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Title: CLINICAL COURSE OF COVID-19 IN PATIENTS WITH SPLENECTOMY

Abstract Type: Publication Only

Topic: Infections in hematology (incl. supportive care/therapy)

Background:

Splenectomy has been performed as a therapeutic procedure in certain situations such as trauma or in various hematological disorders and may also occur spontaneously in patients with sickle cell disease. Splenectomy has been shown to increase risk of certain bacterial and parasitic infections. It is well-known that low concentrations of IgM, decreased production of antibodies directed against pneumococci and other encapsulated bacteria in addition to defective cellular immune function, including decreased numbers of T cells and a reduction in lymphocyte proliferative responses are observed in splenectomized individuals.

Aims:

In this study, we investigated the outcome of COVID-19 infections in splenectomized patients. We aimed to determine the clinical course of COVID-19 infection, seroconversion rates with SARS-CoV-2 vaccines in splenectomized patients and also to investigate the adverse events due to the vaccines.

Methods:

A total of 130 patients either auto- or surgically splenectomized were included. Epidemiological data, clinical characteristics regarding COVID-19 infection or vaccination status and the laboratory data were collected by analyzing the medical records of the patients. Electrochemiluminescence immunoassay method was used for the quantitative determination of anti-SARS-CoV-2-S-RBD-IgG (receptor-binding domain) antibodies

Results:

The median age of the study group was 41±13,26 and 74 were females (56.9%). Sickle cell disease comprised the majority of the study population in 62 (%47.7) patients and other splenectomies were performed for thalassemia in 37 (28.5%), immune thrombocytopenic purpura in 13 (10%), autoimmune hemolytic anemia in 7 (5.4%) patients and the remaining 11 (%8.5) had hereditary spherocytosis(5), chronic myeloproliferative disease (2), congenital dyserythropoietic anemia (1) and gastrointestinal stromal tumor (1) and post-traumatic (2). COVID-19 infection was detected in %37.7 patients and the hospitalization rate was % 40.8 in our cohort. The most common symptoms in asplenic patients with COVID19 infection were myalgias, fever and cough. At least one dose of Vaccination against COVID-19 was completed in 76.2% of our patient cohort. Patients were vaccinated with either inactivated SARS-CoV-2 vaccine [(Vero Cell) (CoronaVac™) (28.3%), Sinovac Biotech Ltd., Life Sciences Lab., China] or BNT162b2 (BioNTech/Pfizer, Mainz, Germany) (71.7%). The most prevalent adverse effects after vaccination were arrhythmias (6%) and venous thromboembolism (6%). Antibody responses in were significantly higher in fully vaccinated patient compared to infected but unvaccinated patients ($P=0.03$).

Summary/Conclusion: COVID-19 infection clinical course tends to be more severe in splenectomized patients and the frequency of hospitalization were found to be increased. Serologic response after COVID-19 infection and/or vaccination was preserved in splenectomized patients. Vaccination has to be considered to overcome increased susceptibility or worse symptoms of COVID-19 infection in splenectomized individuals.

Keywords: Splenectomy, COVID-19