

35. Adverse drug events associated with monoclonal antibodies used in the treatment of COVID-19

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Background: The American College of Medical Toxicology's Toxicology Investigators Consortium (ToxIC), in collaboration with the Food and Drug Administration (FDA), developed the FDA ACMT CoVid-19 ToxIC (FACT) Pharmacovigilance Project, a multicenter active surveillance and reporting system to identify previously unrecognized adverse drug events (ADEs) related to COVID-19 therapies. Among the emerging COVID-19 treatments, neutralizing monoclonal antibodies (mAbs) are being used as therapy for adult and pediatric patients with diagnosed COVID-19 infections. The mAbs with neutralizing activity against COVID-19 include bamlanivimab (alone or in combination with etesevimab) and casirivimab in combination with imdevimab. More information, particularly real-world data, is needed to understand the optimal use and the possible ADEs associated with these therapeutics beyond clinical trial data.

Methods: This is an active pharmacosurveillance project with 15 participating medical centers across the United States. The project focuses on identifying possible ADEs, medication errors, toxicity, and/or overdose related to any medication or substance administered by a healthcare provider in an inpatient or ambulatory setting, or by patient self-administration with intent to treat or prevent COVID-19 infection. Cases are actively identified via site specific mechanisms including direct contact with treating providers, pharmacists, and chart review. ADEs associated with neutralizing mAbs were captured between 11/23/20 and 4/30/21 by site principal investigators, and trained and monitored dedicated research assistants. Utilizing a standardized mAb data collection tool developed by ToxIC in conjunction with the FDA, data was collected on vital signs, signs and symptoms, outcome, and laboratory before, during, and after administration.

Results: A total of 62 cases of potential mAb-associated ADEs were reported during this time period. As shown in Table 1, the majority of ADEs (N = 54, 87%) occurred within 12 hours of the medication administration. As detailed in Table 2, 50 (81%) cases reported more than one ADE. The majority of the ADEs were pulmonary (N = 18, 29%), immunologic (N = 16, 26%), and cardiovascular (N = 12, 19%).

Conclusions: The FACT Pharmacovigilance Project was created as a novel multi-site pharmacosurveillance program to monitor real-world adverse events related to therapies being used for the treatment and prophylaxis of COVID-19, including mAbs. Most reported mAb ADEs were pulmonary, immunologic, or cardiovascular and the majority occurred within 12 hours of administration. Although these ADEs were reported to be associated with mAb therapy, causality assessments are ongoing. This project is continuing to identify ADEs associated with mAbs and other COVID-related therapeutics.