. meningitidis and Rickettsiae. The antibiotic effect of clarithromycin works against Mycobact. avium complex (MAC) alongside additional atypical mycobacteria along with Mycobact. leprae and several anaerobic bacteria but excludes Bact. fragilis. Helicobacter pylori together with Moraxella, Legionella, Mycoplasma pneumoniae and particular gram-positive bacteria strains demonstrate higher susceptibility to clarithromycin.

The following conditions can be treated with clarithromycin: sinusitis, otitis media, whooping cough, atypical pneumonia, upper and lower respiratory tract infections, and skin and skin structure infections caused by Strep. pyogenes and some Staph. aureus.

It is used as part of a triple-drug treatment to treat H. pylori infections because it eliminates the infection in 1-2 weeks.

It is used as a first-line treatment in combination regimens for AIDS patients with MAC infection and as a second-line treatment for leprosy and other atypical mycobacterial illnesses.

Side effects:

Among these are hypersensitivity reactions that result in eosinophilia (shanbhag), skin rashes, and fever. Excessive dosages may result in irreversible hearing loss. Hepatic dysfunction, rhabdomyolysis, and pseudomembranous enterocolitis are not frequently documented. Clarithromycin inhibits CYP3A4, and it has a comparable potential for medication interactions to erythromycin [92].

METRANIDAZOLE[93]:

It is the prototype nitroimidazole introduced in 1959 for trichomoniasis and later found to be a highly active amoebicide.

Mechanism of action:

Metronidazole shows unique toxicity against anaerobic together with microaerophilic organisms. The cell admits metronidazole through diffusion before its nitro group passes through specific redox proteins found only in anaerobic bacteria to create highly reactive nitro radicals that harm the cell. The nitro radical in metronidazole functions as a scavenger for electrons and fights against natural electron acceptors of the anaerobic microbe while the cell runs its pyruvate : ferredoxin oxidoreductase pathway. The disrupted energy metabolism occurs in anaerobic microbes that lack mitochondria. Aerobic conditions reduce metronidazole's ability to cause damage to cells through impeding its reduction into a reactive form. The nitro radical of metronidazole needs to compete with O2 as it collects free electrons from anaerobic energy metabolism processes. Anaerobes which develop metronidazole resistance

either fail to produce reactive nitro radicals from it or have impaired levels of PFOR enzymes. Research demonstrates that metronidazole inhibits cell-mediated immunity and produces mutagenesis along with causing radiosensitization.

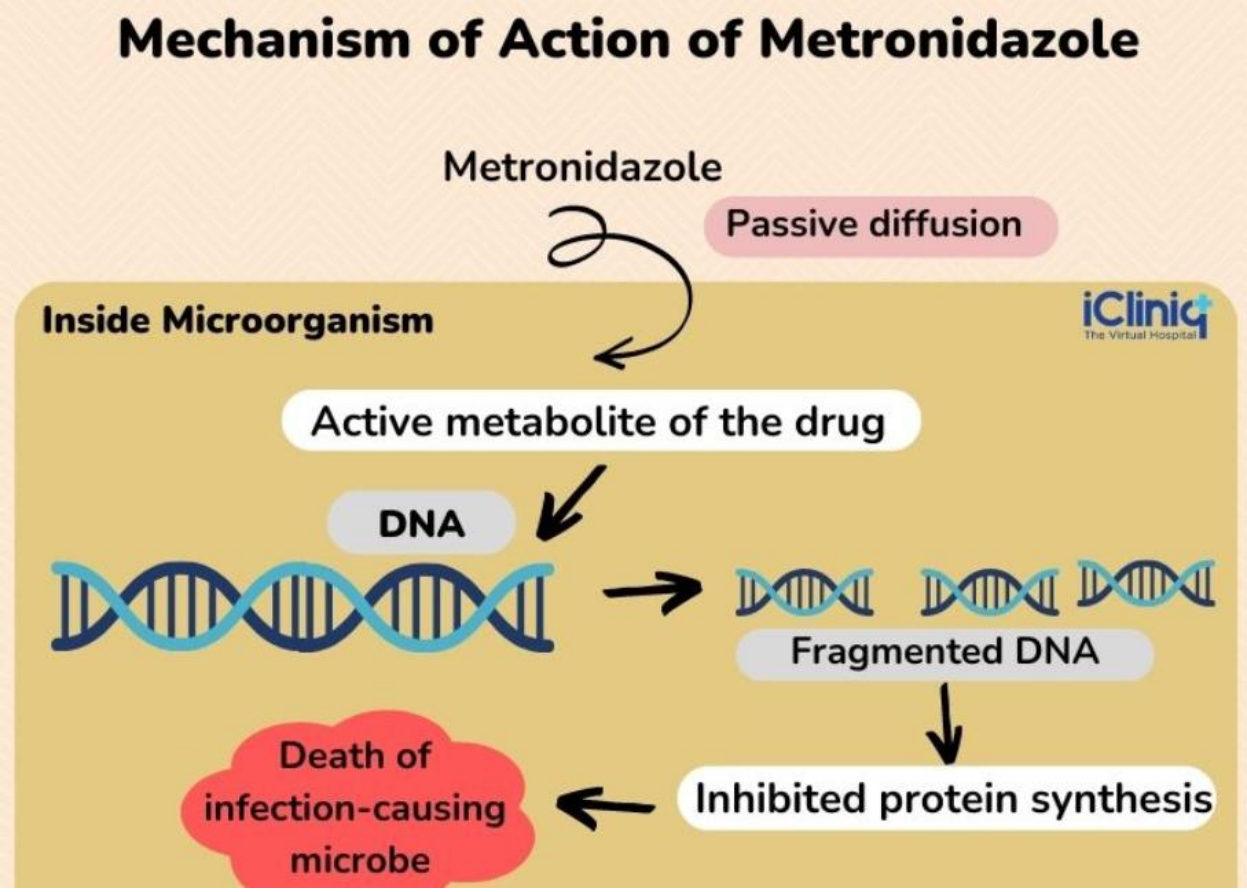

Figure 11: Mechanism of action of Metronidazole

Pharmacokinetics:

The majority of metronidazole ingests within the small intestines while minimal drug amount avoids intestinal absorption. The substance reaches therapeutic levels throughout different bodily regions including vaginal secretion, semen, saliva and CSF. The main pathways for metabolizing Metronidazole in liver consist of oxidation and glucuronide conjugation followed by renal excretion. Plasma t½ is 8 hrs.

Antimicrobial spectrum:

The antimicrobial properties of metronidazole exhibit full effectiveness against all anaerobic protozoa that include Giardia lamblia. The list of sensitive microaerophilic and anaerobic bacteria includes Bact. fragilis, Fusobacterium, Clostridium perfringens, Cl. difficile, Helicobacter pylori, Campylobacter, peptococci, spirochetes and anaerobic Streptococci. The antibacterial characteristics of Metronidazole do not impact the survival of aerobic bacteria. The responsiveness of Trichomonas vaginalis to metronidazole has reduced in specific locations although Escherichia coli histolytica remains non-resistant. The development of metronidazole resistance occurs among anaerobic bacteria and G. lamblia while this clinical problem exists primarily in H. pylori infection.

Uses:

1. The first-line treatments for all forms of amoebic infection should include Metronidazole.

2. Giardiasis

3. Trichomonas vaginitis

4. Brain abscesses together with endocarditis occur when patients undergo colorectal or pelvic surgery or have an appendicectomy as these procedures can lead to anaerobic bacterial infections. Metronidazole proves effective as a drug treatment but healthcare providers combine the medication with gentamicin or cephalosporins because mixed infections are common.

5. Pseudomembranous enterocolitis caused by Cl. Difficile.

6. Acute necrotizing ulcerative gingivitis (ANUG) receives treatment with Metronidazole/tinidazole as first-line medications because this condition results from fusobacteria, spirochetes and bacteroides along with other anaerobic bacteria in mixed infections.

7. Helicobacter pylori gastritis/peptic ulcer.

Adverse effects:

The typical adverse effects of metronidazole occur often yet stay tolerable even if they lead to no severe health issues.

Anorexia and nausea together with metallic taste often present with abdominal cramps as the most reported adverse effects. Looseness of stool is occasional.

The side effects which occur least frequently include headache alongside glossitis and dry mouth symptoms and problems with concentration abilities.

Nitroimidazole treatment should be stopped when allergic patients develop urticaria along with flushing, heat sensation, itching, rashes and fixed drug eruption because these effects completely prevent future use of these drugs.

The prolonged usage of the medication can result in peripheral neuropathy together with CNS effects. Seizures

have followed very high doses. Regular use of the medication may lead to leucopenia.

The administration of undiluted medication solution results in thrombophlebitis development in the injection vein.

Contraindications:

Doctors should not prescribe Metronidazole to patients with blood dyscrasias, neurological diseases, or first trimester pregnancy because although no teratogenic effects show yet the drug carries mutation risks.

Cautious use in chronic alcoholics. The consumption of alcohol results in a disulfiram-like reaction among individuals taking metronidazole medicine. The combination of alcohol with metronidazole leads to adverse effects for a select few users and does not result in any reactions for the rest.

The drug interaction between this substance and enzyme inducers such as phenobarbitone and rifampin leads to decreased therapeutic effects. A reduced dose of metronidazole may become necessary when using cimetidine for reducing its metabolic breakdown.

OTHER MODES OF TREATMENT OF PPROM:

Corticosteroids

When a delivery is imminent and the gestational age is less than 34 weeks, conventional obstetrical practice includes the administration of corticosteroids for lung maturation. One injection of either betamethasone (12 mg IV/IM 24 h apart) or dexamethasone (6 mg IV/IM every 12 h) is the recommended course of treatment for two days in a row. Betamethasone has a longer half-life than dexamethasone, despite the latter's higher affinity for glucocorticoid receptors [94].

Betamethasone is superior for the prevention of RDS in comparison to dexamethasone; but not for reduction of intraventricular hemorrhage [95]. The combined use of these two corticosteroids has not been tested. A single repeat rescue course of antenatal betamethasone, given after the first completion of the course to women with threatened preterm labour, reduces RDS and other shortterm health problems, however, these effected are paralleled by the reduced birth weight [96, 97].

Tocolysis

Medical professionals should use Tocolytic agents because these drugs lengthen the uterine quiescence period for at least two days before newborn delivery. Healthcare providers have access to extra time during which fully matured lungs can develop after corticosteroid application. Each nation maintains its

own selection of medication for inhibiting premature contractions. Within United States medical practice nifedipine presents as the primary tocolytic treatment because it shows less adverse effects compared to alternative agents while maintaining good safety characteristics. Medical protocols choose a sublingual nifedipine dose of 10 mg followed by 10 mg every 15 minutes for the first hour for tocolysis administration. The initial lower dosage serves to stop uterine contractions but avoids frequent CCB side-effects which primarily include headaches as well as possible threats to maternal blood pressure stability and vestibular equilibrium disturbances and adverse fetal heart tracing and fetal mortality risks. The standard maintenance treatment consists of 20 mg nifedipine administered every 6–8 h and the maximum daily dose reaches 120–150 mg.

United States medical professionals use magnesium sulfate as their primary tocolysis treatment whereas Japanese doctors apply it secondarily for tocolysis therapy. The membrane cell calcium influxes become inhibited by magnesium through the actions of competitive calcium blocking and the reduction of myosin light chain kinase activities. Pregnant women at 32 weeks gestation or less should receive magnesium sulfate for fetal neuroprotection according to The American Congress of Obstetricians and Gynecologists (ACOG). The recommended dose for protecting brain cells lies in a first bolus of 4 or 6 g that should last 20–30 minutes before switching to maintenance doses of 1–2 g per hour for up to 24 hours total treatment time. Drug treatment for stopping preterm labor delivery has varied protocols depending on which healthcare facility provides care.

The German guidelines for preterm labor treatment do not include magnesium sulfate delivery [98]. The use of CCB in combination with IV magnesium sulfate would elevate maternal pulmonary edema risk approximately four or five times greater. The tocolytic agent atosiban functions as the preferred drug

for use in Germany. Studies reveal atosiban achieves uterine inhibition of contractions which lasts about seven days when medically given for 48 hours. Simultaneously fenoterolhydrobromid belongs to the first line treatments along with atosiban during the initial 48 hours (Germany). Patients who receive tocolytics frequently experience tachycardia, jitteriness, hyperglycemia and shortness of breath together with chest pain. The regulatory warning issued by FDA through a Black Box label has significantly limited beta agonist use in preventing premature births throughout the USA.

Hospital deliveries among females at risk of preterm birth demonstrated equivalent perinatal results after receiving either nifedipine or atosiban tocolysis treatment for 48 hours according to Van Vliet et al [99]. Statistics indicated a higher number of intrauterine fetal demise cases occurred among women who received nifidipine therapy.

The selection of prostaglandin inhibitors (PGI) as tocolytic agents includes either non-selective COX-1 and COX-2 inhibitors (indomethacin) or selective COX-2 inhibitors (celecoxib and rofecoxib). Authors suggest nifidipine and atosiban treatment should only be prescribed before 32 weeks' gestation with continuous ultrasound evaluations of AFI and ductus arteriosus blood flow for short durations when possible.

Fetal membrane repair

Numerous attempts to seal the rupture of the membrane including the use of collagen or gelatin plugs, slurry of platelets/fibrinogens and also endoscopic closure of fetal membrane defects have been investigated [19, 33, 100–105]. The effect of 24 amniopatch procedures for iPPROM during 20.4 weeks of gestation (16.4–25.5), including intraamniotic injection of 15–30 mL of platelets, 15–30 mL fresh frozen plasma and in 18 cases of 100 mL of Hartmann solution, was analyzed by Richter et al. [105]. The surgeon achieved

complete healing of the rupture in only seven among all procedures. Eight of the patients (33%) experienced delivery before reaching 24/0 weeks gestational period. Only four expectant mothers were able to extend their pregnancy up to 32 weeks. This research study failed to achieve total success with the multiple amniopatch procedures. The medical team treated two patients for sepsis where pathogens in their blood tests revealed Escherichia coli. Five mothers developed fetal death during the treatment period. The amniopatch treatment of iPPROM resulted in survival of four out of thirteen fetuses. Medical staff measured success by delivering 13 out of 18 fetuses safely through the intervention procedures. Amniopatch entered medical practice when Quintero et al. published it in 1996 [103, 104]. Membrane re-sealing happened in 8 out of 12 patients who received amniopatch treatment according to the authors' report. Five out of ten patients who received an interim amniopatch had fibrinous intra-amniotic bands form. All fibrinous bands developed in fetuses to obstruct extremities or umbilical cords. The three studied infants received neurological morbidity diagnoses which included microcephaly and perisylvian syndrome among others. The premature brain damage caused doctors to remove the third infant from life-support [104]. According to Deprest et al. amniopatch provides better safety outcomes following iPPROM thereby making this approach an appropriate choice [106].

Chmait et al. were able to improve the neonatal outcome in patients with iPPROM combined with twin-to-twin transfusion syndrome within 15 days of laser surgery, using the aminopatch in almost two-thirds of cases [102].

The best course of action for maintaining cervical cerclage following PPROM is debatable. It is undeniable that rapid delivery is necessary in cases of chorioamnionitis, however it frequently has a negative effect on EPD extreme premature delivery. The probability of remaining undelivered at 24 and 48 hours after PPROM has been demonstrated to be significantly reduced by

removing the stitch [odds ratio (OR) 6.27]. However, keeping the stitch in place is also linked to a marginally higher risk of maternal chorioamnionitis (OR 1.78), according to research [107]. There isn't a clear consensus on the best way to handle this scenario, thus each instance must be handled differently.

The prolongation of pregnancy after PPROM (latency period) could be associated with a higher incidence of maternal and fetal infection [108, 109]. It is concerning when pulmonary hypoplasia follows previable PPROM, which happens prior to the embryologic development of a terminal gas exchange membrane, particularly when oligo/anhydramnion is present.

Drassinower et al. recently published, that prolonged exposure to an intrauterine environment of PPROM is an independent risk factor for adverse neurodevelopmental outcomes, associated with motor and mental Bayley scores of <70 [110].

Amnio-infusion techniques

Amnioinfusion (AI) has recently become a viable method for extending the latency period following the PPROM. The risk of FIRS and its related detrimental neurodevelopmental outcome does not seem to be increased by amnioinfision. [66–70, 107].

Porat et al. suggested that serial transabdominal amnioinfusions for early PPROM may improve early PPROM-associated morbidity and mortality rates. Continuous amnioinfusion via a subcutaneously implanted port-system with an amniotic fluid-like hypotonic solution may work to “flush out” bacterial contaminates [67, 68, 70].

Tranquilli et al. reported that serial transabdominal AI could prolong the latency period to a median of 21 days [111].

De Santis et al. reported that the patients with PPROM did not appear to demonstrate any benefit from this repetitive AF replacement (250 mL per intervention) as measured by post procedure AFI because fluid loss occurred within 6 h of instillation [111, 112].

Locatelli et al. found that the serial AI could improve the neonatal outcome primarily by prolonging latency [113, 114]. The patients with PPROM and oligohydramnios experienced shorter delivery times along with a neonatal mortality rate of 20% and pulmonary hypoplasia occurrence in 62% of cases and neurological handicap in 60% of cases.

According to Roberts et al. serial transabdominal amnio infusions resulted in equal maternal and perinatal outcomes between both groups. The perinatal mortality was 19/28 vs. 19/28. Serial AI increased the risk of neonatal death to 14 cases in comparison to nine deaths in the control group while offering better fetal survival rates [9, 115]. The selected saline solution used for AI might have been inappropriate because its substantial deviations from normal human amniotic fluid chemistry [pH 5.0 (4.5–7.0) with 9 g/L NaCl and an osmolarity of 308 mOsmol/L]. Higher levels of sodium chloride in used solutions may produce negative effects on fetal programming. Fetal skin remains highly permeable to modifications in the electrolytes contained in amniotic fluid. The accumulation of sodium chloride in cells interferes with sodium potassium pumps that reside in human plasma membranes thereby influencing the performance of organs particularly the heart and lungs.

Continuous infusion of hypotonic saline solution with amniotic fluid composition runs through a perinatal port system placed under the skin at a rate of 100 mL/hour for 2400 mL/day affects the fetal brain and lungs. The high mortality following artificial insemination may result from harmful effects of the instillation fluid. Continuous action in amniocentesis punctures will elevate

the chances of amniotic membrane detachment from the uterus and placental abruption and umbilical cord damage that could harm the fetus.

A new trial with intraamniotic Ringers lactate instillation in PPROM patients with oligohydramnios has been started 2014 in the Netherlands (NTR3492 Dutch Trial Register [116]. Transcervical amnioinfusion and cerclage has been shown to increase the risks of ascending infection and mechanical damage to the fetus, including the amniotic sac structures, after the occurrence of PPROM [106].

"Flush out" method for the treatment of classic PPROM

The continuous long-time amnio infusion through a subcutaneously implanted port system is a method to establish a chronic lavage of the amniotic cavity (Figure 4) [66–68]. Under local anaesthesia, a port capsule subcutaneous pouch is created. Under the guidance of guided ultrasound, the catheter is introduced via needle into the amniotic cavity. After that, the port capsule is attached to the catheter and placed inside the ready pouch. After closing the skin, a 25-gauge needle attached to the infusion system that contains the hypo-osmotic saline solution, which is similar to human amniotic fluid, punctures the port capsule transcutaneously.

The use of normal saline solutions for the long-time continuous amnio infusion has been shown to be associated with adverse effects for the mothers and probably for the fetuses because of fetal overload with salts and flush out of trace elements and other components of amniotic fluid [68].

• According to Gilbert and Brace's publication, the foetus consumes 200–250 mL/kg of amniotic fluid per day [117]. Plasma Na+ and C levels were markedly elevated by continuous amnio infusion with regular saline solution.

MATERIALS AND METHODS

Source of data:

A pregnant woman who were diagnosed with PPROM between 26+0 weeks and 36+6 weeks of gestation admitted in the Department of Obstetrics and Gynaecology in B.L.D.E. (DU) Shri B.M. Patil Medical College Hospital and Research Centre, Vijayapura

- The patients were informed about study in all respects and informed writtenconsent were obtained.

Study Period: April 2023- March 2025

Study Design: Prospective randomised controlled study

METHOD OF COLLECTION OF DATA

INCLUSION CRITERIA

A pregnant women with gestational age between 26+0 weeks and 36+6 weeks

Patient diagnosed with PPROM within 72 hours with cervical dilatation < 3 cm

Singleton gestation

Pregnant women more than 18 years of age

EXCLUSION CRITERIA

Fetal anomalies

Abnormal placentation

Maternal comorbidities like Diabetes mellitus, Hypertensive disorders in pregnancy

History of cervical incompetence, history of cerclage in previous/ current pregnancy.

Current documented infections of urogenital tract

Sample size calculation:

110 samples total (55 samples per group)
With Anticipated Proportion of ROP among 7 days regimen group vs among Until delivary regimen group 7.7 **%** and 3.1% [ref] resp,. the study would require a sample size of 55 per group. (i.e. a total sample size of 110 assuming equal group sizes), to achieve a power of 95% for detecting a difference in proportions between two groups at a two sided p-value of 0.05 .

(Reference: Software used to calculate sample size is G* Power 3.1.9.7)

Statisticl Analysis

- The data obtained will be entered in a Microsoft Excel sheet, and statistical analysis will be performed using statistical package for the social sciences (Verson 20).
- Results will be presented as Mean±SD, counts and percentages and diagrams.
- For normally distributed continuous variables between two groups will be compared using Independent t test For not normally distributed variables Mann Whitney U test will be used. Categorical variables between two groups will be compared using Chi square test/Fisher\s Exact test.
- .$p<0.05$ will be considered statistically significant. All statistical tests will perform two tailed.

METHODOLOGY:

The study was conducted at Shri B. M. Patil Medical College Hospital & Research Centre BLDE (DU), Vijayapura based on inclusion and exclusion criteria were divided into 2 groups.

A women with singleton pregnancy gestationl age between 26^{+0} weeks and 36^{+6} weeks

Group-1: Patient given Ceftriaxone 1gm intravenous 12hours apart for 2days plus Metrogyl intravenous TID for 2 days followed by Clarithromycin 500mg orally for 5 days.

Group-2: Patient given Ceftriaxone 1 gm intravenous 12hours apart for 2days plus Metrogyl intravenous TID for 2 days followed by Clarithromycin 500mg orally Until delivery .

RESULTS:

Table 1 : Age wise distribution of study participants

Sl no	Age	Antibiotics for 7 days	Antibiotics until Delivery
1	<20years	8(14.3%)	10(18.5%)
2	21-25 years	30(53.6%)	23(42.6%)
3	26-30 years	14(25.0%)	13(24.1%)
4	>31 years	4(7.1%)	8(14.8%)
5	Total	56(100%)	54(100%)

In the given data, the distribution of antibiotic usage for different age groups of pregnant women is analyzed. Among women under 20 years of age, 14.3% (8 out of 56) received antibiotics for 7 days, while 18.5% (10 out of 54) continued antibiotics until delivery. The majority of cases were observed in the 21-25 years age group, where 53.6% (30 out of 56) were treated for 7 days, and 42.6% (23 out of 54) received antibiotics until delivery. In the 26-30 years age group, 25.0% (14 out of 56) were given antibiotics for 7 days, and 24.1% (13 out of 54) had extended treatment until delivery. Women above 31 years constituted the smallest proportion, with 7.1% (4 out of 56) receiving antibiotics for 7 days and 14.8% (8 out

of 54) continuing antibiotics until delivery. Overall, 56 women received antibiotics for 7 days, whereas 54 women continued antibiotics until delivery.

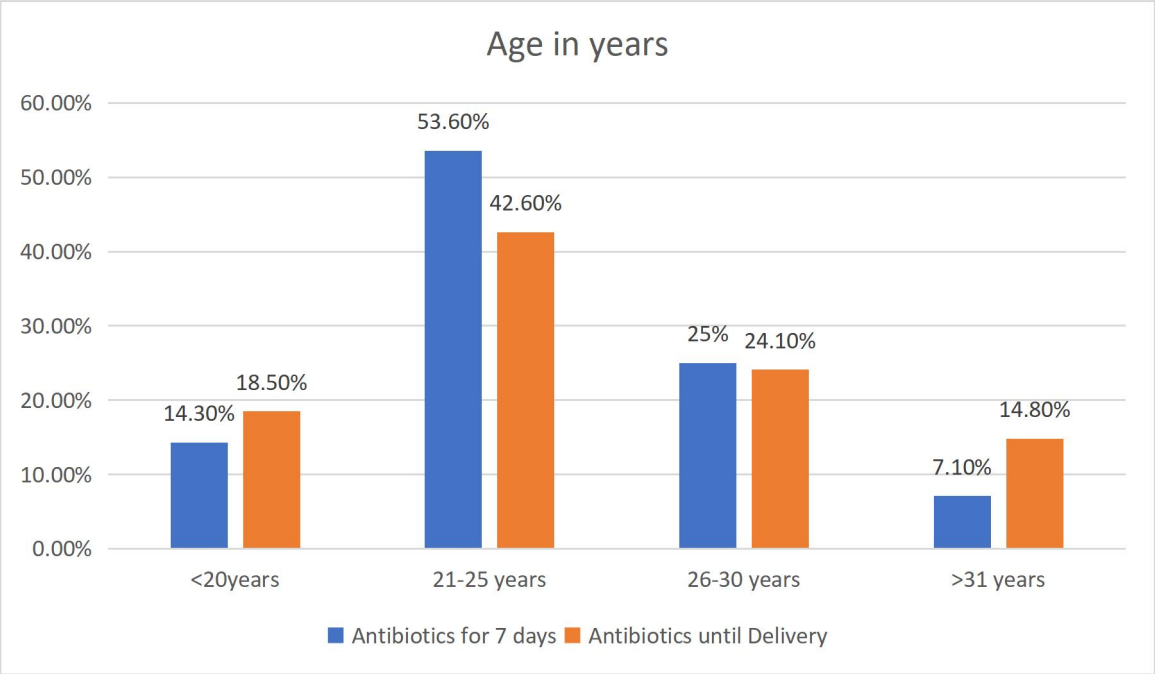

Figure 12: Age wise distribution of study participants

Table 2: Obestric score of study participants

Sl no	Obestric score	Antibiotics for 7 days	Antibiotics until Delivery
1	Primi gravida	16(28.6%)	25(46.3%)
2	Multigravida	40(71.4%)	29(53.7%)
3	Total	56(100%)	54(100%)

In this study, the use of antibiotics was analyzed based on the obstetric score of pregnant women. Among the 56 participants who received antibiotics for seven days, 16 (28.6%) were primigravida, while the majority, 40 (71.4%), were multigravida. In comparison, out of the 54 participants who received antibiotics until delivery, 25 (46.3%) were primigravida, whereas 29 (53.7%) were multigravida.

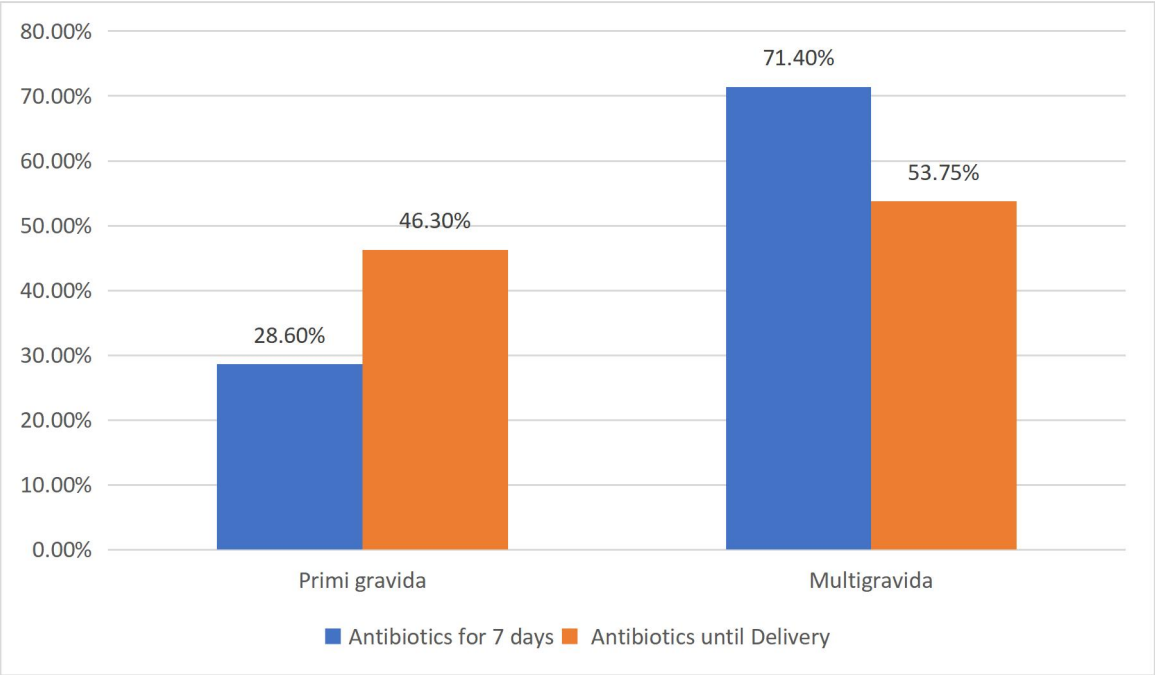

Figure 13: Obestric score of study participants

Table 3: Gestational week among study participants

Sl no	Gestational week	Antibiotics for 7 days	Antibiotics until Delivery
1	24-28 weeks	7(12.5%)	3(5.6%)

2	28-32 weeks	19(33.9%)	10(18.5%)
3	32-36 weeks	30(53.6%)	41(75.9%)
4	Total	56(100%)	54(100%)

The data presents the distribution of antibiotic use across different gestational weeks. Among women in the 24-28 weeks gestational period, 12.5% (7 out of 56) received antibiotics for 7 days, while 5.6% (3 out of 54) continued antibiotics until delivery. In the 28-32 weeks group, 33.9% (19 out of 56) were treated for 7 days, and 18.5% (10 out of 54) received prolonged antibiotic therapy. The highest proportion was observed in the 32-36 weeks group, where 53.6% (30 out of 56) had antibiotics for 7 days, and 75.9% (41 out of 54) continued treatment until delivery.

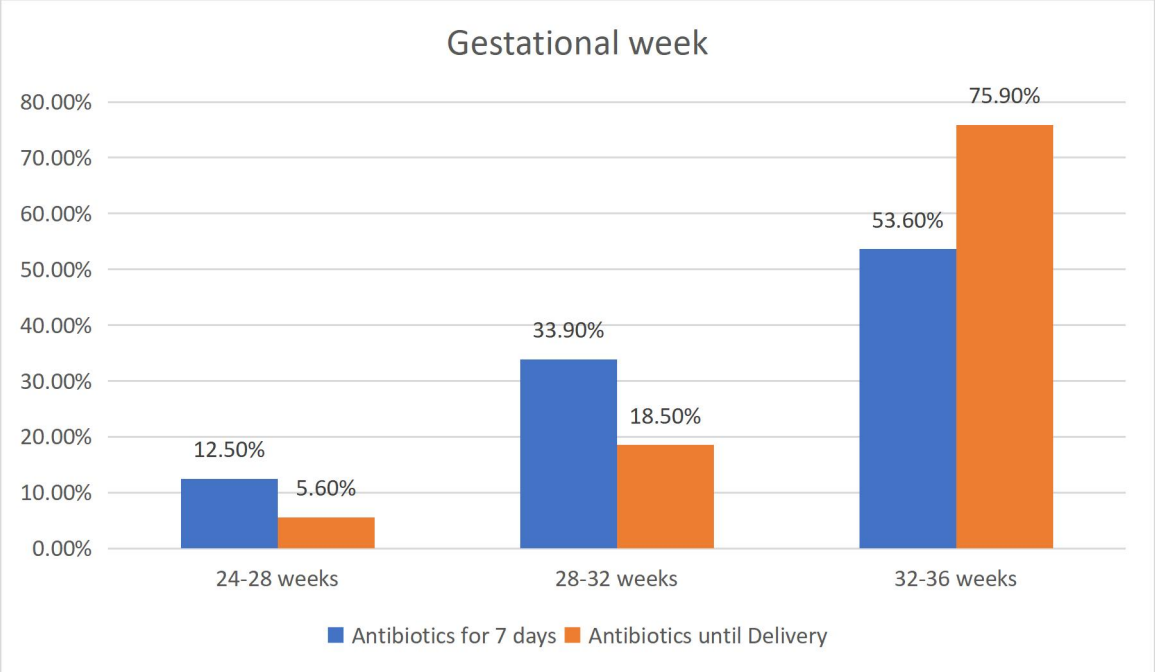

Figure 14: Gestational week among study participants

Table 5: Active leak among study participants

Sl no	Ps active leak	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	Yes	31(55.4%)	45(83.3%)	<0.002
2	No	25(44.6%)	9(16.7%)	
3	Total	56(100%)	54(100%)	

The data indicates a correlation between the presence of active leakage of amniotic fluid (Ps active leak) and the duration of antibiotic use. Among the 56 participants who received antibiotics for seven days, 31 (55.4%) had an active leak, while 25 (44.6%) did not. In contrast, among the 54 participants who received antibiotics until delivery, a significantly higher proportion—45 (83.3%)—had an active leak, whereas only 9 (16.7%) did not.

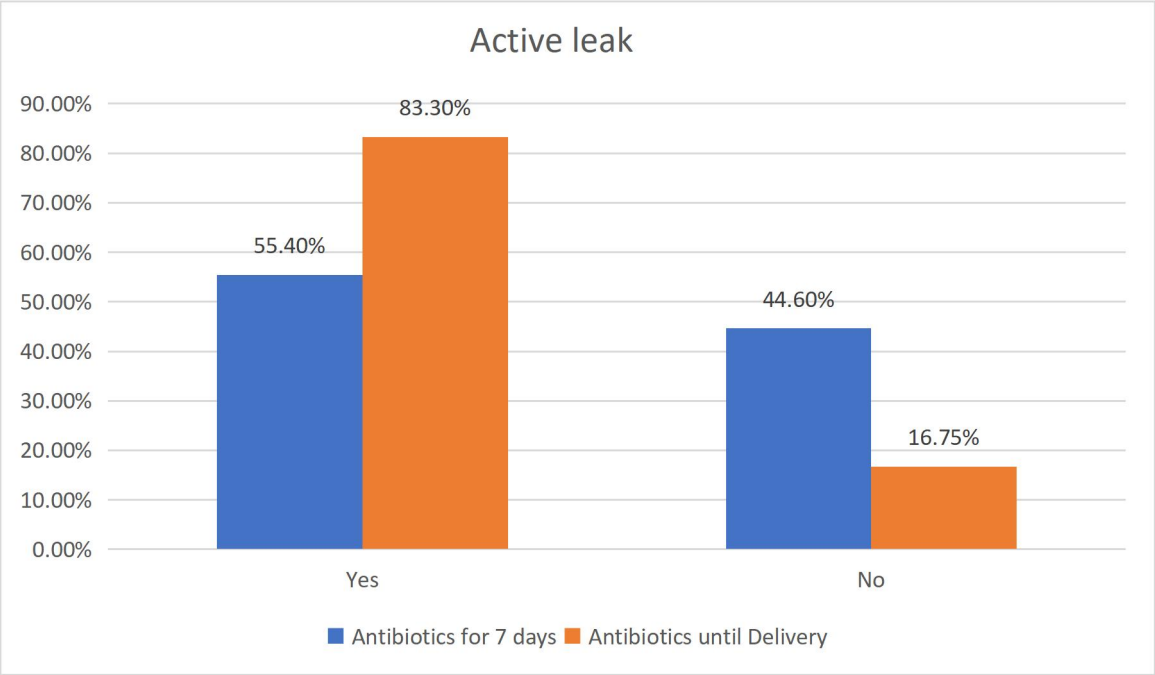

Figure 15: Active leak among study participants

Table 6: Distribution of study participants according to their liquor

Sl no	Liquor	Antibiotics for 7 days	Antibiotics until Delivery

1	Clear	56(100.0%)	53(98.1%)
2	Meconium stained	0.0%	1(1.9%)
3	Total	56(100%)	54(100%)

The data shows that all 56 women (100%) who received antibiotics for 7 days had clear amniotic fluid. Among those who continued antibiotics until delivery, 98.1% (53 out of 54) had clear liquor, while 1.9% (1 out of 54) had meconium-stained liquor. This indicates that antibiotic use was predominantly observed in cases with clear amniotic fluid, with only one instance of meconium-stained liquor in the prolonged antibiotic group.

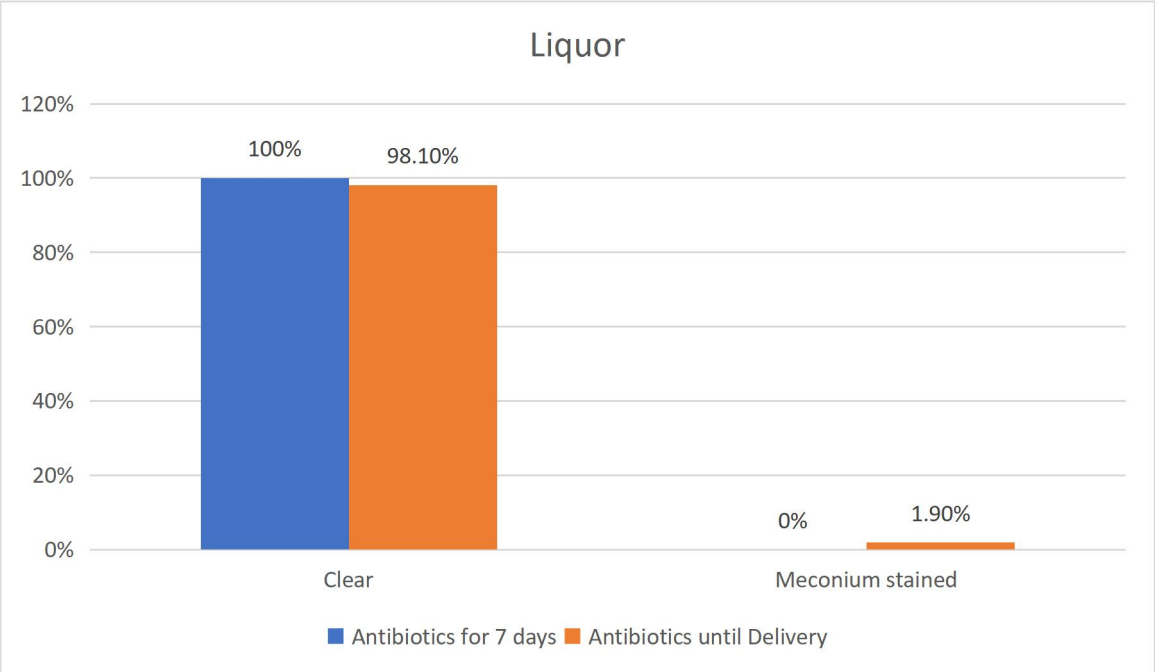

Figure 16: Distribution of study participants according to their liquor

Table 7: Distribution of study participants according to their Cervical dilation

Sl no	Cervical dilation	Antibiotics for 7 days	Antibiotics until Delivery
1	0	43(76.8%)	10(18.5%)
2	1	12(21.4%)	19(35.2%)
3	2	1(1.8%)	21(38.9%)
4	3	0.0%	4(7.4%)
5	Total	56(100%)	54(100%)

This table presents the cervical dilation and found that 76.8%(n-43) had no cervical dilation among group in which antibiotic for 7 days and it is 18.5%(n-10) Antibiotics given until Delivery and it is shown in bar diagram

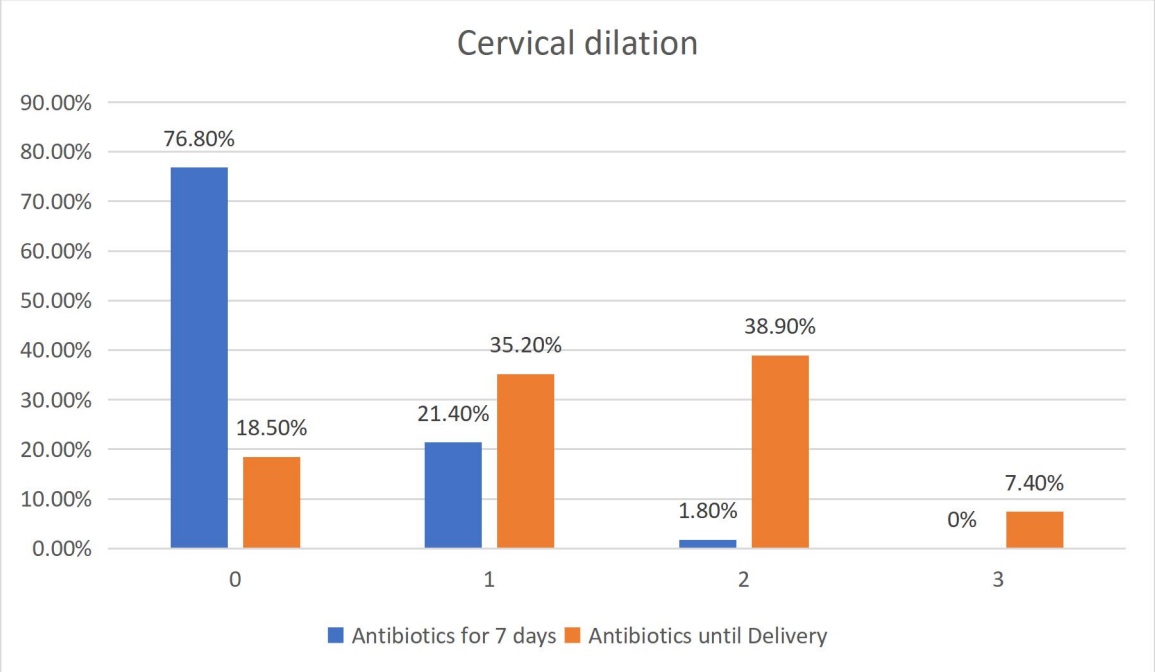

Figure 17: Distribution of study participants according to their Cervical dilation

Table 8: Distribution of study participants according to their Mode of delivery

Sl no	Mode of delivery	Antibiotics for 7 days	Antibiotics until Delivery
1	LSCS	20(35.7%)	35(64.8%)
2	Vaginal	36(64.3%)	19(35.2%)
3	Total	56(100%)	54(100%)

The data shows a relationship between the mode of delivery and the duration of antibiotic use. Among those who received antibiotics for seven days, 20 (35.7%) underwent lower segment cesarean section (LSCS), while 36 (64.3%) had a vaginal delivery. However, in the group that received antibiotics until delivery, a higher proportion—35 (64.8%)—underwent LSCS, whereas only 19 (35.2%) had a vaginal delivery. This suggests that prolonged antibiotic use was more common among those who had a cesarean delivery, possibly due to a higher risk of infection compared to vaginal delivery.

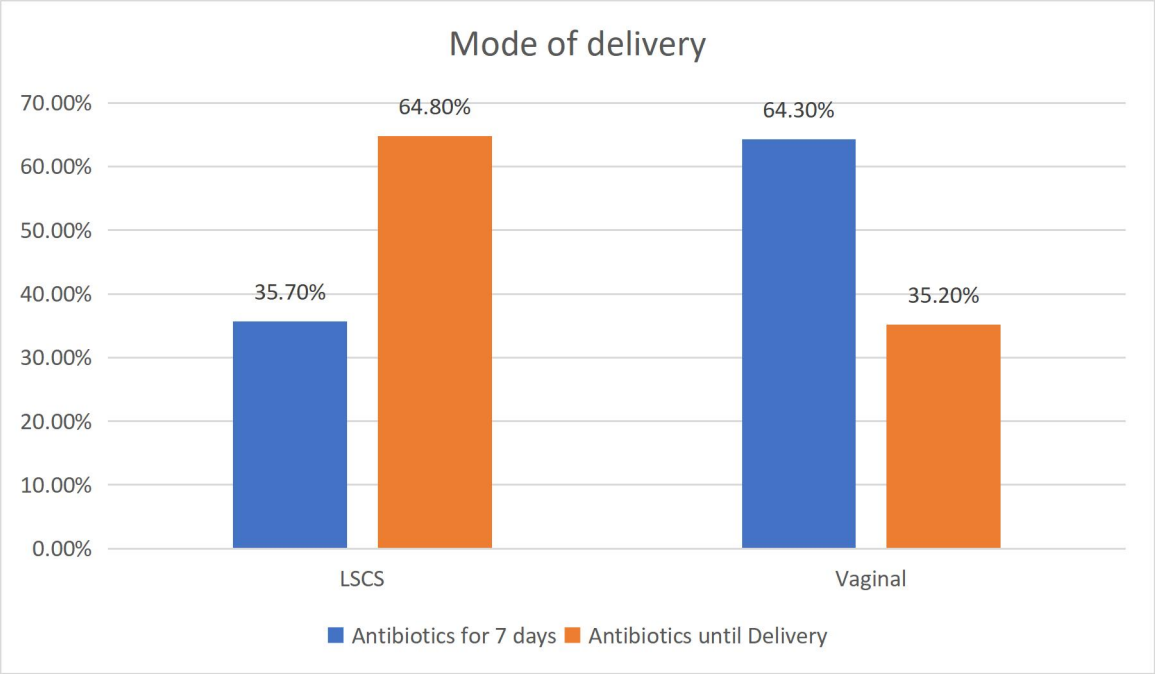

Figure 18: Distribution of study participants according to their Mode of delivery

Table 9: Distribution of study participants according to NICU admission

Sl no	NICU admission	Antibiotics for 7 days	Antibiotics until Delivery
	No	29(51.8%)	32(59.3%)
	Yes	27(48.2%)	22(40.7%)
	Total	56(100%)	54(100%)

The data indicates that among those who received antibiotics for 7 days, 51.8% (29 out of 56) of newborns did not require NICU admission, while 48.2% (27 out of 56) required NICU care. In the group that continued antibiotics until delivery, 59.3% (32 out of 54) did not require NICU admission, whereas 40.7% (22 out of 54) were admitted to the NICU. This suggests a slightly lower NICU admission rate in the prolonged antibiotic group compared to the 7-day treatment group.

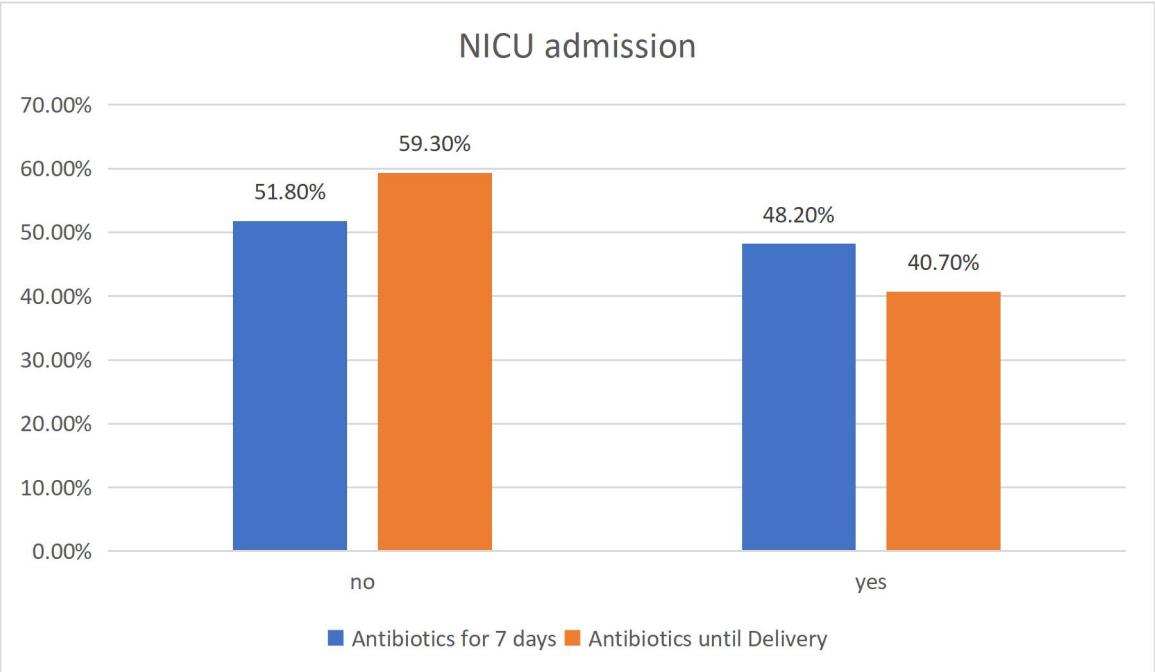

Figure 19: Distribution of study participants according to NICU admission

Table 10: Mean and Standard deviation of laboratory variables

Sl no	Variables	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	Hb Mean(SD)	10.84(1.78)	10.64(1.68)	
2	Total count	12.1(11.8)	11.89(4.50)	
3	CRP	8.339(6.8)	10.46(14.54)	
4	TSH	2.83(1.04)	41.09(282.1)	
5	RBS	89.91(16.14)	87.94(13.50)	

Table 11: Distribution of study participants according to CPAP

Sl no	CPAP	Antibiotics for 7 days	Antibiotics until Delivery
1	0	41(73.2%)	40(74.1%)
2	1-2 days	9(16.1%)	6(11.1%)
3	3-5 days	6(10.7%)	6(11.1%)
4	>5 days	0.0%	2(2.9%)

5	Total	56(100%)	54(100%)

The data shows that the majority of newborns did not require CPAP support, with 73.2% (41 out of 56) in the 7-day antibiotic group and 74.1% (40 out of 54) in the prolonged antibiotic group. CPAP support for 1-2 days was needed in 16.1% (9 out of 56) of cases in the 7-day group and 11.1% (6 out of 54) in the prolonged group. Similarly, 3-5 days of CPAP was required in 10.7% (6 out of 56) and 11.1% (6 out of 54) of cases, respectively. Only the prolonged antibiotic group had cases requiring CPAP for more than 5 days (2.9%, 2 out of 54). This suggests that extended CPAP support was rare, with most newborns either not requiring it or needing only short-term assistance.

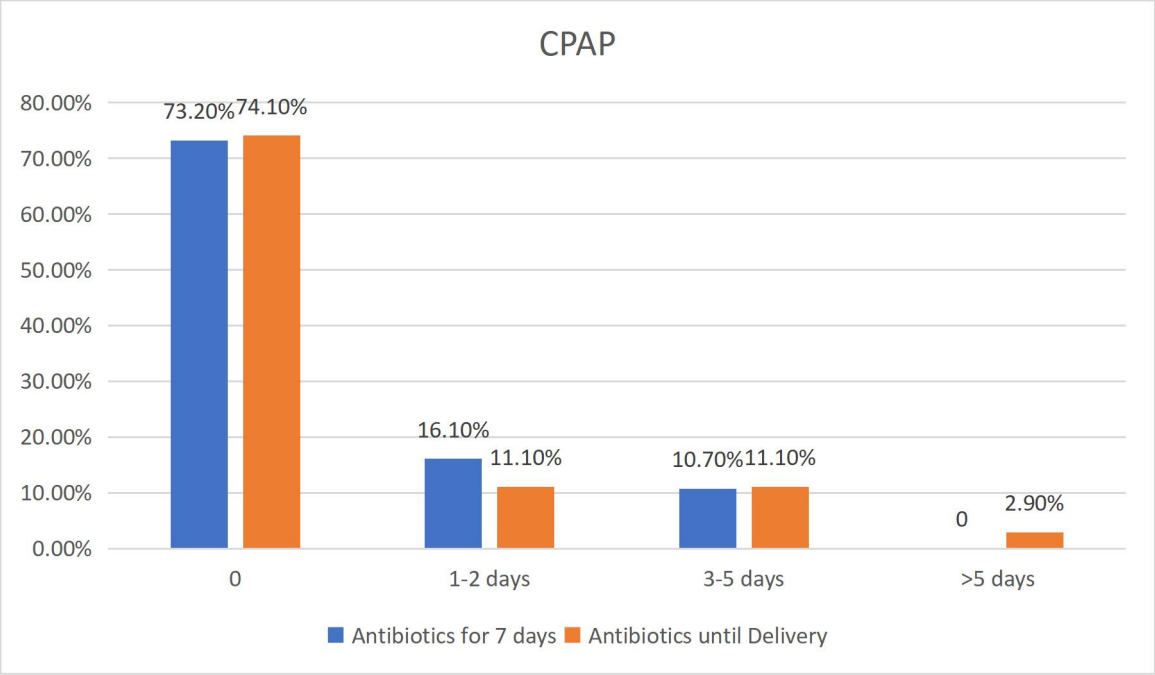

Figure 20 Distribution of study participants according to CPAP

Table 13: Distribution of study participants according to HFNC

Sl no	HFNC	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	0 days	37(66.1%)	44(81.5%)	0.015
2	1-2 days	17(30.4%)	5(9.3%)	
3	3-5 days	2(3.6%)	5(9.3%)	
	Total	56(100%)	54(100%)	

X^2=8.403, df-2

The data examines the relationship between the duration of High-Flow Nasal Cannula (HFNC) use and the duration of antibiotic therapy, with a statistically significant p-value of 0.015, indicating a meaningful association. Among those who received antibiotics for seven days, the majority—37 (66.1%)—did not require HFNC support, while 17 (30.4%) needed HFNC for 1–2 days, and only 2 (3.6%) required it for 3–5 days.In contrast, among those who received antibiotics until delivery, a higher proportion—44 (81.5%)—did not require HFNC, while fewer participants needed HFNC for 1–2 days (5, 9.3%) or 3–5 days (5, 9.3%).

Table 14: Distribution of study participants according to O2 need

Sl no	02	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	0 days	40(71.4%)	46(85.2%)	0.037
2	1-2 days	14(25.0%)	4(7.4%)	
3	>3 days	2(3.6%)	4(7.4%)	
4	Total	56(100%)	54(100%)	

X^2=6.6,df-2

Most newborns did not require oxygen support, with 71.4% in the 7-day antibiotic group and 85.2% in the prolonged antibiotic group (p = 0.037). Oxygen support for 1-2 days was needed in 25.0% and 7.4% of cases, respectively, while >3 days was required in 3.6% and 7.4% of cases. Prolonged antibiotic use was associated with a lower need for short-term oxygen support.

Table 15: Distribution of study participants according to baby at mother side

Sl no	Baby at mother side	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	1-3 days mother side	44(78.6%)	43(79.6%)	0.832
2	3-5 days mother side	3(5.4%)	2(7.4%)	
3	5-8 days	2(3.6%)	2(3.7%)	
4	Died	1(1.8%)	1(1.9%)	
5	No	6(10.7%)	3(5.6%)	
6	Total	56(100%)	54(100%)	

X^2=2.11,df-5

The majority of newborns stayed with their mothers for 1-3 days (78.6% in the 7-day group and 79.6% in the prolonged group, p = 0.832). A small percentage required longer stays (3-8 days), and the mortality rate was low (1.8% vs. 1.9%). More newborns in the 7-day group (10.7%) were not with their mothers compared to the prolonged group (5.6%).

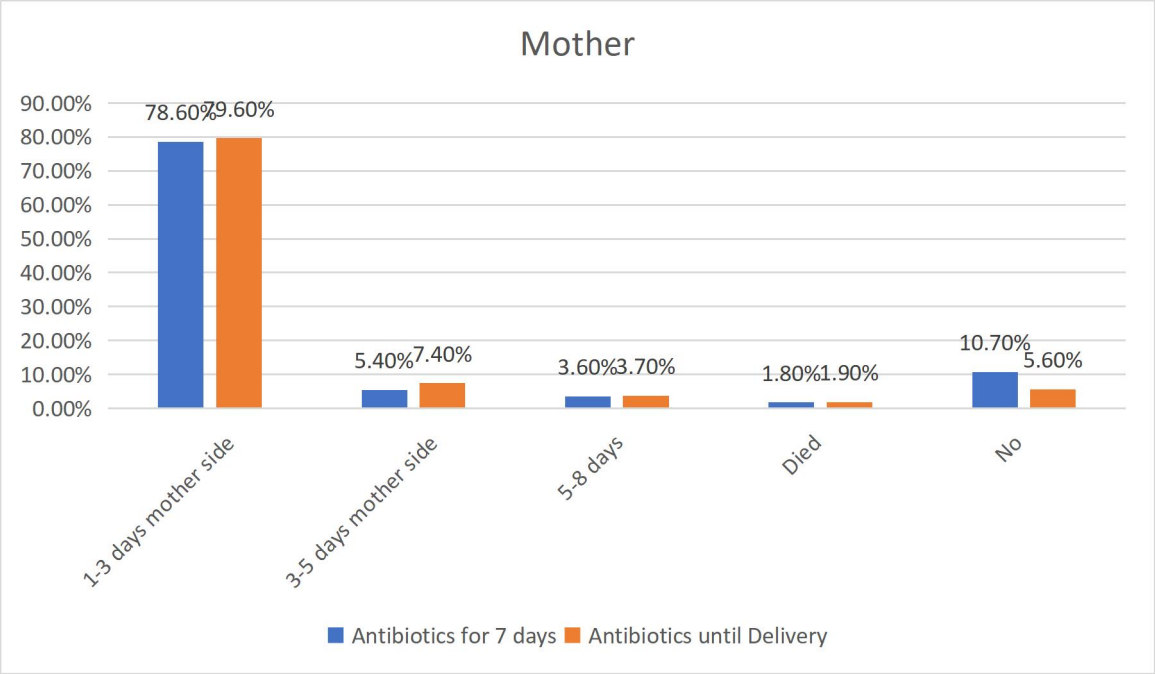

Figure 21: Distribution of study participants according to baby at mother side

Table 16 : Distribution of study participants according to Duration of stay

Sl no	Duration of stay	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	1-3 days	29(50.0%)	17(31.5%)	0.048
2	4-5 days	9(16.1%)	21(38.9%)	
3	5-10 days	11(19.6%)	7(13.0%)	
4	>10 days	7(12.5%)	9(16.7%)	

X^2=9.595,df-4

Table 17: Distribution of study participants according to ANTIBIOTICS RECIVED

Sl no	ANTIBIOTICS RECIVED	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	No	33(58.9%)	34(63.0%)	0.665
2	Yes	23(41.1%)	20(37.0%)	

X^2=0.1885,df-1

Table 18: Association between age and Usage of antibiotics among study participants

Sl no	Age	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	<20years	8(14.3%)	10(18.5%)	0.479
2	21-25 years	30(53.6%)	23(42.6%)	
3	26-30 years	14(25.0%)	13(24.1%)	
4	>31 years	4(7.1%)	8(14.8%)	
5	Total	56(100%)	54(100%)	

X^2=2.4,df-3

Table 19: **Association between obestric score and Usage of antibiotics among study participants**

Sl no	Obestric score	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	Primi gravida	16(28.6%)	25(46.3%)	<0.05
2	Multigravida	40(71.4%)	29(53.7%)	
3	Total	56(100%)	54(100%)	

X^2=3.6,df-1

Table 20 : **Association between Gestational week and Usage of antibiotics among study participants**

Sl no	Gestational week	Antibiotics for 7 days	Antibiotics until Delivery	P value
1	24-28 weeks	7(12.5%)	3(5.6%)	<0.04
2	28-32 weeks	19(33.9%)	10(18.5%)	
3	32-36 weeks	30(53.6%)	41(75.9%)	
4	Total	56(100%)	54(100%)	

X^2=6.6,df-2

DISCUSSION

Discussion

The present Study titled “Prophylactic Antibiotic Treatment Duration In Preterm Premature Rupture Of Membranes: 7 Days Versus Until Delivery” . is carried out in a pregnant women with PPROM who visits the delivery room after giving informed consent at SHRI. B. M. Patil Medical College and Hospital between 26 + 0 weeks and 36 + 6 weeks. It consists of two groups

Group-A –Patients to be given intravenous Ceftriaxone 1gm 12 hours apart for 2 days plus intravenous Metrogyl TID for 2 days followed by oral clarithromycin 500 mg for 5 days. Group-B –Patients to be given with intravenous Ceftriaxone 1gm 12 hours apart for 2 days plus intravenous Metrogyl TID for 2 days followed by clarithromycin 500 mg orally until delivery.

1. **Mean gestational age in weeks :**

Table 21: Mean gestational age (in weeks)

Study	GROUP 1	GROUP 2
Gasparović et al., 2014)[118]	31.2	32.8
Bouevir et al., 2016 [119]	30.5	Not given antibiotics
Herzlich et al [120]	27.1	Not given antibiotics
Our study	32.6	33.8

Gasparović et al. (2014) [118] found that women who took antibiotics for just 7 days had a mean gestational age (GA) at PROM of 31.2 weeks. On other group, those who continued their antibiotics until delivery had a slightly better mean GA of 32.8 weeks.Similarly, Bouvier et al. (2016)[119] reported a mean GA at PROM of 30.5 weeks, although they didn't directly compare treatment durations. Herzlich et al [120]. showed a broader range for gestational ages (17–33 weeks), landing a mean of 27.1 weeks, which tells us there is a lot of variation among those they studied.

In our study, we found that Group 1 had a mean GA of 32.6 weeks where as in Group 2 mean GA 33.8 weeks comparable with Gasparović et al [118]. and with Bouvier et al[121]. And Herzlich et al[120.]

2. **Amniotic fluid index in cms:**

Table 22: Aminotic fluid index in cms

Study	GROUP 1	GROUP 2

Brenner et al [121]	<5	>5
Vermeillion et al [122]	<5	>5
Our study	< 5	<5

In a study by Brenner et al[121] they looked at two groups 8% had AFI <5cm and the other group had AFI ≥5cm Another study by Vermeillion et al[122] found thatAFI <5 cm, the time until delivery was shorter than for those with AFI >5 cm

In our study, we noticed that AFI <5 cm both groups similar observations as Brenner et al[121] and Vermeillion et al[122] .

3.Neonatal Intensive Care Unit admission:

Table 23: Neonatal intensive care unit admission in percentage:

Study	GROUP 1	GROUP 2
Mercer et al[16]	52.1%	48.9%
Gasparović et al., 2014[118]	68.4%	31.6%
Our study	47.3%	41.8%

Gasparovic et al[118] study antibiotic group 68.4% while it was 31.6% in other g. When we look at *Mercer et al[16] study* control group had 48.9% NICU admission where antibiotic group had 52.1% admissions.

In our study, NICU admissions were 47.3% in the Group1,41.8% in the Group 2. Comparing with *Gasparovic et al* [118] and *Mercer et al*[16] it is more than our study in Group1 and In Group 2 *Gasparovic et al*[118] it is less and *Mercer et al*[16] *it is more.*

4.Cause for NICU admission:

Table 24: Cause of NICU Admission

STUDY	GROUP 1			GROUP 2		
	RDS	SEPSIS	PNEUMONIA	RDS	SEPSIS	PNEUMONIA
Mercer et al[16]	40.8%	8.4%	2.9%	50.2%	15.6%	7.0%
Gaspoveric et al[118]	-	12.6%	-	-	18.7%	-
Our study	47.4%	-	-	52.8%	-	-

Mercer et al[16] study, 40.8% developed RDS, 8.4% had sepsis and 2.9% suffered pneumonia while other group had 50.2%, 15.6% and 7% development of RDS, sepsis and pneumonia.

Gasparovic et al[118] study showed development of neonatal sepsis in antibiotic group (12.6%) and control group (18.7%).

In our study, we observed that out of total NICU admission in the Group1 47.3% were admitted due to respiratory distress syndrome while in delivery Group 38.2% developed RDS. Compairing with *Mercer et al*[16] respiratory distress syndrome is more in our study in group1and les in group 2. *Gasparovic et al*[118] *and Mercer et al*[16] neonatal sepsis in group 1, 8.4% and 12.6% and group 2, 15.6% and 18.7%.*Mercer et al*[16] studied about pneumonia which not found in our study and *Gasparovic et al*[118] .

5. Number of days baby on CPAP (Continuous Positive Airway Pressure):

Table 5 : Number of days Baby on CPAP

Study	GROUP 1		GROUP 2	
	1-2 DAYS	3-5 DAYS	1-2 DAYS	3-5 DAYS
Gustavo et al [123]	61%	-	-	71%
Our study	14.5%	10.9%	12.7%	10.9%

Gustavo et al123 found that more babies relied on CPAP—about 61% used it for 1 day in Period 1 and 71% for 3 days in Period 2. This suggests that needing respiratory help seems to increase as time goes on. In our study, we saw quite a different picture, with CPAP use being much lower. In Group 1, only 14.5% needed CPAP for 1-2 days and 10.9% for 3-5 days. In Group 2, the numbers were similar, with 12.7% needing CPAP for 1-2 days and 10.9% for 3-5 days. In contrast with Gustavo et al. 118. days of stay are less in our study in both groups.

Strenght

1. The research design includes a direct comparison between PPROM antibiotic treatments of two different durations which makes it clinically applicable.

2. The groups received equal sample numbers (n=55 per group) which provides fair comparisons between study subjects while reducing selection effects.

3. The study investigates various neonatal and maternal results along with NICU admission rates, respiratory support measures, neonatal complications and infection pattern indicators.

4. The study demonstrates statistically important distinctions between vital clinical indicators which improves the reliability of its outcomes.

5. The research design directly compares two antibiotic treatments for PPROM which produces important clinical knowledge for neonatal care improvement.

6. Statistical validity increases and there is reduced bias because the study maintains equal proportions of participants between test groups at n=55 each.

7. Multiple healthcare parameters such as gestational age and delivery methods along with neonatal respiratory assistance and NICU admissions and inflammatory response markers and neonatal health results were extensively studied.

8. The study presents findings that physicians can apply right away to their obstetric and neonatal practices when deciding how long antibiotics should be administered.

9 The research supports international actions to minimize antibiotic distribution that lacks medical necessity while working against antimicrobial resistance.

10 The study verified its reliability by presenting statistically relevant differences between studied groups regarding critical outcome measurements.

11 The research demonstrates that longer antibiotic exposure for neonates fails to improve health results up to NICU admission risks.

12. The research findings support changing current practices because most maternal cases respond well to only seven days of antibiotic treatment.

Limitations

1 Difficulty in collecting the samlpe size.

2 The research based at one institution creates difficulties for transferring its results to various healthcare environments across different populations.

3 No sufficient data exists about long-term neurodevelopmental effects on neonates since the study measured them for a short duration.

4 The study fails to identify between infections and other healthcare complications affecting newborns through microbiological testing.

5 The research failed to extensively evaluate how maternal comorbidities together with gestational age variations and socioeconomic factors influenced the study outcomes.

Recommendations

1. Future investigations should conduct larger trials involving multiple medical centers for affirming their observations across different groups of patients.

2. The real effect of antibiotic duration on neonatal neurodevelopment needs to be understood by following participants over time.

3. Protocols for antibiotic treatment can be better refined through the combination of microbiological assessments which include culture tests and biomarker examinations.

4. Medical professionals should determine antibiotic dosages using information about maternal health risks together with fetal risk variables.

Conclusion

The study findings show that continuing antibiotics during pregnancy through delivery for PPROM leads to adverse birth complications that increase the need for neonatal respiratory assistance and NICU hospital admission. The administration of antibiotics for seven days does not negatively impact newborn health yet reduces inappropriate antibiotic treatments. Standardizing antibiotic

treatment time in PPROM cases would reduce the risk of antibiotic resistance while protecting neonates from complications according to these research results.

Summary

This research evaluates the best duration of antibiotic treatment for patients with preterm premature rupture of membranes (PPROM) by analyzing maternal and newborn medical results between individuals receiving 7 days of antibiotics versus those administering them until delivery.

This study shows that antibiotic administration until delivery leads to both prolonged amniotic fluid leakage duration and respiratory support needs but does not demonstrate enhanced neonatal morbidity outcomes in comparison with standard 7-day therapy. The two groups showed no statistical difference in NICU admission statistics (41.8% vs. 47.2%) or inflammatory marker readings between CRP and total leukocyte count. Research evidence indicates that treating newborns with antibiotics for more than 7 days does not lead to better prevention of complications during the newborn period.

The research demonstrates how shortening antibiotic doses delivers equivalent patient outcomes without subjecting patients to excess drug exposure. The prevention of antibiotic resistance and minimalization of neonatal complications and enhanced quality of care for both mothers and newborns require this practice. Additional research on PPROM management protocols should include

multiple medical facilities and extended post-treatment assessment to establish optimal antibiotic approaches for mothers and newborns.

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PROFORMA

NAME	
AGE/SEX	
ADMISSION NUMBER (I.P. NO)	
DATE OF ADMISSION	
DATE OF DISCHARGE	
ADDRESS AND PHONE NUMBER	

CHIEF COMPLAINTS:

C/O LEAKING P/V SINCE _____ HOURS

HISTORY OF PRESENT ILLNESS:

HISTORY OF PRESENT PREGNANCY:
A.N.C.:

1st TRIMESTER:

2ndTRIMESTER:

3rd TRIMESTER:

PAST MEDICAL HISTORY : YES NO

FEVER

DIABETES

HYPERTENSION

CARDIAC DISEASE

HYPOTHYROIDISM

UTI

MARITAL HISTORY:

OBSTETRIC HISTORY: G: P: L: A: D:

L.M.P.:

E.D.D.:

P.O.G.:

TREATMENT HISTORY:

ANTIBIOCS RECEIVED

TYPE	YES	NO
INJ. CEFTRIAZONE		
TAB. AMOXICLAV		
DURATION		

PERSONAL HISTORY:

GENERAL PHYSICAL EXAMINATION:

PULSE:

BLOOD PRESSURE:

RESPIRATORY RATE:

TEMPERATURE:

HEAD-TO-TOE EXAMINATION

PALLOR:

ICTERUS:

CYANOSIS:

CLUBBING:

LYMPHADENOPATHY:

OEDEMA:

THYROID:

BREAST:

SPINE:

CARDIOVASCULAR SYSTEM:

RESPIRATORY SYSTEM:

PER ABDOMEN:

PER SPECULUM :

ACTIVE LEAK PRESENT YES NO

LIQUOR

NITRAZIN PAPER TEST

PER VAGINUM:

CERVICAL DILATATION

PRESENTATION:

INVESTIGATIONS:

HB :
TC:
CRP:
SERUM TSH :

RBS

BLOOD GROUP AND RH TYPING

OBSTETRIC SCAN

ADMISSION TO DELIVERY

DATE OF DELIVERY:

MODE OF DELIVERY:

VAGINAL

LSCS

ANTIBIOTICS YES NO
DURATION

INJ CEFTRIAXONE 1GM 1-0-1

INJ METRONIDAZOLE 100ML IV 1-1-1

TAB CLARITHROMYCIN 200MG 1-0-1

FOETAL OUTCOME:

SEX-

BIRTH WEIGHT-

APGAR SCORE: 1min- ; 5min-

RESPIRATORY DISTRESS: YES NO

NICU ADMISSION: YES or NO

IF YES-

INDICATION-

BABY

STATUS:HFNC

CPAP

O2 HOOD

ROOM AIR

ANTIBIOTICSRECEIVD

ANTIBIOTICS

DURATION OF STAY :

B.L.D.E. (DEEMED TO BE UNIVERSITY)

SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTER, VIJAYAPURA-586103 INFORMED CONSENT FOR PARTICIPATION IN DISSERTATION/RESEARCH

I, the undersigned, _____, D/O W/O _____, aged ____years, ordinarily resident of _____ do hereby state/declare that Dr. GUDDAD SHABANA HAMEED B.L.D.E (DU) Shri. B. M. Patil Medical College Hospital and Research Centre have examined me thoroughly on _____ at _____ (place), and it has been explained to me in my language that **Dr. GUDDAD SHABANA HAMEED** is conducting a dissertation/research titled **"PROPHYLACTIC ANTIBIOTIC TREATMENT IN PRETERM PREMATURE RUPTURE OF MEMBRANE 7 DAYS VERSUS UNTIL DELIVERY"** under the guidance of **DR SHOBHA SHIRAGUR** Further Doctor has informed me that my participation in this study will help in the evaluation of the results of the study, which is a useful reference for the treatment of other similar cases soon. The Doctor has also informed me that information given by me, observations made upon me by the investigator will be kept secret and not assessed by a person other than my legal hirer or me except for academic purposes. The Doctor did inform me that though my participation is purely voluntary, based on the information given by me, I can ask for any clarification during treatment/study related to diagnosis, the procedure of treatment, result of treatment, or prognosis. At the same time, I have been informed that I can withdraw from my participation in this study at any time if I want, or the investigator can terminate me from the study at any time of the study but not the procedure of treatment and follow-up unless I request to be discharged. After understanding the nature of the dissertation or research, diagnosis made, and mode of treatment. I am giving consent for the investigations. I the undersigned Shri/Smt _____ under my full conscious state of mind agree to participate in the said research/dissertation.

Signature of the patient:

Signature of the doctor:

Witness: 1. 2.

Date:

Place:

MASTER CHART

SL.NO	IP NO	NAME	AGE(YRS)	DATE OF ADMISSION	DATE OF DISCHARGE	C/O PV LEAK SINCE(HRS)	OBSTETRIC HISTORY	GESTATIONAL AGE(WEEKS)	PER ABDOMEN/WEEK	P/S ACTIVE LEAK	LIQUOR	NITRAZIN TEST	P/V CERVICAL DILATATION	HB	TC	CRP	TSH	RBS	BGT	OBSTETRIC SCAN
1	220181	ANITA RATHOD	27	07/07/2023	18/7/2023	10	G2A1	32	28-30	YES	CLEAR	POSITIVE	2	10	12.05	6.1	2.312	86	C +	SLIUF OF GA 31-32 WKS WITH A.NHYDROMNIOS
2	197885	SUNANDA KALAMGERI	34	17/6/2023	07/08/2023	9	G4P3L2A1	32	34	YES	CLEAR	POSITIVE	1	11.9	8.56	5	3.337	90	C +	SLIUF OF G.A 30-32 WKS WITH SEVERE OLIGO
3	189478	JAYASHREE KOPPAD	23	06/10/2023	15/6/2023	3	G3P2L2	28	28	YES	CLEAR	POSITIVE	1	10.4	15.23	5	2.464	74	B +	SLIUF OF G.A 32-34 WKS WITH SEVERE OLIGO
4	197552	LAXMI BIRADAR	19	17/6/2023	07/07/2023	8	G3P1L1	32	30	YES	CLEAR	POSITIVE	0	13.4	10.7	5	3.66	87	A +	SLIUF OF GA 32 WKS S DAYS
5	259553	TAHENIYAT JUNAIDI	23	16/8/2023	13/9/2023	360	G2P1L1	32	28-30	YES	CLEAR	POSITIVE	0	10.4	10.24	7.8	2.125	78	B +	SLIUF OF 30-31 WKS WITH OLIGO
6	209805	RATNA HUGAR	23	27/6/2023	07/01/2023	6	G2A1	36	30-32	YES	CLEAR	POSITIVE	3	13.3	12.73	5	2.148	80	B+	SLIUF OF GA 34-35 WKS
7	223270	GURALINGAMMA KUMBAR	28	Sep-23	19/7/2023	6	G2P1L1	32	32-34	YES	CLEAR	POSITIVE	2	13	9.2	5	3.12	98	C +	SIUF OF GA 32WKS
8	253967	SUDHA BIRADAR	19	20/7/2023	26/7/2023	6	PRIMIGRAVIDA	34	32-34	YES	CLEAR	POSITIVE	2	11.2	12.78	6	1.536	137	B-	SLIUF OF GA 32-32 WKS
9	1053	NANDA	32	08/10/2023	20/8/2023	4	PRIMIGRAVIDA	28	28-30	YES	CLEAR	POSITIVE	2	11.2	9.8	5	4.12	84	B+	SLIUF OF 28WKS
10	271542	ANITA GOUNGOL	22	31/8/2023	09/07/2023	6	G3P1L1	36	34-36	YES	CLEAR	POSITIVE	1	10.3	12.64	5	2.1	78	A +	SLIUF OF GA 35-36 WKS
11	279514	TANUJM KALAGGI	22	09/01/2023	09/06/2023	8	PRIMIGRAVIDA	34	32-34	YES	CLEAR	POSITIVE	1	10.4	10.88	5	4.66	97	B+	SLIUF OF GA 32-33 WKS WITH OLIGO
12	286581	LAXMI CHATTARKI	20	09/08/2023	09/12/2023	2	PRIMIGRAVIDA	35	32-34	YES	CLEAR	POSITIVE	1	11.2	14.71	6	3.957	82	A +	SLIUF OF 35-36 WKS S
13	277330	POOJA RATHOD	25	31/8/2023	09/05/2023	2	G3P1L1A1	31	28-30	YES	CLEAR	POSITIVE	0	7.5	21.34	25.6	2.42	80	B+	SLIUF OF GA 31-32 WKS
14	286441	VIJAYALAXMI KODEKAL	20	09/07/2023	18/9/2023	48	G3P1L1	34	32-34	YES	CLEAR	POSITIVE	1	10	11.76	5	4.358	72	B+	SLIUF OF GA 29-30WKS
15	307130	JYOTI KUMBAR	23	26/9/2023	30/9/2023	13	PRIMIGRAVIDA	35	34-36	YES	CLEAR	POSITIVE	0	13	10.72	10.6	2.546	87	A +	SLIUF 35-36 WKS
16	335636	HULIGEMMA TONDIHAL	29	25/10/2023	10/09/2023	3	G3P1L1	36	34-36	YES	CLEAR	POSITIVE	1	10.7	7.82	6	3.14	80	A +	SLIUF OF 32-34 WKS WITH OLIGO
17	347918	RESHAMA JADHAV	24	11/05/2023	11/10/2023	4	G3P2L2	34	30-32	YES	CLEAR	POSITIVE	2	9.2	16.6	7.9	3.878	80	AB+	SLIUF OF GA 30-32 WKS
18	382629	DEEPALI	20	12/06/2023	12/10/2023	4	PRIMIGRAVIDA	33	32-34	YES	CLEAR	POSITIVE	1	12	9.42	5	3.38	87	A +	SLIUF OF GA 30-32 WKS
19	304324	MALLAMMA BIRADAR	22	25/9/2023	30/9/2023	18	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE	1	10	15.71	6	2.393	68	B+	SLIUF OF GS 28 WKS
20	406682	SHRUTI BIRADAR	30	29/12/2023	24/12/2023	1	G3P1L1	27	24-26	YES	CLEAR	POSITIVE	0	9.8	24.6	7.2	1.834	88	C +	SLIUF OF 27-28 WKS
21	62221	RADHIKA CHIMMALGI	19	23/2/2024	03/03/2024	36	PRIMIGRAVIDA	34	32-34	YES	CLEAR	POSITIVE	3	11.5	8.66	89.1	3.018	81	A+	SLIUF OF GA 34-35 WKS
22	36389	SHARANAMMA KALASHETTI	25	15/1/2024	02/02/2024	1	PRIMIGRAVIDA	31	28-30	YES	CLEAR	POSITIVE	0	11.5	14.3	5	3.12	76	A+	SLIUF OF GA 28-30WKS WITH OLIGO
23	13186	SUBHASHINI KOLI	28	18/1/2024	23/1/2024	1	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE	0	12.9	8.79	7.4	4.57	70	B+	SLIUF 35-36 WKS
24	50327	SANGEETA HANCHINAL	30	14/2/2024	20/2024	8	PRIMIGRAVIDA	32	30-32	YES	CLEAR	POSITIVE	1	10.2	4.50	5	2.041	84	A +	SLIUF OF GA 32-33 WKS
25	81104	SANGEETA BSE	21	03/08/2024	21/3/2024	8	PRIMIGRAVIDA	35	34-36	YES	CLEAR	POSITIVE	2	9.9	14.91	5	2.3	79	B+	SLIUF OF GA 34-35 WKS
26	83723	SUDHA TALWAR	26	14/3/2023	17/3/2023	2	G3P1L1	36	34-36	YES	CLEAR	POSITIVE	2	8.4	10.34	19	2.738	94	A+	SLIUF OF GA 35-36 WKS
27	98755	BASAMMA BAGWADI	21	25/3/2024	04/07/2024	10	G3P1L1	29	28-30	YES	CLEAR	POSITIVE	2	9.5	10.35	5	2.01	88	C +	SLIUF OF GA 34-35 WKS
28	280361	POOJA BIRADAR	21	04/02/2024	04/07/2024	3	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE	3	12.6	12.43	16	1.363	90	AB+	SLIUF OF 36 WKS SIZE
29	155090	LAXMI CHALGI	23	05/07/2024	18/5/2024	14	PRIMIGRAVIDA	31	30-32	YES	CLEAR	POSITIVE	0	12.4	11.30	5	2.102	124	A +	SLIUF 29-30 WKS WITH OLIGO
30	180602	RAMABAI HARAWAL	19	26/5/2024	06/02/2024	24	PRIMIGRAVIDA	34	34-36	YES	CLEAR	POSITIVE	1	11	10.28	5	2.562	100	A +	SLIUF OF 32-33 WKS WITH AFI 2-3 CM
31	375746	SAVITA KUHAR	34	26/5/2024	30/5/2024	4	G6P1L1A4	35	32-34	YES	CLEAR	POSITIVE	2	13	8.86	5	2.447	73	C +	AFI 2-3 CM,PLACENTA - FUNDAL,CEPHALIC
32	161034	LALITHA AJMANI	30	05/12/2024	24/5/2024	15	G3P2L2	32	28-30	YES	CLEAR	POSITIVE	0	8.4	17.21	9	2.596	117	B+	SLIUF OF GA 33-34 WKS
33	194892	NIMBEVVA PATIL	26	06/05/2024	26/6/2024	6	G3A2	29	28-30	YES	CLEAR	POSITIVE	0	13.2	19.54	19.8	1.263	83	C +	SLIUF OF 28-29 WKS WITH OLIGO
34	196515	SUHANA REHAMAN	23	06/06/2024	06/10/2024	14	G3P1L1	29	28-30	YES	CLEAR	POSITIVE	3	9	7.73	18.1	2.7	76	B+	PLCENTA ANTERIOR,AFI ADEQUATE
35	198011	RAJASHREE	27	06/07/2024	06/09/2024	6	G4P2L2A1	26	26-26	YES	CLEAR	POSITIVE	1	6.9	8.92	5	2.09	87	C +	SLIUF OF 24-25 WKS
36	211265	PARVATHI ROLLI	26	17/6/2024	07/01/2024	30	G3P4L4	34	26-28	YES	CLEAR	POSITIVE	2	11	13.50	9.6	3.21	117	A +	SLIUF OF 32-33 WKS WITH OLIGO
37	218379	VIDYASHREE HUBBALLI	23	22/6/2024	07/04/2024	8	PRIMIGRAVIDA	35	34-36	YES	CLEAR	POSITIVE	0	11.3	15.44	5	2.016	80	AB+	SLIUF OF 34-35 WKS WITH OLIGO
38	223009	MEENAKSHI ADALLI	32	26/6/2024	28/6/2024	9	G3P2L2	36	34-36	YES	CLEAR	POSITIVE	0	9.7	9.37	12.9	2.872	128	C +	SLIUF OF GA 32-33 WKS
39	227294	SAVITRI	32	28/6/2024	18/7/2024	4	PRIMIGRAVIDA	27	24-26	YES	CLEAR	POSITIVE	0	10.8	19.04	62	1.026	90	A +	SLIUF OF 26-27 WKS WITH AFI 6-7 CM
40	300508	MUSKAN UTNAL	20	21/7/2024	28/7/2024	2	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE	1	9.8	21.76	5	2.365	98	B+	SLIUF OF 34-35 WKS WITH OLIGO
41	100703	NETRA KAMKOL	25	07/02/2024	07/08/2024	5	G3P1L1	26	24-26	YES	CLEAR	POSITIVE	0	11.2	10.12	6	3.125	84	A +	SLIUF OF 23-24 WKS
42	238944	GEETA KALAGI	24	07/07/2024	07/12/2024	1.5	G4P2L2A1	35	34-36	YES	CLEAR	POSITIVE	2	12.3	10	5	2.165	108	C +	SLIUF OF 35-36 WKS S
43	258927	MUSKAN BAGWAN	22	07/06/2024	07/11/2024	9	PRIMIGRAVIDA	34	30-32	YES	CLEAR	POSITIVE	1	11.5	14.2	5	4.27	90	A -	SLIUF OF 32-33 WKS WITH GRADE 1 IUGR
44	269083	AUFIYA	22	14/7/2024	18/7/2024	34	G3P2L2	36	30-32	YES	CLEAR	POSITIVE	2	9.3	23.71	12.1	0.996	80	B+	SLIUF OF 35-36 WKS WITH ANYDROMNIOS
45	258575	PURVA KOLI	19	20/7/2024	26/7/2024	5	G3P1L1	27	26-28	YES	CLEAR	POSITIVE	0	12.2	14.92	11.9	3.21	90	B+	SLIUF OF 27-28 WKS
46	270795	KASHABI PATIL	34	26/7/2024	09/09/2024	12	G5P1L1A3	29	26-28	YES	CLEAR	POSITIVE	0	10.6	15.58	45.8	1.26	77	A +	BICORNUATE UTERUS WITH SLIUF OF 28-29 WKS
47	265344	JYOTI NANDAGERI	21	25/7/2024	31/7/2024	6	PRIMIGRAVIDA	34	32-34	YES	CLEAR	POSITIVE	2	12.7	17.52	11.3	4.653	96	C +	SLIUF OF 34-35 WKS WITH OLIGO
48	40931	SHIVALEELA HIREMATH	35	26/7/2024	31/7/2024	2.5	G4P2L2A1	36	34-36	NO	CLEAR	POSITIVE	1	9.0	10.94	5	2076	80	C +	SLIUF OF GA 35-36 WKS
49	269300	LAXMI BANDIWADDAR	20	28/7/2024	31/7/2024	7	G2P1L1	34	32-34	YES	CLEAR	POSITIVE	2	10.8	8.2	5	2.143	86	A +	SLIUF OF 34-35 WKS WITH AFI 9 CM
50	270813	MAGHABI MAKANDAR	24	08/03/2024	08/10/2024	100	PRIMIGRAVIDA	35	34-36	YES	CLEAR	POSITIVE	2	7.5	21.76	5	1.654	77	B+	SLIUF OF 34-36 WKS
51	297490	POOJA SARANGMATH	22	18/8/2024	22/8/2024	10	G3P1L1	35	34-36	YES	CLEAR	POSITIVE	1	10.7	12.40	5	2.793	84	A +	SLIUF OF 34-36 WKS SIZE
52	1671	SUPRIYA SINGE	22	09/06/2024	09/09/2024	2	G3P1L1	34	32-34	NO	CLEAR	NEGATIVE	2	6.2	10.45	9.7	4.256	77	AB+	SLIUF OF 31-32 WKS SIZE
53	2063	KAVITA CHITAGI	24	09/09/2024	15/9/2024	2	PRIMIGRAVIDA	36	34-36	YES	MSL	POSITIVE	2	8.9	16.12	5	3.254	94	A +	AFI 1 CM, FUNDOPOSTERIOR, CEPHALIC
54	3049	VEENA BADIGER	24	13/9/2024	18/9/2024	4	G3P1L2	34	32-34	YES	CLEAR	POSITIVE	1	11.4	10.96	10	2.2	75	C +	SLIUF OF 32 WKS 5 DAYS POS,AFI 9- 10 CM
55	3354	ASHWINI MATALLI	33	15/9/2024	21/9/2024	5	G4P2L2A1	31	28-30	NO	CLEAR	POSITIVE	1	7.7	12.52	5	1.6	100	B+	SLIUF 29 WKS 3 DAYS WITH A.NHYDROMNIOS
56	4665	PARVATHI BIRADAR	32	17/8/2024	25/8/2024	8.9	G3P1L1D1	26	24-26	YES	CLEAR	POSITIVE	0	10.5	7.4	5	2.3	73	B+	SLIUF OF 24- WKS 0 DAYS
57	6045	LATA BIRADAR	23	29/8/2024	09/06/2024	7	G3P1L1	32	28-30	YES	CLEAR	POSITIVE	0	12.5	11.21	5	2.4	126	C +	SLIUF OF 30-31 WKS 2 DAYS
58	9815	SAVITRI SONVALLI	25	10/01/2024	10/10/2024	3	G3P4L4	36	34-36	YES	CLEAR	POSITIVE	1	9.8	11.2	5	2.8	97	B+	SLIUF OF 34 WKS1 DAY MDD OLIGO

17		22/11/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.5	YES	LBW	0	2	2	0	0	2	2 DAYS	YES	5	9
18		11/06/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.1	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
7		25/10/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.3	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
7		29/10/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2	YES	LBW + RDS	0	0	2	0	1	2 DAYS		YES	3	5
8		28/10/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.1	YES	LBW + MILD RDS	0	0	2	0	2	1 DAY		YES	3	5
11		11/09/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.4	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
8		11/01/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.9	YES	LBW	0	0	1	0	1	2 DAY		YES	3	4
20		15/11/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.6	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	5
9		18/9/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.2	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
16		28/11/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2	NO	NO	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
7		26/11/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.1	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
7		01/04/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.4	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	2
10		01/07/2025	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.3	NO	FOR OBSERVATION	0	0	0	0	0	0	MOTHER SIDE	NO	0	5
16		30/12/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.7	NO	NO	0	0	0	0	0	0	MOTHER SIDE	NO	0	5
21		01/12/2025	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.6	YES	LBW + MILD RDS	5	3	0	3	5	5 DAYS		YES	10	21
7		12/12/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.6	YES	LBW	5	3	0	3	5	5 DAYS		YES	10	21
9		28/8/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1	YES	ELBW	1	0	0	0	0	BABY DIED		NO	0	1
7		28/8/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.7	YES	LBW + RDS	0	2	2	0	3	2 DAYS		YES	5	9
7		02/12/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2	NO	FOR OBSERVATION	0	0	0	0	0	NO		NO	0	2
8		25/6/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.5	YES	LBW + MILD RDS	2	0	0	2	2	1 DAY		YES	5	7
7		07/07/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.6	NO	FOR OBSERVATION	0	0	0	0	0	NO		NO	0	5
7		24/6/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.3	YES	PRE TERM+LBW	2	0	0	2	2	3 DAYS		YES	5	9
7		06/07/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.3	YES	PRE TERM+LBW	5	2	3	0	2	2 DAY		YES	5	14
12		07/12/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.1	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	3
20		05/05/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.8	YES	LBW	0	2	2	0	1	1 DAY		YES	3	5
10		14/12/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.5	YES	LOW + RDS	4	2	0	0	2	1 DAY		YES	5	9
8		20/12/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.2	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	2
1		16/12/2024	VAGINAL	IV 1 DAY	2	FEMALE	1.5	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	4
8		02/07/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.68	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	2
10		02/08/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.2	YES	PRE TERM+LBW	2	2	3	0	3	2 DAYS		YES	5	12
8		02/08/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.9	YES	LBW + MILD RDS	0	1	2	0	2	2 DAYS		YES	5	7
7		02/06/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.7	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	2
2		20/2024	VAGINAL	IV 2 DAYS	2	MALE	2.3	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	2
10		20/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.9	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	2
9		11/06/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.5	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	2
15		09/10/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE		NO	0	2
25		28/7/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.4	YES	PRE TERM+LBW	0	2	2	2	3	3 DAYS		YES	5	10
9		03/02/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.5	YES	LBW	0	2	2	0	2	2 DAY		YES	5	8
10		03/06/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.2	NO	FOR OBSERVATION	0	0	0	0	0	NO		NO	0	2
4		09/10/2024	LSCS	IV STAT DOSE	2	MALE	2.1	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
4		07/07/2024	LSCS	IV STAT DOSE	2	MALE	2.5	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
7		28/10/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.7	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	2
9		03/04/2025	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.9	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
8		22/2/2025	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2.3	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	2
1		28/1/2025	LSCS	IV STAT DOSE	2	FEMALE	2.6	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
1		28/1/2025	LSCS	IV 1 DAY	2	MALE	2.6	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
1		30/1/2025	LSCS	IV 3 DOSES	2	FEMALE	2.9	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
1		02/04/2025	LSCS	IV STAT DOSE	2	FEMALE	2.2	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
1		02/08/2025	LSCS	IV 1 DAY	2	MALE	2.5	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	5
10		09/09/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.3	YES	LBW	3	1	2	0	2	2 DAYS		YES	5	10
7		30/9/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.3	NO	NO	0	0	0	0	0	MOTHER SIDE		NO	0	2
8		15/2/2025	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.3	YES	LBW	2	2	1	0	3	2 DAYS		YES	5	12

59	3375	ASHWINI KASAR	26	10/06/2024	13/10/2024	8	G2P1L1	32	28-30	YES	CLEAR	POSITIVE		0	11.4	9.3	5	3.1	88	A+	SLIUF OF 27 WKS 3 DAYS WITH BREECH				
60	31778	SUREKHA PAWAR	28	18/10/2024	26/10/2024	5	G2P1L1	35	34-36	YES	CLEAR	POSITIVE		0	10.2	9.3	5	3.2	89	B+	SLIUF OF 27 WKS 6 DAYS				
61	31820	VIJAYALAXMI KAMBALI	21	18/10/2024	28/10/2024	8	G1P1L1	35	34-36	YES	CLEAR	POSITIVE		1	11.5	10.2	5	2.7	114	O+	SLIUF OF 34 WKS WITH OLIGO				
62	32223	RENUKA GODEKAR	27	22/10/2024	11/05/2024	1.5	G4P3L3	35	34-36	YES	CLEAR	POSITIVE		0	10.28	8.2	5	3.2	84	O+	SLIUF OF 35 WKS SIZE				
63	32092	RESHAMA MOMIN	26	21/10/2024	11/03/2024	2	G3P2L2	35	30-32	YES	CLEAR	POSITIVE		0	11	5.4	5	3.4	114	B+	SLIUF OF 33WKS 3 DAYS SIZE				
64	4399	SUDHAMANI	20	24/10/2024	30/10/2024	3	G2P1L1	36	34-36	YES	CLEAR	POSITIVE		1	13.1	16	5	4.2	84	B+	SLIUF OF 34 WKS 1 DAY				
65	32172	NAKKUSA VALKAR	25	26/10/2024	30/11/2024	4	G6P3L3A2	36	34-36	YES	CLEAR	POSITIVE		1	13.7	7.0	5	3.8	82	O+	SLIUF 29 WKS 4 DAYS				
66	32734	MAYAVVA AMBALI	20	29/10/2024	11/02/2024	3	G2P1L1	35	34-36	NO	CLEAR	POSITIVE		0	11.7	7.2	5	3.4	80	A+	S				
67	4601	RIYANA	20	09/09/2024	20/9/2024	6.5	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE		1	10.8	9.4	5	3.8	76	B+	SLIUF OF 33 WKS				
68	4628	MEERA MOPGOL	27	17/11/2024	20/7/2024	8	G2P1L1	35	32-34	NO	CLEAR	POSITIVE		0	10.7	9.7	5	2.8	92	A+	SLIUF OF 31 WKS 5DAYS				
69	5435	MALLAMMA WAGGAR	18	19/11/2024	28/11/2024	8.9	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE		1	12.5	10.6	5	3.1	91	A+	SLIUF OF 34 WKS 4 DAYS				
70	9097	HAMEDABEGUM	28	29/12/2024	01/06/2025	3	G4P2L2A1	36	34-36	NO	CLEAR	POSITIVE		0	11.2	10	5	3.2	78	O+	SLIUF OF 34 WKS				
71	9234	SANAKAUSAR	22	27/12/2024	30/12/2024	1	PRIMIGRAVIDA	35	34-36	YES	CLEAR	POSITIVE		0	11.1	9.3	5	3.2	86	B+	SLIUF OF 34-36 WKS				
72	18093	SAVITA KANNUR	26	14/12/2024	17/12/2024	3	G3P1L1A1	35	34-36	YES	CLEAR	POSITIVE		0	11.8	8.83	5	3.23	90	B+	SLIUF OF 34 WKS 5 DAYS				
73	19682	POOJA LAMANI	21	24/12/2024	28/12/2024	5	G2P1L1	28	28-30	YES	CLEAR	POSITIVE		0	10.9	3.96	5	2.09	90	B+	SLIUF OF GA 28 WKS 3 DAYS WITH OLIGO				
74	1210	HANAMAVVA	27	01/05/2025	02/02/2025	10	G5P3L2D1A1	31	30-32	YES	CLEAR	POSITIVE		0	11.1	10.39	20.1	3.79	99	O+	SLIUF OF GA 31 WKS 3 DAYS WITH OLIGO				
75	40556	PRIYANKA HIREMATH	24	20/8/2024	22/8/2024	2	G2P1L1	29	28-30	YES	CLEAR	POSITIVE		1	10.3	8.77	6	3.5	78	O+	SLIUF OF GA 30 WKS 4 DAYS				
76	40744	SADAF JAMADAR	20	21/8/2024	09/07/2024	5	PRIMIGRAVIDA	36	30-32	NO	CLEAR	POSITIVE		0	14.1	15.53	5	1.588	80	B+	SLIUF OF GA 33-34 WKS WITH OLIGO				
77	3418	KAVERI SHIVANAGI	21	02/05/2025	15/2/2025	24	G3P2L2	35	32-34	NO	CLEAR	POSITIVE		0	10.7	7.8	5	2.82	73	O+	SLIUF OF GA 33 WKS 3 DAYS WITH OLIGO				
78	139350	MANJULA	27	18/4/2024	05/06/2024	6	PRIMIGRAVIDA	31	30-32	YES	CLEAR	POSITIVE		0	13.6	4.6	6.1	2.3	80	A+	SLIUF OF 30 WKS 4 DAYS				
79	238904	GEETA	24	07/01/2024	13/7/2024	4.5	G4P2L2A1	35	30-32	NO	CLEAR	POSITIVE		0	10.8	9.5	7.4	3.23	84	B+	SLIUF OF GA 35 WKS				
80	221045	MUNZAREEN	27	18/6/2024	07/07/2024	33	G3P2L2	32	28-30	NO	CLEAR	POSITIVE		1	11.4	8.77	43.8	5.33	80	O+	SLIUF OF 30-31 WKS WITH OLIGO				
81	80909	RUKASANA	23	06/01/2024	06/12/2024	3	G2P1L1	30	28-30	NO	CLEAR	POSITIVE		0	11.6	13.1	22.1	4.996	77	B+	SLIUF OF GA 28WKS				
82	2863	ASHWINI KAMAGOND	23	07/01/2024	07/05/2024	4	G2P1L1	32	30-32	NO	CLEAR	POSITIVE		1	11.4	9.3	8.2	3.231	78	B+	SLIUF OF GA 30-31 WKS				
83	24841	ANNPURNA	21	15/4/2024	23/4/2024	3	G2P1L1	30	30-32	NO	CLEAR	POSITIVE		0	11.1	11.8	9.3	1.423	88	B+	SLIUF OF GA 30WKS 3 DAYS				
84	174271	SALMA KODEKAL	24	12/03/2024	24/12/2024	6	PRIMIGRAVIDA	30	34-36	NO	CLEAR	POSITIVE		0	8.2	14.6	6	2.332	161	A+	SLIUF OF GA 30-31 WKS WITH CEPHALIC PRESENTATION				
85	193367	BORAMMA HUGAR	32	13/12/2024	15/12/2024	2	G2P1L1	36	34-36	NO	CLEAR	POSITIVE		0	9.2	13.52	6	4.109	105	A+	SLIUF OF GA 35-36 WKS				
86	196218	NAGAMMA YADRAMI	22	15/12/2024	19/12/2024	5	PRIMIGRAVIDA	33	32-34	YES	CLEAR	POSITIVE		1	12.8	12.4	6.2	5.3	82	A+	SLIUF OF GA OF 30 WKS 5 DAYS WITH OLIGO				
87	1392	POOJA RATHOD	22	31/1/2025	02/02/2025	8	G2P1L1	35	32-34	NO	CLEAR	POSITIVE		2	9.5	14.3	6.2	2.960	112	B+	SLIUF OF GA 35 WKS 6 DAYS WITH POLY				
88	1300	AFNAN GUBYAD	22	29/1/2025	15/2/2025	8	PRIMIGRAVIDA	29	28-30	NO	CLEAR	POSITIVE		0	10.2	11.2	6.8	3.21	84	A+	SLIUF OF GA 30 WKS				
89	1113	DANAMMA NANDIKOL	19	01/01/2025	15/1/2025	2.5	PRIMIGRAVIDA	34	30-32	NO	CLEAR	POSITIVE		0	10.8	4.5	9.1	2.343	80	B+	SLIUF OF GA 32-33 WKS				
90	0016	ROOPA PUJARI	21	01/01/2025	01/10/2025	3	PRIMIGRAVIDA	32	30-32	NO	CLEAR	POSITIVE		0	10	8.3	20.1	3.23	90	A+	SLIUF OF GA 32 WKS 1 DAY				
91	57274	RESHAMA RATHOD	24	19/2/2024	23/2/2024	2	PRIMIGRAVIDA	36	34-36	NO	CLEAR	POSITIVE		0	13.4	20.87	8.23	4.347	80	O+	SLIUF OF GA 35-36 WKS				
92	1426	SHARADA BIRADR	22	02/11/2025	15/2/2025	5	G2P1L1	33	32-34	NO	CLEAR	POSITIVE		0	10	6.9	7.2	3.12	80	O+	SLIUF OF GA 33 WKS				
93	32873	DEVAMMA	21	28/10/2024	01/01/2024	4	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE		1	10.2	9.4	5	2.8	90	B+	SLIUF OF GA 34WKS 4 DAYS WITH POLY				
94	41036	SANIYA GATE	20	22/8/2024	25/8/2024	4	PRIMIGRAVIDA	35	34-36	NO	CLEAR	POSITIVE		0	12	10.2	5	1.998	95	O+	SLIUF OF GA 35-36 WKS				
95	313151	SAVITRI CATTER	32	28/8/2024	07/03/2024	4	PRIMIGRAVIDA	27	26-28	NO	CLEAR	POSITIVE		0	10.7	15.55	6.8	3.3	80	A+	SLIUF OF GA 26-27 WKS WITH MILD OLIGO				
96	1176	NAGRATHANA KARIHOL	30	22/2/2025	25/2/2025	6	GA6 3	29	26-28	NO	CLEAR	POSITIVE		0	9.2	14.70	7.1	1.212	99	A+	SLIUF OF 28 WKS 1 DAY				
97	0909	NEEHA MULLA	25	28/2/2025	03/02/2025	10	G3P2L2	33	30-32	NO	CLEAR	POSITIVE		0	8.9	8.61	9.2	1.099	105	B+	SLIUF OF GA 33 WKS 2 DAYS				
98	2289	LAXMIBAI PUJARI	28	09/10/2024	15/8/2024	3	G5P2L1D1A2	35	34-36	NO	CLEAR	POSITIVE		0	10.8	8.4	7.3	2.12	86	B+	SLIUF OF GA 35-36 WKS				
99	1828	SUMA MALJI	27	09/07/2024	13/8/2024	2.5	PRIMIGRAVIDA	36	34-36	NO	CLEAR	POSITIVE		1	10	9.8	8.1	2.31	90	B+	SLIUF OF GA 35-36 WKS				
100	9579	PUNAM SALUNKE	24	22/10/2024	30/10/2024	15	G2A1	32	30-32	NO	CLEAR	POSITIVE		1	9.8	9.24	7.0	1.077	123	O+	SLIUF OF GA 32 WKS				
101	0699	JUBEDA	23	24/2/2025	28/2/2025	6	G3A2	35	34-36	NO	CLEAR	POSITIVE		0	13.1	94	8.1	3.52	86	B+	SLIUF OF GA 35-36 WKS				
102	1534	PARVEEN PATEL	25	15/2/2025	18/2/2025	3	G3P1L1A1	35	34-36	YES	CLEAR	POSITIVE		0	10.5	8	13.3	4.031	88	O+	SLIUF OF GA 34 WKS				
103	280418	DEEPA RAJU	29	28/1/2025	02/04/2025	2	G4P1L1A2	35	34-36	YES	CLEAR	POSITIVE		2	12.3	6.2	7.8	1.342	95	B+	S				
104	281413	JYOTI BAJANTRI	19	28/1/2025	02/03/2025	4	PRIMIGRAVIDA	36	34-36	NO	CLEAR	POSITIVE		2	10.3	4.8	6.1	2.381	81	O+	SLIUF OF GA 36WKS 3 DAYS				
105	0654	ASHWINI BIRADAR	24	29/1/2025	02/05/2025	3.5	PRIMIGRAVIDA	36	34-36	YES	CLEAR	POSITIVE		2	9.9	5.1	7.5	3.1	80	B+	SLIUF OF GA 35-36 WKS				
106	1677	SHAHEEN MULLA	25	02/04/2025	02/10/2025	1.5	PRIMIGRAVIDA	36	34-36	NO	CLEAR	POSITIVE		2	10	3.48	5	1.24	80	A+	SLIUF OF GA 36 WKS				
107	81329	SHRIDEVI WALIKAR	27	02/08/2025	14/2/2025	3	G3P2L1	36	34-36	NO	CLEAR	POSITIVE		0	10.8	12.3	8.4	2.312	86	B+	SLIUF OF GA 35-36 WKS				
108	1644	LAXMI KOLMANI	28	30/8/2024	16/9/2024	4	G3P2L2	35	32-34	NO	CLEAR	POSITIVE		0	1.6	5.59	6	1.8	90	O+	SLIUF OF GA 33-34 WKS				
109	5812	INDIRA BANSODE	34	24/9/2024	19/09/2024	3	G4P2F3L3	35	34-36	YES	CLEAR	POSITIVE		0	12.1	9.27	10.1	5.8	80	B+	SLIUF OF GA 35-36 WKS				
110	1468	BHAGYSHREE	21	02/08/2025	25/2/2025	2	PRIMIGRAVIDA	35	32-34	NO	CLEAR	POSITIVE		0	11.6	4.26	8.3	4.236	79	A+	SLIUF OF GA 32-34 WKS				

ADMISSION TO DELIVERY IN TERM	A(DAYS)	DATE OF DELIVERY	MODE OF DELIVERY	ANTIBIOTICS	GRP5	FOETAL SEX	WEIGHT(KGS)	NICU ADMISSION	INDICATIOIN FOR NICU	CPAP(DAYS)	HFNC(DAYS	O2HOOD	NASAL PRONGS	ROOM AIR	MOTHER SIDE	ANTIBIOTICS RECIVED	DURATION OF ANTIBIOTICS(DAYS)	DURATION OF STAY(DAYS)
	1	07/07/2023	LSCS	IV STAT DOSE	2	FEMALE	1.6	YES	PRE TERM CARE + RDS	1	3	0	0	2	2 DAYS	YES	5	10
	1	07/08/2023	LSCS	IV 2 DAYS	2	FEMALE	1.9	YES	RDS	0	0	7	3	6	3 DAYS	YES	5	20
	38	21/7/2023	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.1	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	2	15/6/2023	LSCS	IV 2 DAYS	2	MALE	1.6	YES	PRE TERM + RDS	3	5	0	3	2	2 DAYS	YES	5	17
	22	08/08/2023	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2	YES	PRE TERM	0	2	0	0	2	NO	YES	1	1
	1	27/7/2023	VAGINAL	IV STAT DOSE	2	MALE	2.3	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	0-0-23	VAGINAL	IV STAT DOSE	2	FEMALE	1.9	YES	LSW	3	2	1	0	1	MOTHER SIDE	YES	7	8
	1	20/7/2023	LSCS	IV STAT DOSE	2	FEMALE	1.9	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	08/11/2023	VAGINAL	IV 1 DAY	2	MALE	1.4	YES	LBW + RDS	2	3	3	0	1	1 DAY	YES	7	10
	1	11/8/23	LSCS	IV STAT DOSE	2	MALE	2.5	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	09/01/2023	LSCS	IV STAT DOSE	2	FEMALE	1.4	YES	LSW	0	0	0	0	0	NO	NO	0	1
	1	09/08/2023	VAGINAL	IV STAT DOSE	2	FEMALE	2.2	YES	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	2
	28	28/9/2023	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	2	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	1
	1	09/07/2023	LSCS	IV STAT DOSE	2	MALE	1.9	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	26/8/2023	LSCS	IV STAT DOSE	2	MALE	2.1	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	25/10/2023	LSCS	IV STAT DOSE	2	FEMALE	2.2	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	29/11/2023	LSCS	IV STAT DOSE	2	MALE	2	YES	RDS	0	2	0	4	4	2 DAYS	YES	5	12
	1	26/9/2023	LSCS	IV 1 DAY	2	MALE	2.5	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	31/12/2023	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1	YES	ELBW +RDS	1	0	0	0	0	NO	NO	0	1
	1	24/2/2024	LSCS	IV 1 DAY	2	FEMALE	1.9	YES	LATE PRE TERM + RDS	0	2	0	2	1	MOTHER SIDE	YES	5	8
	7	20/1/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.3	YES	MODERATE PRETERM +RDS	2	2	2	0	2	MOTHER SIDE	YES	10	12
	1	18/1/2024	LSCS	IV STAT DOSE	2	FEMALE	2.6	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	14/2/2024	LSCS	IV STAT DOSE	2	MALE	1.8	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	03/08/2024	LSCS	IV STAT DOSE	2	FEMALE	1.6	YES	LSW	2	2	3	0	2	3 DAYS	YES	7	13
	1	14/3/2024	VAGINAL	IV STAT DOSE	2	FEMALE	2.7	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	26/3/2024	VAGINAL	IV STAT DOSE	2	MALE	1.8	YES	PRE TERM+LBW	0	0	3	3	5	1 DAY	YES	5	12
	1	04/12/2024	VAGINAL	IV STAT DOSE	2	FEMALE	2.5	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	05/09/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.6	YES	LSW	2	2	2	0	2	2 DAYS	NO	0	2
	1	26/5/2024	LSCS	IV STAT DOSE	2	MALE	2	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	26/5/2024	LSCS	IV STAT DOSE	2	MALE	2.2	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	05/12/2024	LSCS	IV STAT DOSE	2	FEMALE	1.3	YES	EARLY PREVTERM+LBW	3	0	0	3	3	3 DAYS	YES	5	12
	1	06/12/2024	LSCS	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.3	YES	EARLY PREVTERM+LBW	3	2	0	3	3	4 DAYS	YES	10	15
	2	06/08/2024	LSCS	IV 2 DAYS	2	FEMALE	1.1	YES	EARLY PREVTERM+LBW	3	0	0	0	0	DAMA	YES	3	3
	1	06/08/2024	VAGINAL	IV 1 DAY	2	FEMALE	1	YES	EXTRIMELY PRE TERM+VLBW	1	0	0	0	0	BABY DIED	YES	1	1
	1	11/9/2024	VAGINAL	IV STAT DOSE	2	FEMALE	1.8	YES	PRE TERM +RDS+LBW	3	2	0	2	3	4 DAYS	YES	10	14
	7	28/7/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	2.1	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	3
	1	26/6/2024	VAGINAL	IV STAT DOSE	2	FEMALE	2.6	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
01/01/1900		07/01/2024	VAGINAL	IV 2 DAYS	2	MALE	1	YES	ELBW +RDS	5	5	0	0	3	5 DAYS	YES	10	18
	1	21/2/2024	VAGINAL	IV 1 DAY	2	MALE	2.9	NO	N/O	0	0	0	0	0	NO	NO	0	2
	1	07/07/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1	YES	BABY DIO NOT CRIED AFTER BIRTH	0	0	0	0	0	NO	NO	0	1
	1	07/07/2024	LSCS	IV STAT DOSE	2	MALE	2.6	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	07/08/2024	LSCS	IV 1 DAY	2	FEMALE	1.6	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	14/7/2024	LSCS	IV STAT DOSE	2	MALE	1.9	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	2
	21	08/11/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	FEMALE	1.5	YES	LSW	2	2	1	0	2	1 DAY	YES	5	8
	2	31/7/2024	LSCS	IV 2 DAYS	2	FEMALE	1.2	YES	LBW + RDS	9	5	0	5	6	8 DAYS	YES	10	33
	1	26/7/2024	VAGINAL	IV 1 DAY	2	MALE	2	YES	RDS	0	0	2	2	2	2 DAYS	YES	5	7
	1	26/7/2024	LSCS	IV STAT DOSE	2	FEMALE	2	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	08/04/2024	VAGINAL	IV 2 DAYS + ORAL 2 DAYS	2	FEMALE	2.1	NO	N/O	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	08/03/2024	LSCS	IV STAT DOSE	2	FEMALE	2.8	NO	N/O	0	0	0	0	0	NO	NO	0	5
	1	18/8/2024	LSCS	IV STAT DOSE	2	FEMALE	2.1	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	5
	1	08/06/2024	VAGINAL	IV STAT DOSE	2	FEMALE	2	NO	FOR OBSERVATION	0	0	0	0	0	MOTHER SIDE	NO	0	2
	1	08/08/2024	LSCS	IV STAT DOSE	2	MALE	1.9	YES	LBW + RDS	2	0	2	0	1	1 DAY	YES	5	7
	1	14/9/2024	VAGINAL	IV 1 DAY	2	MALE	1.9	YES	RDS	0	0	2	0	1	2 DAYS	YES	5	5
	1	16/9/2024	VAGINAL	IV STAT DOSE	2	FEMALE	1.3	YES	RDS SECONDARY TO PREMATURITY	2	0	0	4	1	2 DAYS	YES	5	9
	20	08/04/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.9	NO	N/O	0	0	0	0	0	M	NO	0	1
	8	08/07/2024	VAGINAL	IV 2 DAYS+ORAL 5 DAYS	1	MALE	1.4	YES	LBW + RDS	0	2	2	0	2	2 DAYS	YES	5	8

BLDE

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The Constituent College

SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA

BLDE (DU)/IEC/ 893/2022-23 10/4/2023

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this University met on **Saturday, 18th March, 2023 at 11.30 a.m. in the CAL Laboratory, Dept. of Pharmacology,** scrutinizes the Synopsis/ Research Projects of Post Graduate Student / Under Graduate Student /Faculty members of this University /Ph.D. Student College from ethical clearance point of view. After scrutiny, the following original/ corrected and revised version synopsis of the thesis/ research projects has been accorded ethical clearance.

TITLE: "PROPHYLACTIC ANTIBIOTIC TREATMENT DURATION IN PRETERM PREMATURE RUPTURE OF MEMBRANES: 7 DAYS VERSUS UNTIL DELIVERY".

NAME OF THE STUDENT/PRINCIPAL INVESTIGATOR: DR.GUDDAD SHABANA HAMEED

NAME OF THE GUIDE: DR.SHOBHA SHIRAGUR, PROFESSOR, DEPT. OF OBSTETRICS AND GYNAECOLOGY.

Dr. Santoshkumar Jeevangi
Chairperson
IEC, BLDE (DU),
VIJAYAPURA

Chairman,
Institutional Ethical Committee,
BLDE (Deemed to be University)
Vijayapura

Dr.Akram A. Naikwadi
Member Secretary
IEC, BLDE (DU),
VIJAYAPURA

MEMBER SECRETARY
Institutional Ethics Committee
BLDE (Deemed to be University)
Vijayapura-586103. Karnataka

Following documents were placed before Ethical Committee for Scrutinization.

- Copy of Synopsis/Research Projects
- Copy of inform consent form
- Any other relevant document

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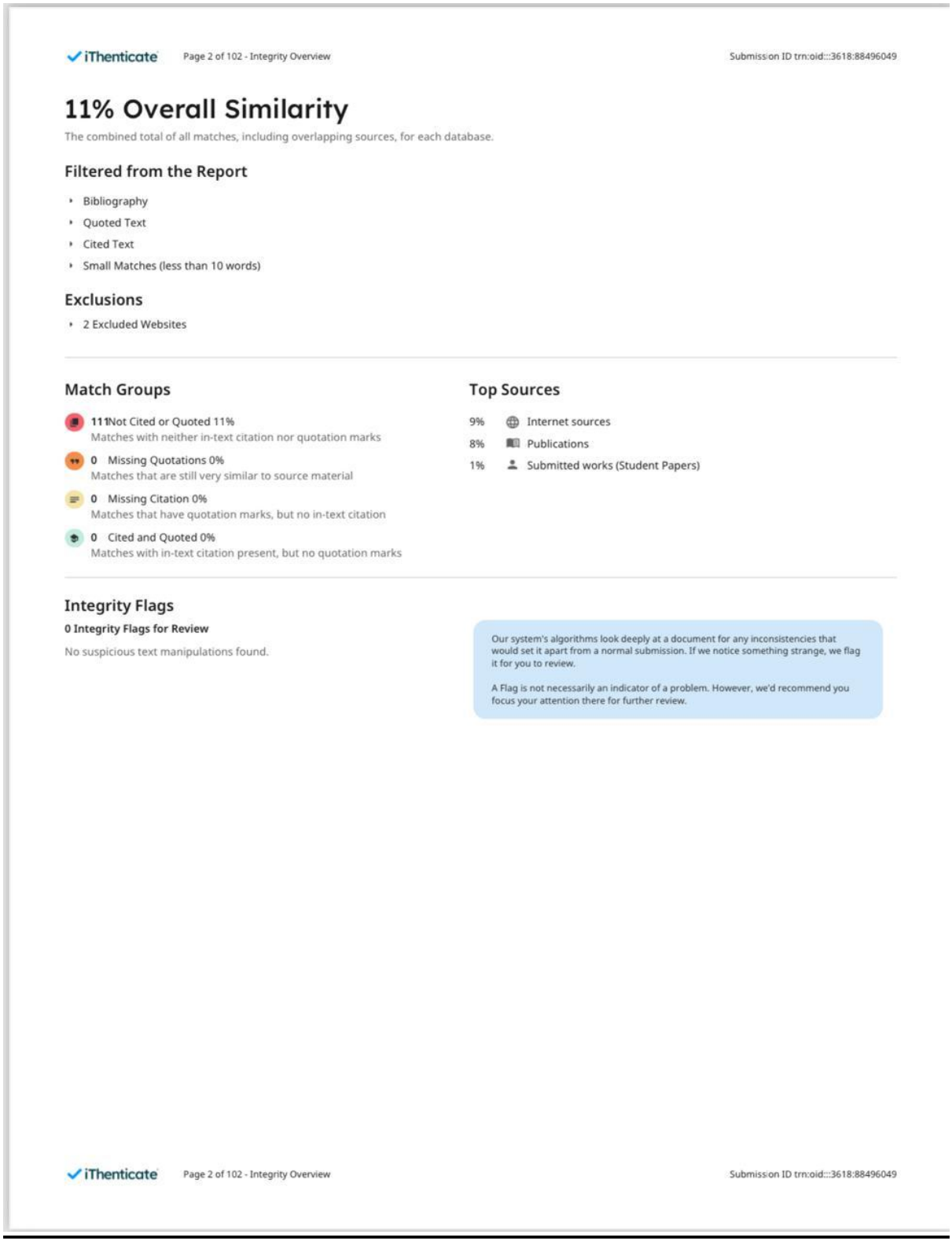

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Exclusions

- 2 Excluded Websites

Match Groups

- 111 Not Cited or Quoted 11%
  Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%
  Matches that are still very similar to source material
- 0 Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

- 9% Internet sources
- 8% Publications
- 1% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

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