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COURSE OF INFECTIOUS AND PARASITIC DISEASES IN PREGNANT WOMEN AND THEIR IMPACT ON MATERNAL MORTALITY

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Abstract: Maternal mortality remains a major global health concern, with infectious and parasitic diseases representing a significant proportion of indirect causes. This study aimed to analyze the course of these diseases in pregnant women and evaluate their contribution to maternal mortality. A retrospective clinical study was conducted at a tertiary maternity hospital over the period 2018–2024, including 60 maternal mortality cases associated with infectious and parasitic conditions.

The findings showed that viral infections, particularly hepatitis, were the leading causes of maternal death, followed by pneumonia, parasitic diseases, and sepsis. Most deaths occurred during the third trimester, and severe disease progression was strongly associated with poor outcomes. A key problem identified was the delay in diagnosis and inadequate treatment, which significantly increased mortality risk.

The study concludes that early detection, timely intervention, and standardized treatment protocols are essential for reducing maternal mortality related to infectious and parasitic diseases. Strengthening preventive strategies and improving clinical management can significantly enhance maternal outcomes.

Keywords: Maternal mortality; Infectious diseases; Parasitic diseases; Pregnancy; Viral hepatitis; Pneumonia; Sepsis; Clinical outcomes; Early diagnosis; Maternal health

Introduction

Infectious and parasitic diseases remain a major cause of morbidity and mortality worldwide, particularly in low- and middle-income countries where access to timely diagnosis and effective treatment may be limited. According to the World Health Organization, infectious diseases represent a significant proportion of indirect causes of maternal mortality, highlighting their growing importance in modern obstetric practice. Despite ongoing improvements in maternal healthcare, these conditions continue to pose serious risks to pregnant women and contribute substantially to adverse outcomes.

Pregnancy is characterized by physiological changes, including a degree of immunosuppression, which increases a woman's susceptibility to infections. As a result, infectious and parasitic diseases

tend to progress more severely in pregnant women compared to the general population. Conditions such as viral hepatitis, pneumonia, malaria, and various parasitic infections can significantly worsen maternal health, leading to complications such as organ failure, sepsis, and even death if not managed appropriately. These risks are further amplified in settings with limited healthcare resources.[10]

A major clinical problem is the late diagnosis and inadequate treatment of infectious and parasitic diseases during pregnancy. In many cases, symptoms are either overlooked or misinterpreted, leading to delays in initiating appropriate therapy. This delay can result in rapid disease progression and increased maternal mortality. Furthermore, the lack of standardized protocols and insufficient monitoring in some healthcare settings contributes to suboptimal management of these conditions.

Another important issue is the lack of comprehensive clinical data on how infectious and parasitic diseases progress during pregnancy and their direct impact on maternal mortality. Most existing studies focus on general populations or specific infections, leaving a gap in understanding the combined and dynamic effects of these diseases in pregnant women. This gap limits the ability of healthcare providers to develop targeted prevention and treatment strategies.

Therefore, the aim of this study is to analyze the course and impact of infectious and parasitic diseases on maternal mortality. The objectives include identifying the most common infectious and parasitic diseases in pregnant women, assessing their contribution to maternal deaths, evaluating their clinical progression and associated complications, and proposing effective preventive and management strategies to improve maternal outcomes.

Methods

This study was designed as a retrospective clinical study with analytical components to evaluate the course and impact of infectious and parasitic diseases on maternal mortality. The research was conducted at a tertiary-level maternity hospital, which provides specialized care for high-risk pregnancies and severe clinical conditions. The study period covered six years, from 2018 to 2024**,** allowing for a comprehensive evaluation of trends and outcomes over time.

The study population included pregnant women diagnosed with infectious or parasitic diseases, as well as maternal mortality cases associated with these conditions. Particular attention was given to cases where infections played a direct or contributing role in the progression to severe complications or death. This approach enabled a focused analysis of indirect causes of maternal mortality related to infectious factors.

The inclusion criteria comprised cases with confirmed infectious or parasitic diseases during pregnancy, supported by clinical, laboratory, or instrumental findings, along with maternal deaths in which these conditions were identified as a primary or contributing cause. Only well-documented cases with sufficient clinical data were included to ensure the reliability of the analysis.

The exclusion criteria included maternal deaths caused exclusively by direct obstetric complications, such as hemorrhage, eclampsia, or obstructed labor, without any evidence of infectious or parasitic involvement. This allowed the study to concentrate specifically on the role of infectious and parasitic diseases as indirect contributors to maternal mortality.[2]

To strengthen the analysis, the study also incorporated problem-oriented components, focusing on identifying delays in diagnosis, gaps in treatment, and weaknesses in clinical management. By combining retrospective data review with analytical evaluation, this methodological approach aimed not only to describe the clinical patterns of disease but also to identify modifiable factors that could help reduce maternal mortality associated with infectious and parasitic conditions.[8]

Problem Identified

A major problem identified in this study is the high rate of maternal mortality associated with late diagnosis of infectious diseases and inadequate treatment protocols**.** In many cases, pregnant women present to healthcare facilities at advanced stages of infection, when the disease has already progressed to severe or life-threatening conditions. This delay in diagnosis significantly reduces the effectiveness of treatment and increases the likelihood of complications such as sepsis, organ failure, and death.[9]

Additionally, inadequate or non-standardized treatment protocols further exacerbate the problem. In some cases, infections are either misdiagnosed or not managed according to current clinical guidelines, leading to inappropriate therapy or delayed intervention. The lack of timely screening, insufficient monitoring, and limited access to specialized care also contribute to poor maternal outcomes.[7]

This combination of delayed detection and suboptimal management represents a critical gap in maternal healthcare systems and highlights the urgent need for improved diagnostic strategies, standardized treatment approaches, and early intervention protocols to reduce mortality associated with infectious and parasitic diseases during pregnancy.

Analysis

The analytical evaluation of the collected data demonstrated a strong association between infectious and parasitic diseases and increased maternal mortality, particularly in cases where diagnosis and treatment were delayed. The study revealed that the severity of infection at the time of admission was one of the most critical determinants of outcome. Patients admitted in severe stages of disease were significantly more likely to experience fatal outcomes compared to those diagnosed and treated in earlier stages.

A comparative analysis based on disease classification showed that viral infections (especially hepatitis and pneumonia) were the leading contributors to maternal mortality, followed by bacterial infections and parasitic diseases. Viral conditions were often associated with rapid clinical deterioration, while bacterial infections frequently progressed to sepsis when not treated promptly. Parasitic diseases, although less common, contributed to chronic complications such as anemia and immunosuppression, which further worsened maternal prognosis.[3]

The trimester-based analysis indicated that the highest risk of mortality occurred during the third trimester, a period characterized by increased physiological stress and vulnerability. Infections occurring during this stage were more likely to result in severe complications, including respiratory failure, hepatic dysfunction, and systemic inflammatory responses.

A key component of the analysis was the delay assessment**,** which revealed that a significant proportion of maternal deaths were associated with prolonged intervals between symptom onset, diagnosis, and initiation of treatment. Patients who experienced longer delays were more likely to present with advanced disease and had a markedly higher risk of mortality. This finding confirms that delayed diagnosis is a major modifiable risk factor.[6]

Furthermore, the outcome comparison between survival and mortality groups highlighted several important differences. Patients in the mortality group were more likely to have severe infections, multiple complications, and delayed treatment initiation. In contrast, survivors typically received earlier diagnosis and timely therapeutic interventions, underscoring the importance of rapid clinical response.

Results

The analysis of maternal mortality cases associated with infectious and parasitic diseases revealed that these conditions play a significant role in adverse pregnancy outcomes. A total of 60 cases were analyzed, and the distribution of diseases showed that viral infections were the leading contributors to maternal death. Among them, viral hepatitis accounted for 20 cases (33.3%)**,** making it the most common cause, followed by pneumonia (viral and bacterial) with 15 cases (25%)**.**

Parasitic diseases were identified in 10 cases (16.7%)**,** demonstrating their continued relevance, particularly in regions with limited access to preventive care. Sepsis, often resulting from untreated or poorly managed infections, was responsible for 8 cases (13.3%)**,** while other infectious conditions accounted for 7 cases (11.7%)**.** These findings indicate that infectious diseases, especially those of viral origin, are major contributors to maternal mortality.

Further analysis showed that the majority of maternal deaths occurred during the third trimester of pregnancy**,** highlighting this period as the most critical stage for disease progression and complications. Severe forms of infection were significantly more common among fatal cases, confirming that disease severity is directly associated with mortality risk.

A key finding of this study was the strong association between delayed diagnosis and poor outcomes. In most fatal cases, there was a considerable delay between the onset of symptoms and the initiation of appropriate treatment. Patients who received timely diagnosis and early intervention had better outcomes, while those with delayed management were more likely to develop complications such as sepsis, organ failure, and respiratory distress.

From a problem–solution perspective, the results clearly indicate that late detection and inadequate treatment protocols are the main drivers of maternal mortality in infectious and parasitic diseases. These findings support the need for early screening, rapid diagnostic methods, and standardized treatment protocols to reduce mortality rates and improve maternal health outcomes.

Conclusion

In conclusion, infectious and parasitic diseases play a critical role in maternal mortality, particularly in settings where timely diagnosis and appropriate treatment are limited. The study

demonstrates that viral infections, pneumonia, and parasitic conditions are among the leading contributors to maternal deaths, with the highest risk observed during the third trimester of pregnancy.

A major issue identified is the delay in diagnosis and the lack of effective treatment protocols, which leads to disease progression and severe complications. Addressing this problem requires the implementation of early screening programs, improved access to diagnostic tools, and standardized clinical guidelines for managing infections during pregnancy.

Improving awareness among healthcare providers, strengthening multidisciplinary care, and ensuring timely intervention can significantly reduce maternal mortality associated with these conditions. Future research should focus on prospective studies and larger populations to further enhance prevention and management strategies.

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