

## Remdesivir

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**Elevated AST and ALT levels following off-label therapy: 4 case reports**

In a retrospective study of 5 women, four pregnant women (aged 27–39 years) were described, who exhibited elevated AST and ALT levels during off-label treatment with remdesivir for coronavirus disease 2019 [*not all outcomes stated*].

Case 1: A 27-year-old woman with G4P0030 and mild asthma was hospitalised in USA at 16 weeks of gestation, and started receiving 3L O<sub>2</sub>/min by nasal cannula (NC). She was eventually diagnosed with coronavirus disease 2019. On hospital day 4, she started receiving off-label treatment with IV remdesivir for coronavirus disease 2019 at 200mg on day 1, followed by 100mg daily, scheduled to be administered for 9 days. She also started receiving off-label treatment with hydroxychloroquine for coronavirus disease 2019. During the hospitalisation, she exhibited elevated aminotransferase. On day 3 of initiation of remdesivir, her ALT and AST levels were found to be elevated (approximately 75 U/L and approximately 100 U/L, respectively). On day 4 of initiation of remdesivir, her ALT and AST levels were found to be approximately at 100 U/L and approximately 90 U/L, respectively. The elevated levels of AST and ALT were suspected to be due to remdesivir. Remdesivir was therefore stopped on day 4 due to the elevated aminotransferase levels. She received remdesivir for a total of 4 days. On hospital day 8, she was discharged.

Case 2: A 39-year-old woman with G4P3003, type-2 diabetes and obesity developed acute respiratory distress syndrome at 28 weeks of gestation, and was subsequently hospitalised in USA. Mechanical ventilation was initiated due to the distress. Eventually, she was diagnosed with coronavirus disease 2019. She started receiving off-label treatment with hydroxychloroquine for coronavirus disease 2019. Concurrently, she also received unspecified antibiotics for empirical coverage of pneumonia. On hospitalisation day 4, she started receiving off-label treatment with IV remdesivir for coronavirus disease 2019 at 200mg on day 1, followed by 100mg daily, scheduled to be administered for 9 days. On day 2 of initiation of remdesivir, her ALT and AST levels were at approximately 35 U/L and approximately 60 U/L, respectively. Her AST and ALT remained continuously increased, which was suspected to be due to remdesivir. Therefore, remdesivir was stopped on day 6 due to markedly worsening aminotransferases. She received remdesivir for a total of 6 days. Her elevated aminotransferases improved by day 9 of initiation of remdesivir. On hospitalisation day 14, she underwent a cesarean section and delivered a healthy neonate at 30 weeks and 2 days of gestation [*sex of the neonate not stated*]. On hospitalisation day 19, she was extubated and discharged.

Case 3: A 33-year-old woman with G6P5005 and mild asthma developed severe acute respiratory distress syndrome at 26 weeks of gestation. She was hospitalised in USA and received mechanical ventilation. Eventually, she was diagnosed with coronavirus disease 2019 and subsequently started receiving off-label treatment with hydroxychloroquine for coronavirus disease 2019 and unspecified antibiotics. On hospitalisation day 2, she started receiving off-label treatment with IV remdesivir for coronavirus disease 2019 at 200mg on day 1, followed by 100mg daily, scheduled to be administered for 9 days. On day 5 of initiation of remdesivir, her ALT and AST levels were found to be elevated (approximately 70 U/L and approximately 110 U/L, respectively), which was suspected to be due to remdesivir. The ALT and AST levels further increased, but discontinuation of remdesivir was not required. Eventually, her elevated aminotransferases improved. She completed a 10-day course of remdesivir. On hospitalisation day 28, she underwent a vaginal delivery. She delivered a healthy neonate at 30 weeks of gestation [*sex of the neonate not stated*]. She was discharged on hospitalisation day 36.

Case 4: A 29-year-old woman with G1P0, chronic kidney disease and gestational diabetes was hospitalised in USA at 31 weeks of gestation. Following diagnosis of coronavirus disease 2019, she required 6L O<sub>2</sub>/min by nasal cannula. On hospitalisation day 2, she started receiving off-label treatment with IV remdesivir for coronavirus disease 2019 at 200mg on day 1, followed by 100mg daily, scheduled to be administered for 9 days. She also started receiving off-label treatment with hydroxychloroquine for coronavirus disease 2019. On day 4 of initiation of remdesivir, mild increase in aminotransferases were noted. The ALT and AST levels were found to be elevated (approximately 50 U/L and approximately 65 U/L, respectively), which was suspected to be due to remdesivir. Eventually, her elevated aminotransferases improved. However, remdesivir was continued for a total of 10 days. She underwent a caesarean section under unspecified general anesthetics, and subsequently delivered a neonate [*details of the neonate not stated*]. She remained intubated for 14 days. On hospitalisation day 28, she was discharged.