Excess Deaths From End-Stage Kidney Disease Early in Pandemic

An excess of 7000 to 10 000 deaths from end-stage kidney disease (ESKD) occurred during the first several months of the COVID-19 pandemic, according to data based on ESKD mortality trends from 2016 through 2019.

Patients with ESKD are at increased risk of death from COVID-19. Many are elderly and have multiple comorbid conditions that are associated with worse COVID-19 outcomes. Some may also have a weakened immune system. Additionally, receiving inpatient hemodialysis increases the risk of exposure to SARS-CoV-2 infection.

In the report, scientists from the Centers for Medicare & Medicaid Services analyzed data from a national registry of nearly 800 000 patients with ESKD. From February 1, 2020, through the following August, the analysis found 8.7 to 12.9 additional deaths per 1000 patients with ESKD than would have been expected based on the previous years’ data. The excess deaths peaked in the initial months of the pandemic, with a second smaller peak later in the summer of 2020.

Excess deaths among patients with ESKD were concentrated in areas that experienced high rates of COVID-19 deaths, including New York, New Jersey, Puerto Rico, the US Virgin Islands, and Texas. The excess deaths in New York were documented predominantly during the pandemic’s early months. In Texas, the increase in excess ESKD deaths occurred later in the summer, corresponding with the state’s later peak in overall COVID-19 deaths. Excess deaths among patients undergoing dialysis were 2 to 3 times higher than among patients who had undergone a kidney transplant.

“The reasons for excess deaths in the [ESKD] population might include the unmet need for in-person health services or SARS-CoV-2 transmission from other patients, staff members, or the wider community during the COVID-19 pandemic,” the authors wrote.

Resurgence of Pertussis Linked With Switch to Acellular Vaccine

The emergence of Bordetella pertussis strains that lack the common antigen pertactin is likely driven by the switch decades ago to newer, less effective vaccines, a study published in Emerging Infectious Diseases has suggested.

The US and many other countries switched from whole-cell pertussis vaccines to acellular vaccines in the mid-1990s. The newer acellular vaccines are effective against severe disease and were associated with fewer serious adverse events. But they have drawbacks. They don’t prevent nasal colonization with the bacterium and protection rapidly wanes. By the early 2000s, pertussis cases reemerged in countries that made the switch despite high vaccination rates.

Now, most B pertussis strains circulating in the US lack pertactin, 1 of the 5 antigens targeted by acellular pertussis vaccines. Studies have shown that B pertussis strains lacking pertactin have a survival advantage in mice vaccinated with acellular vaccine. The data have raised concerns about the potential emergence of vaccine-resistant strains.

The other 4 vaccine-targeted antigens don’t appear to have been affected. The study’s authors described 3 of pertactin’s features that may make it more vulnerable to selective pressure from the vaccine: its location close to the surface membrane; its function in pathogenesis may be redundant; and vaccine antibodies against pertactin persist longer in the body than antibodies against the other vaccine-targeted antigens. Vaccine developers can use the article’s insights to develop more effective pertussis vaccines that are less vulnerable to resistance, the authors noted.

“In designing new vaccines, it would be prudent to carefully consider the issues that appear to be enabling potential vaccine escape mutants, such as [pertactin]-deficient strains, to rapidly expand and rise to prominence,” the authors wrote. — Bridget M. Kuehn, MSJ

Note: Source references are available through embedded hyperlinks in the article text online.