

Remdesivir in Breastfeeding

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Dear Editor

After the coronavirus (COVID-19) caused more than 150 million infections and 3.2 million deaths on May 9, 2021, it became a major concern of the international community (1). As the COVID-19 pandemic continues, more infected women are giving birth. Pregnancy and the early postpartum period require special management and careful evaluation of the risks and benefits for the mother, fetus, and infant. New evidence suggests that remdesivir could be a proper option (2) and is the only FDA-approved drug for emergency cases (3) in terms of hospitalization period as well as oxygen therapy. Remdesivir is a monophosphoramidate nucleoside prodrug with broad-spectrum activity against coronavirus. Indeed, the drug rapidly hydrolyzes to a nucleoside analog of phosphate and changes into an active intracellular nucleoside triphosphate analog (4). Thus, remdesivir prevents viral RNA replication by inhibiting RNA polymerase using intracellular esterases.

Since, pregnant and lactating women in particular, were excluded from most clinical trials in COVID-19; little information is available on the secretion of remdesivir in breast milk (3). However, collected data from case reports, post-marketing records, and drug use in special cases based on human considerations are accessible (4). In a study conducted in Iran in May 2021, remdesivir was placed in B2 group according to the Australian pregnancy drug classification and it was found that it is secreted in breast milk (1). In this regard, Dornemann et al. (5) reported a child with Ebola who was born to an infected mother treated with remdesivir. Twenty days after birth, RT-PCR (reverse-transcription polymerase chain reaction) was performed, which was negative for Ebola, and 33 days after birth, the baby was discharged completely healthy and without complications. In subsequent follow-up, the infant weighed well and had normal neurodevelopmental status at one year of age. Therefore, there are no reports of adverse events in the neonates of mothers treated with remdesivir, suggesting that the benefits of breastfeeding outweigh the potential risks of remdesivir (5,6). Besides, in the PALM trial (Pamoja Tulinde Maisha), a clinical trial named in Kiswahili that means "together save lives" and conducted in the field of Ebola virus treatments, 6.1% (17/277) of participating women were pregnant at the time of Ebola virus diagnosis, 35% (6/17) of them were randomly assigned to receive remdesivir and no severe maternal or neonatal complications were reported in the remdesivir group (7). On the other hand, it is notable that remdesivir is a compound with a relatively large molecular weight (602.6 g / mol), which limits its passage into breast milk (8). It is also poorly absorbed from the gastrointestinal tract and is administered intravenously, so infants are not clinically able to absorb significant amounts of the drug through the mother's milk (9). In addition to all the reasons mentioned above, according to the lactation pharmacologist, Tam Hale, the remdesivir molecule is unstable in the stomach and is easily degraded before oral absorption. Therefore, it is unlikely that the

active drug will reach the infant's bloodstream (2). On the other hand, discontinuing breastfeeding, puts the child at three times higher risk of hospitalization in case of infection transmission (2). Breast milk is an ideal combination of nutrients, cellular components, and bioactive molecules. Specific IgA against SARS-COV2 may be present in breast milk with a history of COVID-19 and it may provide specific protection against this virus and may be effective against cytokine storms and exacerbated inflammatory responses in patients with COVID-19.

Despite of the increased risk of transmitting the coronavirus by direct contact, the benefits of breastfeeding -undeniable benefits of breast milk for mothers and their infants and the possibility of transmitting antibodies- appear to outweigh the potential risks of COVID-19 transmission. Accordingly, it is generally recommended that breastfed mothers with coronavirus infection follow full health protocols, including wearing a mask and washing hands. Based on this limited information, it does not appear that mothers receiving remdesivir need to avoid breastfeeding, but till more information being available, the infant should be closely monitored during this period.

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