

# Parturition premature imminens management : A review article

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## Abstract

**Introduction :** Parturition Premature Imminens (PPI) or the threat of premature birth is the presence of uterine contractions accompanied by cervical changes in the form of dilatation and effacement before 37 weeks of gestation and can cause premature birth. Premature birth is a problem with a high prevalence in the world and is a challenge for doctors, especially obstetricians, to find out the causes and prevention of premature birth. The main problem with premature birth is the lack of success in its management. **Discussion :** The mechanism of preterm labor is not different from that of term labor, namely uterine contractility, cervical ripening, and membrane rupture. The fundamental difference is that the activation process in term labor is part of the physiological activation, whereas in preterm labor it is pathological. The usual path of delivery can be seen based on anatomy, biochemistry, immunology, endocrinology, and clinical symptoms. Prevention should be done in PPI management, as Performed prenatal care, diet, administration of vitamins, hygiene, Activity (work, coitus) is restricted in patients with a history of preterm labor, Immediate treatment if there is infection or comorbidities, Abdominal surgery and dental procedures are postponed until delivery. Special condition as Patients with multiple pregnancies should be on bed rest from the 28th to the 36th week. Fibromyoma, if there are complaints, can be treated with bed rest and analgesics. Surgery is avoided as much as possible. Placenta previa is treated with complete bed rest and blood transfusions to delay the birth of the baby until it is viable. Incompetent cervix should be sutured in the first part of the second trimester as long as all requirements are met. Elective SC and repeat is only done if it is believed that the baby is old enough. Medicines can be used to stop labour. **Conclusion :** In general, the management of preterm labour includes the administration of a single dose of corticosteroid in women 24-34 weeks' gestation with a risk of delivery within 7 days. In addition, magnesium sulphate can reduce the severity and risk of cerebral palsy in infants when born before 32 weeks of gestation. First-line tocolytics such as beta adrenergic agonists, calcium channel blockers, NSAIDs can be given for prolongation of pregnancy up to 48 hours (administration of antenatal steroids).

**Keywords :** PPI, Management, birth, Disease

## 1.1 Introduction

Parturition Premature Imminent (PPI) or the threat of premature birth is the presence of uterine contractions accompanied by cervical changes in the form of dilatation and effacement before 37 weeks of gestation and can cause premature birth. Premature birth is a problem with a high prevalence in the world and is a challenge for doctors, especially obstetricians, to find out the causes and prevention of premature birth. The main problem with premature birth is the lack of success in its management (Hanger et al, 2016).

ACOG defines preterm birth as delivery that occurs between the gestational age of more than 20 weeks and less than 37 weeks from the first day of the last menstrual period. The POGI Geomaterial Medical Association in Semarang in 2005 determined that preterm labour is delivery that occurs at 22-37 weeks of gestation. According to Wibowo (1997), preterm labour is regular uterine contractions after 20 weeks of gestation and before 37 weeks, with contraction intervals of 5 to 8 minutes or less and accompanied by one or more of the following signs: (1) progressive cervical changes (2) cervical dilation of 2 centimetres or more (3) cervical effacement 80 percent or more (Cook et al, 2000; Hanger et al, 2016).

Preterm delivery is defined as delivery that occurs at less than 37 weeks' gestation after being considered viable. Preterm labour can be caused by maternal, fetal, paternal, environmental, and genetic factors. The mechanism of preterm labour is no different from term delivery. Prediction of preterm labour can be done by examining cervical length with transvaginal ultrasonography, fetal fibronectin, and IGF binding protein-1 or placental alpha-microglobulin-1 (PAMG-1). In infants born prematurely, the morbidity and mortality rates increase due to the immaturity of the body's organs, especially in infants born weighing <2500 grams. Anoxia and respiratory distress (RDS) are also more common in infants born prematurely (Abbassi-Ghanavati, 2009).

Aetiology of PPI might Iatrogenic and Spontaneous. The Gestational age might between Preterm (32-36 weeks), Very preterm (28-32 week) and Extremely preterm (20-27 weeks). Baby's birth weight might variance between LBW (1500-2500 gr), LBW (1000-1500 gr) and BBLER (<1000 gr) (Cook et al, 2000; Abbassi-Ghanavati et al, 2009) . Aim of this study is to understand management of Parturition Premature Imminent.

## 1.2 Discussion

The mechanism of preterm labour is not different from that of term labour, namely uterine contractility, cervical ripening, and membrane rupture. The fundamental difference is that the activation process in term labour is part of the physiological activation, whereas in

preterm labour it is pathological. The usual path of delivery can be seen based on anatomy, biochemistry, immunology, endocrinology, and clinical symptoms. Activation of uterine components can be synchronous and asynchronous. Synchronous activation will lead to spontaneous preterm labour; whereas asynchronous activation gives rise to different phenotypes. For example, membrane activation causes preterm PROM, cervical activation causes cervical insufficiency, and myometrial activation causes preterm uterine contractions (Word et al, 2007; Agrawal V dan Hirsch 2012).

Aetiology and Risk Factors divided into 2, namely, Iatrogenic consist of Mother's condition, as Severe preeclampsia and eclampsia, Antepartum haemorrhage (placenta previa and placental abruption), Chorioamnionitis and Severe heart disease or severe lung/kidney disease. Second, Fatal state are Fatal distress. (anaemia, hypoxia, acidosis or fatal heart failure), Intrauterine infection, Fatal growth retardation (IUGR), Rhesus isoimmunization. Cord entanglement in monochorionic twins (van der Burg B dan van der Saag 1996).

Spontaneous happen due to many risk factors, as Idiopathic, Pregnancy history (prematurity, premature rupture of membranes), The distance between pregnancies is too close, Premature rupture of membranes, Cervical incompetence, Placental insufficiency, Uterine overdistention and Pregnant with twins. Trimester bleeding, Uterine abnormalities, Trauma, Medical disease as Hypertension, SLE, Restrictive lung disease, Hyperthyroid, DM, Heart and kidney disease, Hydramnios, and Congenital abnormalities. Other factors such as Low socioeconomic, Smoke, Infection, Poor antenatal care is also risk factor for PPI (Herb and Nilson 2006).

In establishing a diagnosis, it is necessary to carry out several stages, including: History: gestational age, risk factors, Early symptoms of PPI, Signs of PPI, Creasy and Heron's Criteria. Uterine contractions 4x in 20 minutes accompanied by one of the following conditions, Rupture of the amniotic sac, Opening > 2 cm, >50% depletion, Vaginal discharge increase and Cervical changes (Romero et al, 2006).

### **1.2.1 Criteria and Prevention**

Based on 1997 ACOG Criteria, consist of Contractions that occur with a frequency of four times in 20 minutes or eight times in 60 minutes plus progressive changes in the cervix, Cervical dilatation of more than 1 cm, and Cervical effacement of 80% or more. Based on Criteria Mansoor, Regular uterine contractions at least every 3 to 5 minutes for 45 seconds for at least 2 hours, In the active phase, the intensity and frequency of contractions increase as the patient performs activities. Ask and look for symptoms that include major and minor risk factors, Gestational age between 20 to 37 weeks, Estimated fetal weight according to

gestational age between 20 to 37 weeks. Abnormal fetal presentation is more common in PPI (Yosidha et al, 2002; Meneguel et al, 2003).

Prevention should be done in PPI management, as Performed prenatal care, diet, administration of vitamins, hygiene, Activity (work, coitus) is restricted in patients with a history of preterm labour, Immediate treatment if there is infection or comorbidities, Abdominal surgery and dental procedures are postponed until delivery. Special condition as Patients with multiple pregnancies should be on bed rest from the 28th to the 36th week. Fibromyoma, if there are complaints, can be treated with bed rest and analgesics. Surgery is avoided as much as possible. Placenta previa is treated with complete bed rest and blood transfusions to delay the birth of the baby until it is viable. Incompetent cervix should be sutured in the first part of the second trimester as long as all requirements are met. Elective SC and repeat is only done if it is believed that the baby is old enough. Medicines can be used to stop labor (Ganchimeg et al, 2012)

### **1.2.2 Management of PPI :**

Management in cases of imminent preterm labour can be in the form of conservative management and termination. Indications for Conservative Management, if (Despandhe et al, 2013):

- Gestational age 24-34 weeks
- Dilation <3 cm
- No intrauterine infection, preeclampsia, or active bleeding
- No fetal distress
- intact membranes

Indications for Termination Management, if (Despandhe et al, 2013):

- Gestational age <24 weeks or >34 weeks
- Dilation >3cm
- There are signs of intrauterine infection, preeclampsia, or active bleeding
- There is fetal distress
- IUFD
- IUGR
- ruptured membranes

#### **1.2.2.1 Conservative management (Crane et al, 2008; Kumari et al, 2017) :**

- o Total bed rest

### o Hydration

1.2.2.2. Pharmacology (Crane et al, 2008; Kumari et al, 2017) :

### o TOCOLITIK

- Given within the first 48 hours
- Nifedipine (initial 20 mg, followed by 3x10 mg) orally
- 2-agonist
- Terbutaline sulphate 1000 g (2 ampoules) in 500 ml NaCl 0.9% until the contractions disappear
- Salbutamol 10 mg IV in 1 liter of 0.9% NaCl until contractions disappear
  - MgSO<sub>4</sub> 4-6 g IV

### o Corticosteroids

- Lung maturation

Dexamethasone 6 mg IM every 12 hours 4 times

Betamethasone 12 mg IM every 24 hours twice a day

### o ANTIBIOTICS (prophylaxis)

Ampicillin 2 g IV every 6 hours

- Penicillin G 2 million units IV every 6 hours
- Clindamycin 3x300 mg PO for 7 days

## 1.3 Conclusion

In general, the management of preterm labour includes the administration of a single dose of corticosteroid in women 24-34 weeks' gestation with a risk of delivery within 7 days. In addition, magnesium sulphate can reduce the severity and risk of cerebral palsy in infants when born before 32 weeks of gestation. First-line tocolytics such as beta adrenergic agonists, calcium channel blockers, NSAIDs can be given for prolongation of pregnancy up to 48 hours (administration of antenatal steroids).

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