Treatment Patterns Associated with Pseudomonas Aeruginosa Among Patients with Non-cystic Fibrosis Bronchiectasis in the U.S.

Christopher M. Blanchette, PhD;[1] Joshua Noone, PhD;[1] Glenda Stone, PhD;[2] Emily Zacherle, MS; [1] M. Chris Runken, PharmD;[2] Reuben Howden, PhD;[1] Douglas Mapel, MD[3]

[1]University of North Carolina, Charlotte, NC, USA; [2]Grifols, Research Triangle Park, NC, USA, [3]Lovelace Clinic Foundation, Albuquerque, NM, USA

INTRODUCTION

- **Non-cystic fibrosis bronchiectasis (NCFBE) is a rare, chronic lung disease characterized by bronchial inflammation and permanent airway dilation.[1]**
- **Chronic infections with Pseudomonas aeruginosa (PA) have been linked to higher morbidity and mortality in NCFBE patients.[2]**
- **We assessed treatment patterns for PA among NCFBE patients in a US commercially-insured database.**

METHODS

- **Using data from the 2007-2013 PharMetrics Plus administrative claims database, we included patients with >2 claims for bronchiectasis (ICD-9-CM: 494.xx).**
- **Among these patients, those with >1 claim for cystic fibrosis (277.xx) were then excluded.**
- **The prevalent cohort of NCFBE patients were indexed at first NCFBE claim and were required to have at least 12 months post-index for assessment of healthcare cost and resource utilization.**
- **PA was defined by >1 claim for PA (482.1 or 041.7) during the study period. We evaluated all respiratory medications used by the entire cohort.**
- **The mean difference in utilization and costs were compared between those with and without PA using paired t-tests for statistical significance.**

RESULTS

- **Of the 36,350 patients identified as NCFBE, 1,285 had a claim for PA.**
- **Patients with PA were similar to those without PA: mostly over age 50 (88% vs. 82.1%) and female (59.6% vs 63%) (*Figures 1-2*).**
- **PA patients used significantly more (p<0.05) Albuterol (187%, 1.66 vs. 0.88), Budesonide (187%, 0.8 vs. 0.43), Ciprofloxacin (463%, 1.24 vs. 0.27), Fluticasone products (181%, 2.03 vs. 1.12), Ipratropium (250%, 0.96 vs. 0.39), Levalbuterol (266%, 0.34 vs. 0.13), Methylprednisolone (195%, 0.27 vs. 0.14), Prednisone (211%, 1.86 vs. 0.89), Tiotropium (250%, 1.22 vs. 0.49) and Tobramycin (2047%, 0.51 vs. 0.02) (*Figure 3*).**

Figure 1. Mean Age of NCFBE Patients With and Without PA

Note: 441 patients were missing age description in the data, but were retained for the analysis because of the completeness of their treatment patterns data.

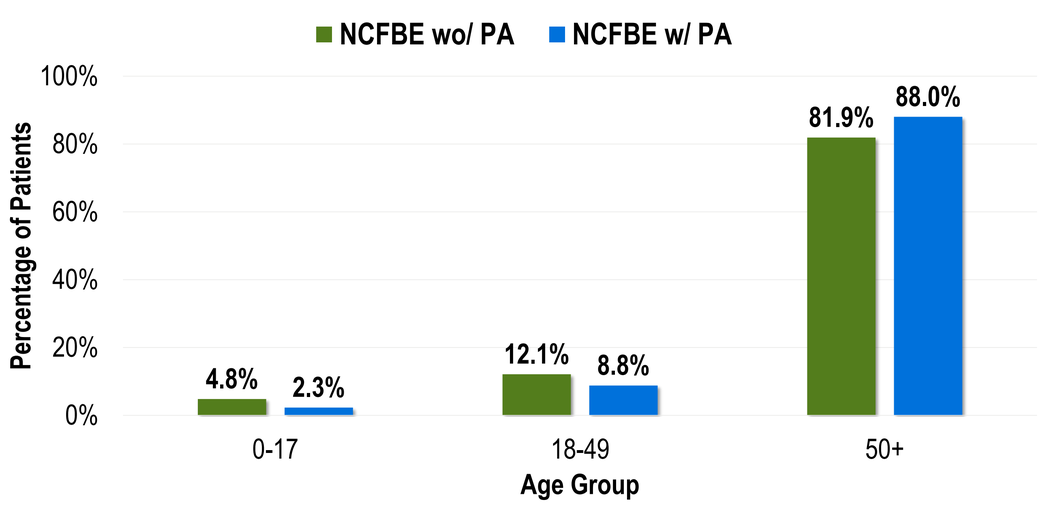

Figure 2. Gender of NCFBE Patients With and Without PA

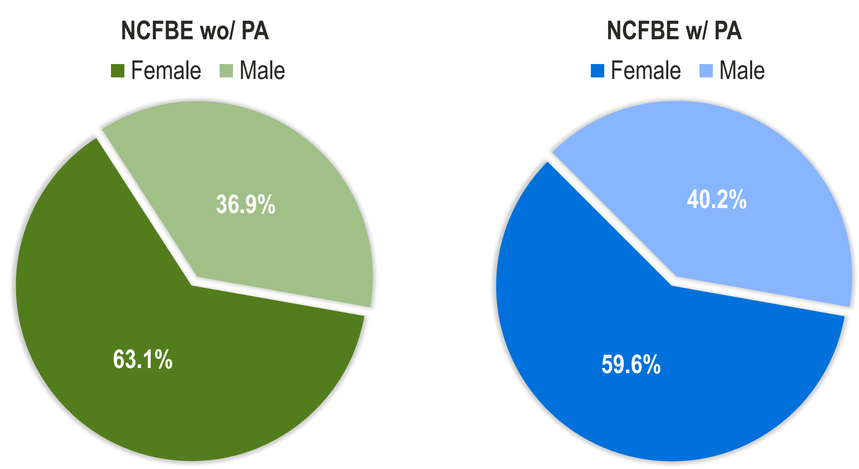

Figure 3. NCFBE Related Pharmacy Utilization for PA Patients

Pharmaceuticals/Devices	NCFBE wo/ PA Mean	NCFBE w/ PA Mean	Percent Change in Pharmaceutical/Device Utilization by PA Patients (0% 100% 200% 300% 400% 500% 600% 700% 800% 900%)
Albuterol*	0.88	1.66	187.8%
Arformoterol	0.02	0.03	117.1%
Budesonide*	0.43	0.80	187.4%
Ciprofloxacin*	0.27	1.24	463.0%
Cyclosporine	0.05	0.11	228.0%
Fluticasone products* (incl. Salmeterol)	1.12	2.03	180.9%
Hydrocodone*	0.72	1.14	159.2%
Ipratropium*	0.39	0.96	250.0%
Levalbuterol*	0.13	0.34	266.0%
Levofloxacin*	0.34	0.73	212.4%
Methylprednisolone*	0.14	0.27	195.2%
Montelukast*	0.56	1.07	191.0%
Moxifloxacin*	0.16	0.30	187.6%
Mupirocin*	0.04	0.15	334.2%
Omalizumab*	0.01	0.02	198.2%
Pepdevice*	0.02	0.06	256.6%
Posaconazole*	0.01	0.04	575.7%
Prednisone*	0.89	1.86	210.7%
Sulfamethoxazole*	0.25	0.60	238.5%
Tacrolimus*	0.04	0.19	447.6%
Tamsulosin*	0.13	0.26	197.3%
Tiotropium*	0.49	1.22	249.9%
Tobramycin*	0.02	0.51	2047.3%
Valganciclovir*	0.01	0.05	693.8%
Voriconazole*	0.03	0.19	650.8%
Flutterdevice	0.00	0.00	307.6%
Percussionairs	0.00	0.01	421.6%

*p<0.05

CONCLUSIONS

- **NCFBE patients with PA were treated with more antibiotics, steroids and respiratory medications compared to NCFBE patients without PA.**
- **However, health outcomes of those with PA have been reported in prior publications as comparatively poorer.**
- **Additional research is needed to establish better treatment management for these patients.**

REFERENCES

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