RISING DERM STARS® ABSTRACTS

Preventative Medicine in Dermatologic Care: Providing Immunization Education and Convenient Pneumococcal Immunizations for Patients Receiving Immunosuppressive Therapy

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INTRODUCTION

Immunosuppressive therapies increase risk of infections 2-fold when compared to naive individuals;[1] however, an observational study found that only 4% of patients with psoriasis who were on or planned to start immunosuppressive therapy were immunized with pneumococcus.[2] Factors positively influencing vaccination uptake include having vaccines available same day in clinic and education about vaccines. Negative influences include no recommendation from the treating clinician and no insurance.[3] Failure to vaccinate occurs by overlooking indication and an uncertainty as to who is responsible for vaccination.[4] Since the early 2000's, vaccinations have been offered in pharmacies. This could result in additional confusion regarding vaccination responsibility. As a result of not being immunized, patients on immunosuppressive medications experience higher rates of preventable infections. We observed that many of our patients' immunizations were incomplete and sought to increase immunization uptake through a quality improvement (QI) project beginning in Fall 2019. We evaluated the project's approach of providing education with immediate onsite immunization availability relative to standard care to determine if vaccination uptake per CDC guidelines[5] can be increased.

METHODS

We compared acceptance of CDC recommended pneumococcal immunization for patients on immunosuppressive therapy who were and were not subject to the QI project at the 2 urban dermatology clinics. Patients in the comparison group were under the care of other dermatologists. All patients in the QI group were educated on benefits of immunizations and offered immediate immunizations. Those who had never received the PCV13 or PPSV23 were

Table 1. Immunization status by group and time point, including unadjusted and adjusted column percentages. N=201.

Unadjusted Column Percentages					
	QI Group (N=146)		Comparison Group (n=55)		p-value
Immunization Status	*Initial observation*	*Final observation*	*Initial observation*	*Final observation*	
No Immunization	69.9 (61.9, 76.8)	13.7 (9.0, 20.4)	60.0 (46.4, 72.2)	60.0 (46.4, 72.2)	<0.001
Partially Immunized	18.5 (13.0, 25.7)	47.9 (39.9, 56.1)	32.7 (21.5, 46.3)	32.7 (21.5, 46.3)	
Fully Immunized	11.6 (7.3, 18.0)	38.4 (30.8, 46.6)	7.3 (2.7, 18.1)	7.3 (2.7, 18.1)	
Adjusted Column Percentages*					
	QI Group (N=146)		Comparison Group (n=55)		p-value
Immunization Status	*Initial observation*	*Final observation*	*Initial observation*	*Initial observation*	
No Immunization	66.3 (59.8, 72.7)	16.1 (10.9, 21.3)	62.1 (53.6, 71.6)	62.1 (53.6, 71.6)	<0.001
Partially Immunized	26.1 (21.3, 30.9)	43.2 (37.0, 49.4)	28.7 (21.4, 36.0)	28.7 (21.4, 36.0)	
Fully Immunized	7.7 (3.9, 11.4)	40.6 (0.34, 0.47)	9.2 (5.0, 13.4)	9.2 (5.0, 13.4)	

*Adjusted column percentages are the average predicted probabilities calculated based on results of a multivariable ordered logit model; probabilities multiplied by 100 and expressed as percentages.

defined as unimmunized. Patients who had received either vaccination were partially immunized. Patients who received both were completely immunized. We collected demographics and immunization status for all patients. Using Stata 14.2 [StataCorp, College Station, TX], we compared immunization status at baseline and final observations for patients in the QI and comparison groups using a multivariable ordered logit model, and used multiple logistic regression to examine receipt of a vaccination within the QI group.

RESULTS

The QI (N=146) and comparison groups (N=55) did not differ significantly on sociodemographic or clinical characteristics, including baseline immunization. After adjusting for patient characteristics, baseline immunization rates for fully, partially, and unimmunized patients were 9.2%, 28.7%, and 62.1% for the comparison group and 7.7%, 26.1%, and 66.3% for the QI group, respectively. Immunization statuses within the comparison group did not change over time, but at final observation 40.6%, 43.2%, and 16.1% of the QI group were fully, partially, and unimmunized, respectively (Table 1; p<0.001). Of patients in the QI group eligible for vaccination at baseline, 81% (105/129) received a vaccination. There was a significant association between immunization and insurance; uninsured patients in the QI group had significantly lower odds of receiving a vaccination (Table 2; p=0.015).

CONCLUSION

Providing patients on immunosuppressive regimens with education and immediate vaccination access in a dermatology clinic.

Table 2. Unadjusted and adjusted associations between receipt of one or more pneumonia vaccinations during the QI project and characteristics of persons in the QI group who were not already fully immunized (n=129).

		Unadjusted Associations			Adjusted Associations			
Variable	Total n=129 Column % (95% CI)	Vaccine Not Received n=24 Column % (95% CI)	Vaccine Received n=105 Column % (95% CI)	p-value	Odds Ratio (OR)	95% Confidence Interval of OR		p-value
Gender								
Female	64.3 (55.6, 72.2)	66.7 (45.4,82.8)	63.8 (54.1, 72.5)	0.792	1.00	(ref)		
Male	35.7 (27.8, 44.4)	33.3 (17.2, 54.5)	36.2 (27.5, 45.9)		1.06	0.35	3.24	0.917
Age								
<=34	22.5 (16.0, 30.6)	25.0 (11.4, 46.4)	21.9 (14.9, 31.0)	0.610	1.00	(ref)		
35-44	22.5 (16.0, 30.6)	33.3 (17.2, 54.5)	20.0 (13.3, 28.9)		0.81	0.20	3.37	0.777
45-54	19.4 (13.4, 27.2)	12.5 (3.9, 33.2)	21.0 (14.1, 29.9)		3.79	0.56	25.67	0.172
55-64	25.6 (18.7, 33.9)	20.8 (8.7, 42.1)	26.7 (19.0, 36.1)		1.40	0.26	7.64	0.699
>=65	10.1 (5.9, 16.7)	8.3 (2.0, 28.8)	10.5 (5.8, 18.1)		1.06	0.15	7.50	0.955
Primary insurance								
Private	13.2 (8.3, 20.3)	8.3 (2.0, 28.8)	14.3 (8.7, 22.5)	0.007	1.00	(ref)		
Public (Medicare or Medicaid)	52.7 (44.0, 61.3)	45.8 (27.0, 65.9)	54.3 (44.6, 63.7)		0.89	0.15	5.22	0.893
County program	24.0 (17.4, 32.3)	16.7 (6.2, 37.7)	25.7 (18.2, 35.0)		1.10	0.15	8.06	0.927
Uninsured	10.1 (5.9, 16.7)	29.2 (14.2, 50.5)	5.7 (2.6, 12.3)		0.07	0.01	0.59	0.015
Patient used translator								
No	82.9 (75.3, 88.6)	91.7 (71.2, 98.0)	81.0 (72.2, 87.4)	0.208	1.00	(ref)		
Yes	17.1 (11.4, 24.7)	8.3 (2.0, 28.8)	19.0 (12.6, 27.8)		7.14	0.91	56.31	0.062
Count of prior office-based contacts (all provider specialties)								
0-3 visits	30.2 (22.8, 38.8)	33.3 (17.2, 54.5)	29.5 (21.5, 39.1)	0.89	1.00	(ref)		

4-8 visits	29.5 (22.2, 38.0)	33.3 (17.2, 54.5)	28.6 (20.7, 38.1)		0.62	0.17	2.28	0.473
9-14 visits	26.4 (19.4, 34.7)	20.8 (8.7, 42.1)	27.6 (19.8, 37.1)		0.85	0.20	3.68	0.829
>=15 visits	14.0 (8.9, 21.2)	12.5 (3.9, 33.2)	14.3 (8.7, 22.5)		0.74	0.14	3.82	0.717
Visit type at initial observation								
Initial	20.2 (14.0, 28.1)	25.0 (11.4, 46.4)	19.0 (12.6, 27.8)	0.512	1.00	(ref)		
Follow-up	79.8 (71.9, 86.0)	75.0 (53.6, 88.6)	81.0 (72.2, 87.4)		1.98	0.52	7.51	0.317
Number of indications other than medication(s) and age†								
Count Variable‡	0.81 (0.64, 0.97)	0.75 (0.35, 1.14)	0.82 (0.64, 1.00)	0.746	0.98	0.50	1.91	0.952
Immunosuppresive medications used prior to initial observation								
No	16.3 (10.8, 23.8)	12.5 (3.9, 33.2)	17.1 (11.0, 25.7)	0.578	1.00	(ref)		
Yes	83.7 (76.2, 89.2)	87.5 (66.8, 96.1)	82.9 (74.3, 89.0)		0.40	0.08	2.06	0.271

† Includes heart disease (congestive heart failure or coronary artery disease), diabetes, lung disease (chronic obstructive pulmonary disease or asthma), chronic renal failure, or being a current smoker. Possible range 0-5, actual range 0-4.

‡Unadjusted numbers represent mean

significantly increased uptake of recommended pneumococcal immunization. Widespread use of this practice could reduce vaccine preventable illness and improve population health. Furthermore, there is a clear need for additional interventions targeting uninsured patients.

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