

Repair the Rupture:

Maintaining the Fetus during a Premature Rupture of Membrane

Abstract

The rupture of the amniotic sac is usually a result of the membrane weakening from labor contractions. However, there are some cases in which the membrane may rupture prematurely. Premature Rupture of Membrane (also known as PROM) is a term used to describe a rupture of the amniotic sac prior to the fetuses set due date. From the data collected, it seems that the best course of action does seem to be hospital care (to monitor the mother) and antibiotics (to keep away infection).

Introduction and Summary

A rupture in the amniotic sac prior to the baby's due date can cause a number of issues like infection, placental abruption, and even preterm labor. In the event that the baby has reached the 34-week mark, the solution would be to induce the labor. However, if the baby has still not reached full-term, it is advised to try to manage and monitor the mother and the baby's health until they reach a gestational age of 34 weeks. The reason for this specific research is to highlight the different complications in a rupture to pinpoint which treatments are more effective in the event of a preterm rupture.

Methodology

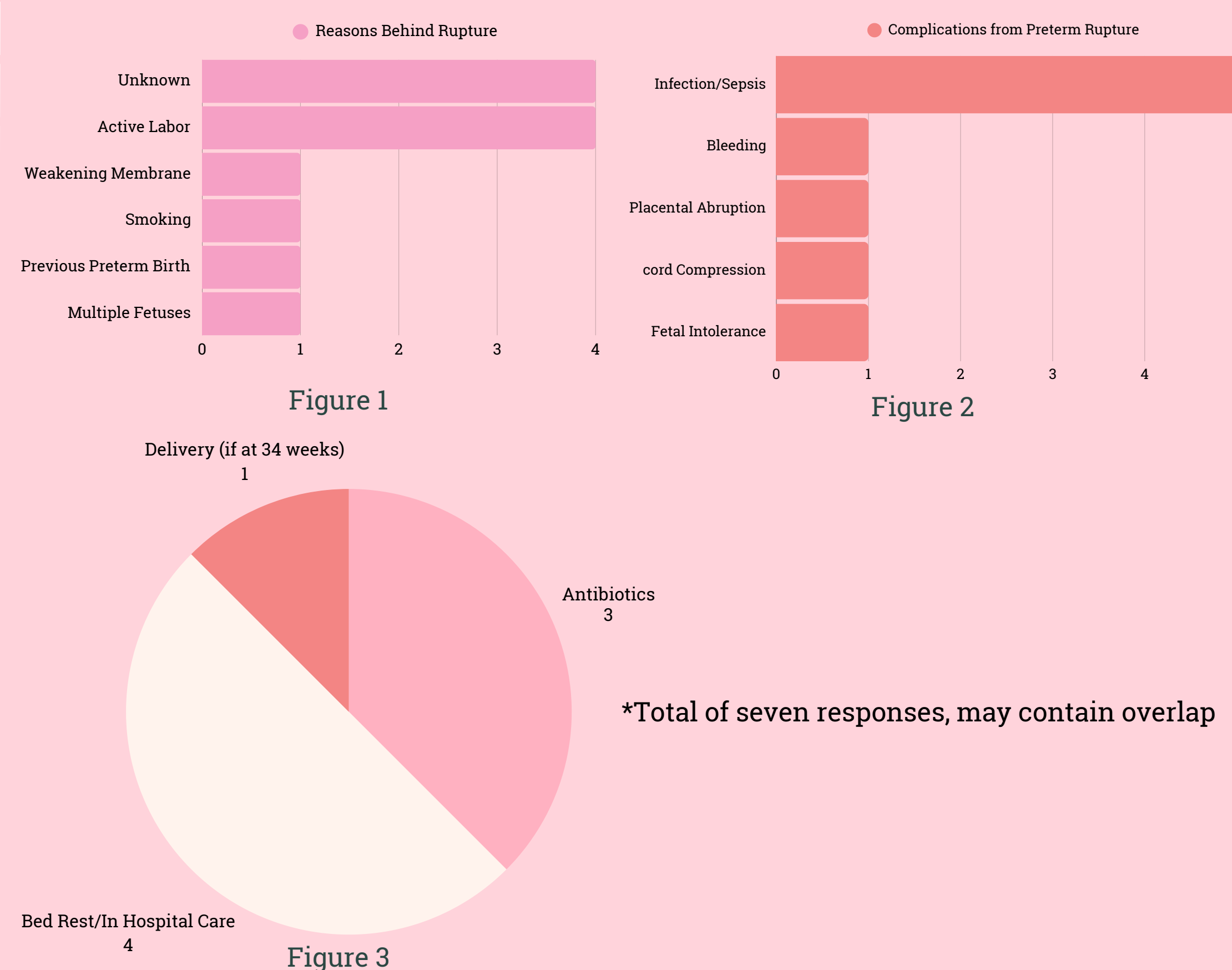
Most of the data collected will be at the Memorial Hermann hospital at the Sugar Land location. Qualitative data will be collected by interviewing the physicians and nurses in the Labor and Delivery Department. They will be questioned on their preferred course of action in the event of a PROM, as well as whether a patient's circumstances (i.e. how far they are in the pregnancy, medical history, current symptoms, etc.) may play a role in how they would manage the rupture. Concerning complications that may arise from a preterm rupture, physicians will be consulted to determine what the aftermath of a rupture may be.

Reference

Jacobson, John D, and David C. Dugdale. "Premature Rupture of Membranes: Medlineplus Medical Encyclopedia." Edited by Brenda Conway, MedlinePlus, U.S. National Library of Medicine, 14 May 2024, [medlineplus.gov/ency/patientinstructions/000512.htm#:~:text=When%20the%20water%20breaks%20early,rapture%20of%20membranes%20\(PROM\).3Dayal,Shailja.](https://medlineplus.gov/ency/patientinstructions/000512.htm#:~:text=When%20the%20water%20breaks%20early,rapture%20of%20membranes%20(PROM).3Dayal,Shailja.) "Preterm and Term Prelabor Rupture of Membranes (PPROM and Prom)." StatPearls [Internet]. U.S. National Library of Medicine, 31 Oct. 2024, www.ncbi.nlm.nih.gov/books/4Northwestern Medicine. "Go the Full 40: Why Take Your Baby to Term." Northwestern Medicine, www.nm.org/healthbeat/healthy-tips/go-the-full-40. Accessed 21 Mar. 2025.

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Results



Questions for Dr. Adeola Atilade

What complications usually come as a result of a preterm rupture for the mother?: The mother will be at risk of contracting an infection, which could eventually lead to sepsis if not controlled.
The fetus?: The baby may be at risk of being born premature, which may result in a longer NICU stay. The baby will likely be born with disabilities, as well as developmental issues, since the brain is not fully developed. (i.e. oligohydramnios, learning disabilities, vision problems, malformations, etc.)
Is there any chance that the rupture can be fixed?: While there are some instances of the repair fixing itself, it can not be surgically stitched/repaired.

Findings

The data provided shows that there is not really a specific cause for the rupture, but a consistent reason seems to be if the mother participates in active labor, which may cause stress to the membrane (Figure 1). All seven physicians and nurses who took this survey stated that a major issue when dealing with a rupture is the infection that may follow due both the fetus and the membrane being exposed to bacteria (Figure 2). A complication when it comes to a premature rupture tends to be infection, which may even get to the point of sepsis, a symptom which, according to one of the surveyors, may have lasting effects even after delivery. Usually, the best course of action when the fetus reaches 34 weeks is to deliver the baby (Figure 3). However, in the event that the gestational age is less than 34 weeks, the best course of action according to surveyors is to continuously monitor the mother for any changes in conditions. All surveyors stated that their usual treatment plan is the use of steroids to quicken fetal lung maturity, as well as the use of antibiotics to keep the infection at bay. As stated before, the biggest complication when dealing with preterm rupture seems to be infection setting; therefore, antibiotics seem to be the most effective, active course of treatment, as they act as a shield against bacteria in place of the amniotic sac (Figure 4).

Discussion

My original hypothesis was that antibiotics would end up being the most effective form of treatment. However, I was not expecting that most cases of a premature rupture of membrane will result in the same course of treatment, no matter the patient's medical history, age, etc. For the most part, the best way to manage a rupture is to keep the mother stable enough to extend the pregnancy. Overall, if this experiment were to be repeated, quantitative data would be collected by monitoring a patient who is experiencing a preterm rupture, and analyze the progress up until the delivery of the baby. I would also try to gather a large amount of surveyors from multiple hospitals, as different levels of hospitals may result in many more cases analyzed. I would also suggest that pediatrics were also consulted to see if any issues may linger from a PROM