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Opinion Article

Pregnancy and Pharmacotherapy toward Safer Individualized Treatment Decisions

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DESCRIPTION

Striving for balance in decisions on antenatal pharmacotherapy is a continuous challenge, given the complex physiological and ethical dimensions involved. Pregnant individuals are unique in that any pharmacological intervention potentially affects not just one, but two biologically linked patients the mother and the fetus. This dual consideration makes antenatal pharmacotherapy decisions particularly sensitive, demanding a careful integration of maternal needs with fetal safety. While progress has been made in understanding drug safety during pregnancy, uncertainties remain. This calls for a pragmatic and individualized approach that recognizes the risks of both action and inaction.

The physiological changes in pregnancy significantly alter pharmacokinetics, impacting how drugs are absorbed, distributed, metabolized and excreted. Increased plasma volume, altered hepatic enzyme activity and enhanced renal clearance all contribute to variable drug responses. Yet, despite these known changes, most medications have not been systematically studied in pregnant populations due to historical concerns about fetal harm. As a result, clinicians are often forced to depend on post-marketing surveillance data, registries and limited cohort studies. This creates a persistent gap in knowledge and contributes to both overcautious prescribing and unwarranted avoidance of needed medications.

A central issue is the frequent under-treatment of maternal conditions that, if left unmanaged, pose substantial risks. For example, hypertension, diabetes, epilepsy and autoimmune diseases all require consistent medical management during pregnancy. Inappropriately stopping or withholding medications for these conditions can lead to poor maternal outcomes, which in turn affect fetal health. The belief that "less is more" in terms of medication may seem intuitive, but in many cases, this mindset fails both the mother and the fetus. For example, poorly controlled maternal asthma can result in fetal hypoxia and uncontrolled seizures in a pregnant person with epilepsy carry a higher risk of fetal demise than the anti-epileptic drugs themselves.

On the other hand, there is legitimate concern about unnecessary or poorly justified pharmacological interventions. The overuse of antibiotics, proton pump inhibitors and pain medications in pregnancy can have unintended consequences, including altered fetal development and microbiome disruption. The use of medications such as paracetamol and NSAIDs has come under investigation for possible links to neurodevelopmental or renal issues, although evidence is often inconclusive. Therefore, avoiding medication when symptoms are mild or non-disruptive may also be a rational and safe choice, provided that the decision is grounded in evidence and patient preference.

One particularly challenging area involves the treatment of mental health disorders during pregnancy. Untreated depression, anxiety, or bipolar disorder can have extreme effects on both maternal well-being and fetal development. However, the stigma and fear surrounding the use of antidepressants and mood stabilizers often lead to abrupt discontinuation of therapy, sometimes without medical guidance. Such decisions can result in relapse or worsening of psychiatric symptoms, which in severe cases may endanger both mother and fetus. Thus, a balanced view that considers the potential risks of medication alongside the risks of untreated illness is essential.

Emerging tools such as pharmacogenomic testing and placental transfer modeling provide some potential in personalizing drug therapy during pregnancy. By understanding individual variations in drug metabolism or predicting fetal drug exposure, clinicians may soon have better tools to support safer prescribing. Yet, these technologies are not yet widely available or validated in diverse populations and their integration into routine care remains a work in progress. In conclusion, striving for balance in antenatal pharmacotherapy is not about choosing between maternal and fetal health but recognizing their deep interdependence.

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