

# Sepsis in the Obstetric Client

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## KEYWORDS

- Maternal sepsis • Puerperal infections • PROM • Mastitis • Endometritis
- Urinary tract infections

## KEY POINTS

- When caring for obstetric patients, it is important to identify the stages of prenatal (antepartum), labor and delivery (intrapartum), and postpartum care.
- During the initial weeks of pregnancy, bodily changes can ultimately affect the health of both the mother and the newborn.
- Identification of the signs and symptoms associated with sepsis in obstetric patients may be difficult, as pregnant patients goes through bodily changes.
- Most postpartum infections take place after hospital discharge and in the absence of postnatal follow-up. Consequently, some cases of puerperal infections remain undiagnosed and unreported.

According to the World Health Organization (WHO), maternal sepsis is “a life-threatening condition defined as organ dysfunction resulting from infection during pregnancy, childbirth, post-abortion, or postpartum period.”<sup>1</sup> Maternal sepsis is the third most common direct cause of maternal mortality following maternal hemorrhage and maternal hypertension.<sup>2</sup> Undetected and poorly managed maternal infections lead to sepsis, death, or disability for the mother and an increased likelihood of early neonatal infection and other adverse outcomes. When caring for obstetric patients, it is important to identify the stages of obstetric care: prenatal (antepartum), labor and delivery (intrapartum), and after the birth of the infant (postpartum). Sepsis occurs at any stage of obstetric care. Assessment and identification of risk factors assist with recognizing potential problems. Health care providers must remain mindful of the bodily changes that occur during the initial weeks of pregnancy, while assessing for potential problems that could ultimately affect the health of both the mother and the newborn during delivery and in the postpartum period.<sup>1,2</sup>

Several organizations and researchers have recognized the need to address the causes of maternal and newborn mortality and morbidity. Bonet and colleagues<sup>3</sup> (2018) conducted the Global Maternal Sepsis Study (GLOSS). The purpose of the

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Disclosure: The author has nothing to disclose.

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Crit Care Nurs Clin N Am ■ (2018) ■-■  
<https://doi.org/10.1016/j.cnc.2018.05.012>

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study was to establish criteria for the identification of possible severe maternal infection and maternal sepsis. The GLOSS also reinforced the importance of building a network of health care facilities to implement quality improvement strategies for better identification and management of maternal and early neonatal sepsis.

### **MATERNAL SEPSIS**

Maternal sepsis is reported as the underlying cause for 11% of all maternal deaths.<sup>3</sup> Maternal infections are common because of the physiologic changes of pregnancy. Sepsis is characterized by a systematic response to an invasive organism. The changes that occur in the maternal immune responses during pregnancy predispose the pregnant patient to develop infections that would not otherwise cause a problem in the nonpregnant state. Identification of the signs and symptoms associated with sepsis in obstetric patients may be harder, as the pregnant woman goes through bodily changes that may mask the signs of sepsis. Clinical signs and symptoms of sepsis are changes in body temperature including hypothermia and hyperthermia, tachycardia (heart rate >110), and either high or low white blood cell count (WBC). WBC as an indicator for infection is difficult, as the WBC may be elevated during pregnancy and especially at birth and an increase in body temperature is commonly seen during labor.<sup>2</sup>

#### ***Antepartum***

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There are several antepartum infections that clinicians must assess for during the antepartum stage of pregnancy. These infections include urinary tract infections (UTIs), cystitis, vaginal infections, respiratory infections, and group B streptococcus (GBS) disease.

### **INFECTIONS**

UTIs are common during pregnancy because of physiologic changes in the urinary tract that contribute to urinary stasis. Cystitis is inflammation of the bladder caused by UTIs. Cystitis can lead to pyelonephritis with symptoms of dysuria, a high fever, retropubic or suprapubic pain, flank pain, or tenderness. Exogenous bacteria introduced from an external source, such as contaminated gloves or instruments, droplet infections, or foreign objects inserted into the vagina, can cause vaginal infections. Sexually transmitted diseases may cause uterine infections if left untreated during pregnancy.<sup>4</sup>

Acute or chronic respiratory tract infections also may occur during pregnancy as a result of the physiologic changes that occur in the respiratory system. Acute conditions include bronchitis, pneumonia, and pleurisy; chronic conditions include pulmonary tuberculosis and chronic bronchitis.<sup>4</sup>

### **GROUP B STREPTOCOCCUS**

GBS is a perinatal pathogen that causes infection in the antepartum period that can contribute to neonatal and maternal complications.<sup>5</sup> In the 1970s, GBS emerged as the leading infectious cause of early neonatal morbidity and mortality in the United States and remains the leading infectious disease of mortality and morbidity of newborns in the United States. The primary risk factor for GBS is maternal colonization with GBS in the genitourinary or gastrointestinal tracts. GBS is a gram-positive bacterium that causes invasive disease primarily in infants, pregnant or postpartum women, and older adults, with the highest incidence among young infants. Infections in newborns occurring within the first week of life are designated early onset disease.

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