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Medication Use Evaluation of Vaccines in Patients With Asplenia

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Background

- Patients with asplenia are at an increased risk for infections by encapsulated organisms within the first 2 years post splenectomy. The most common of these organisms include *Streptococcus pneumoniae*, *Haemophilus influenzae* type b, and *Neisseria meningitidis*.
- Current IDSA and CDC guidelines recommend initial vaccination with Pneumococcal conjugate vaccine (PCV13, Prevnar®), Haemophilus Influenzae type b (Hib), Meningococcal (Groups A,C,Y and W-135) Polysaccharide Diphtheria Toxoid Conjugate (Menactra®), and Meningococcal Group B (Bexsero®) or Meningococcal Group B factor H binding protein (Trumemba®) either 2 weeks prior to elective splenectomy or within 2 weeks post-emergent splenectomy.
- Practice at Lehigh Valley Health Network (LVHN)
 - ♦ Adult patients that are scheduled to undergo elective splenectomy are encouraged to receive the recommended vaccines >2 weeks prior to surgery
 - ♦ Adult patients that are admitted for emergent splenectomy due to trauma are given the vaccines prior to discharge from the hospital.
 - ♦ All patients that undergo splenectomy are encouraged to follow up at 8 weeks post-op to receive PPSV23, MenACWY, and MenB-4C.

Objective

- Review vaccination practices in patients post-splenectomy at Lehigh Valley Hospital–Cedar Crest (LVH–CC) and affiliated outpatient clinics to identify areas for improvement

Methods:

- Retrospective electronic medical record review of patients admitted to LVH–CC from Aug. 1, 2015 through Aug. 31, 2019 who underwent either elective or emergent splenectomy
 - ♦ Patients were excluded from analysis if:
 - < 18 years old
 - No documentation of immunizations in their electronic medical record
- Following information was abstracted from patient charts: age, gender, LVHN primary care physician (PCP) (yes/no), type of splenectomy surgery (emergency vs elective), vaccines administered up to 8 weeks prior to elective splenectomy, vaccines administered up to 1-year post-splenectomy, and the location of vaccine administration.

REFERENCES

- ¹Bonanni P, et al. Recommended vaccinations for asplenic and hyposplenic adult patients. *Hum Vaccin Immunother*. 2017;13(2):359-368.
- ²Hammerquist R, et al. Vaccinations in asplenic adults. *Am J Health Syst Pharm*. 2016;73(9):e220-e228.
- ³Mourtzoukou EG, et al. Vaccination of asplenic or hyposplenic adults. *Br J Surg*. 2008;95(3):273-280.

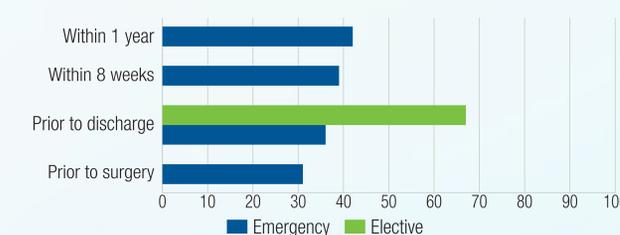
Results

- 95 patients met inclusion criteria
 - ♦ 18 patients excluded due to no documentation of immunizations (15 patients who underwent elective and 3 patients who underwent emergency splenectomy)

Table 1. Baseline characteristics

	Elective	Emergency
n (%)		
Total Cases (N=77)	59 (78)	18 (22)
Female	42 (71)	3 (17)
LVHN PCP	39 (66)	5 (28)
Average ± Std Dev		
Age (years)	57 ± 19.6	64 ± 17.9
LOS (days)	6.4 ± 7.7	16.6 ± 13.4

Graph 1. Percentage of patients receiving all recommended vaccines



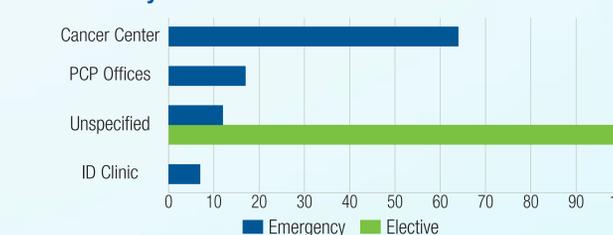
⁴Rubin LG, et al. 2013 IDSA clinical practice guideline for vaccination of the immunocompromised host. *Clin Infect Dis*. 2013;58(3):309-318.

⁵Centers for Disease Control and Prevention. Charter of the Advisory Committee on Immunization Practices. Updated 1 April 2018. Accessed at www.cdc.gov/vaccines/acip/committee/acip-charter.pdf on 7 November 2019.

Table 2. Rates of appropriate vaccine administration (N=77)

	Elective n=59	Emergency n=18
n (%)		
All vaccines		
Prior to surgery	18 (31)	-
At least 2 weeks prior to surgery	15 (25)	-
Prior to discharge	21 (36)	12 (67)
Follow-up vaccines		
Within 8 weeks	23 (39)	0 (0)
Within 1 year	25 (42)	0 (0)
At least 1 follow-up vaccine	37 (63)	2 (11)
LVHN PCP	22 (59)	1 (50)
Non-LVHN PCP	15 (41)	1 (50)

Graph 2. Percentage of patients who received follow-up vaccines by location



⁶Kobayashi M, et al. Intervals between PCV13 and PPSV23 vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Morb Mortal Wkly Rep*. 2015;64(34):944-947.

⁷Centers for Disease Control and Prevention (CDC). Updated recommendations for use of meningococcal conjugate vaccines—Advisory Committee on Immunization Practices (ACIP), 2010. *MMWR Morb Mortal Wkly Rep*. 2011;60(3):72-76.

Conclusion

- Low percentage of patients received vaccines prior to elective splenectomy
 - ♦ Primary care offices do not routinely stock the necessary vaccines to administer prior to elective surgery
 - ♦ An improvement in pre-surgical planning may increase vaccination rates
- High percentage of patients who underwent either elective or emergent splenectomy received at least three of the four recommended vaccines prior to discharge (83% and 94%, respectively). Greater percentage received all four vaccines following emergent splenectomy (67%).
 - ♦ No trend exists for what vaccines were missed prior to discharge in either group
 - ♦ Order set available targeting immunizations post-splenectomy for emergent procedure
 - ♦ Consider incorporation of recommendations for patients undergoing elective procedures
- Similar vaccination completion rates between patients with an LVHN vs Non-LVHN PCP (35% vs 44%)
- Rate of vaccine completion within one year of surgery was lower than expected at 42%.
 - ♦ The results will be presented to the appropriate departments to help develop an action plan that will allow us to further align our practices with the current IDSA and CDC guidelines.

DISCLOSURES

The authors have nothing to disclose concerning possible financial or personal relationships with commercial entities.