

TITLE: Single-Institutional Analysis of Post-Splenectomy Vaccine Administration and Infectious Complications in Trauma Patients

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BACKGROUND: Abdominal trauma can result in splenectomy. Patients who undergo splenectomy are at increased risk for infections by encapsulated bacteria. As a result, post-splenectomy vaccinations for organisms posing a greater risk to asplenic patients serve an integral role in preventing infection and complications, such as overwhelming post-splenectomy sepsis (OPSS). The trauma patient population poses unique challenges involving follow-up and continuity of care regarding vaccinations at a single institution after initial discharge. Few studies have addressed compliance with post-splenectomy vaccinations in trauma patients. In addition, no study to date has addressed the timing of post-splenectomy vaccines and the relationship with post-splenectomy infectious complications or the rate of booster vaccine administration in the trauma population. This study aimed to measure the incidence and timing of post-splenectomy vaccination in trauma patients as well as to investigate if there is an association between infectious complications, such as OPSS, and the administration of post-splenectomy vaccines in the trauma patient population.

METHODS: Providers were educated on specific interventions to implement to increase vaccine compliance, which include patient education on post-splenectomy vaccines, ensuring patients receive their first round of vaccines before discharge from acute hospitalization (if indicated), ensuring their follow-up vaccine appointments are scheduled prior to discharge, and educating patients on transportation resources available for them to attend their follow-up appointments. A prospective review was performed of adult patients with splenectomy at a Level 1 trauma center from a 2 year period. Patient education, timing of vaccination doses, and inpatient/outpatient infectious complications were assessed. Continuous variables were analyzed using independent t-test and categorical variables were analyzed using Chi-squared test. A p-value ≤ 0.05 considered statistically significant.

RESULTS: Prior to protocol implementation, 16% of patients did not receive any required vaccines and 12% of patients received all the required vaccines. Since protocol implementation, 100% of patients received at least some of the required vaccines and 20.7% received all the required vaccines. During post-op follow up, 56.5% of the patients did not finish the vaccine courses having cancelled or no-showed appointments after hospital discharge and 26.1% due to failure to schedule a follow-up appointment before hospital discharge. There was not a significant difference for in-hospital infectious complications ($p=0.30$), post-discharge infectious complications ($p=1.0$), number of ED visits after discharge (1.7 ± 3.1 vs 1.7 ± 2.6 , $p=0.95$), or number of readmissions (0.7 ± 0.8 vs 0.9 ± 1.6 , $p=0.77$) between patients who were partially vaccinated and patients who were fully vaccinated after splenectomy.

CONCLUSIONS: These results demonstrate an increase in vaccination compliance with implementation of our protocol. Patient compliance rates are still lower than hoped for with the implementation of patient education and scheduling of follow-up appointments prior to hospital discharge. Future studies should investigate other measures to decrease the number of no-shows or cancellations at follow-up appointments. As for associations with infectious complications, there is no observed difference in number of ED visits or readmissions between partially and fully vaccinated post-splenectomy patients within our patient population.