Efficacy of COVID-19 vaccine in patients with CLL

1. Your patient is a 70-year-old man with chronic lymphocytic leukemia (CLL). According to the study by Herishanu and colleagues, which of the following statements about humoral immune responses to the BNT162b2 mRNA COVID-19 vaccine and adverse events (AEs) in a cohort of patients with CLL, and in a comparison of a subset of these CLL patients with sex- and age-matched healthy controls, is correct?

   - Among 167 patients with CLL, the antibody response rate was 69.5% after administration of the second vaccine dose
   - Compared with their matched controls, patients with CLL had a significantly reduced response rate (52% vs 100%, respectively; adjusted odds ratio [aOR] = 0.01 [95% CI: 0.001, 0.162]; P < .001)
   - Median antibody titers were not significantly lower in patients with CLL than in control participants
   - Local reaction (pain; less commonly, erythema or swelling) or systemic reaction was statistically significantly correlated with positive serologic response to the vaccine

2. According to the study by Herishanu and colleagues, which of the following statements about the effects of treatment and other clinical factors on humoral immune responses to the BNT162b2 mRNA COVID-19 vaccine in patients with CLL is correct?

   - Response rate was highest in patients in clinical remission after treatment (79.2%), followed by 55.2% in treatment-naive patients and only 16% in patients being treated when vaccinated
   - Patients treated with Bruton tyrosine kinase inhibitors (BTKis) or venetoclax – anti–cluster of differentiation 20 (CD20) antibody had consistently higher response rates
   - One-quarter of patients exposed to anti-CD20 antibodies <12 months before vaccination responded
   - In multivariate analysis, independent predictors of response included male sex and currently active treatment

3. According to the clinical and serologic study by Herishanu and colleagues, which of the following statements about clinical implications of humoral immune responses to the BNT162b2 mRNA COVID-19 vaccine in patients with CLL is correct?

   - The BNT162b2 mRNA COVID-19 vaccine is contraindicated in patients with CLL
   - Vaccinating patients with CLL is protective, and vaccinated patients can discontinue masking and social distancing
   - Serologic tests after the second vaccine dose offer valuable information for the individual patient and may be integrated in future clinical decisions
   - The study proved that all patients with CLL need a booster dose after 2 doses of the BNT162b2 mRNA COVID-19 vaccine