Understanding Non-Adherence of Inhaled Corticosteroid Use in Asthmatics

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Abstract

Asthma is a chronic respiratory condition that affects the health of millions and costs the health care system billions of dollars each year.[1] Corticosteroid inhalers, a proven helpful long term asthma treatment medication, have had a long history of non-adherence among its asthma users.[2-4] Previous studies have shown a variety of factors contributing to non-adherence, such as financial affordability.[5]

No studies to date have focused on the Bronx Adult Asthmatic population. The Bronx has one of the highest overall rate of asthma hospitalizations, deaths, and prevalence among children and adults.[6-8] Our goal was to analyze and understand the reasons behind non-adherence in the use of inhaled corticosteroids.

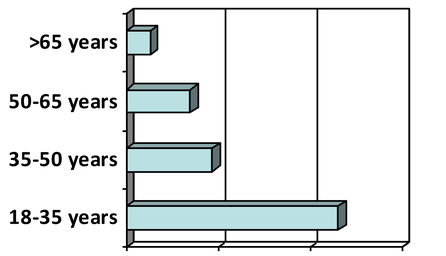
Figure 1. Asthma hospitalization rates in a variety of NYC neighborhoods

	YEAR								
	2001-2002		2003-2004		2005-2006		2007-2008		% change
UHF Neighborhood	N	Rate*	N	Rate*	N	Rate*	N	Rate*	2005-2006 - 2007-2008
Kingsbridge - Riverdale	296	3.0	374	3.9	363	3.8	315	3.2	-15.8
Northeast Bronx	620	3.2	669	3.4	768	3.8	912	4.5	18.4
Fordham - Bronx Park	1293	6.2	1455	6.8	1553	7.2	1776	8.0	11.1
Pelham - Throgs Neck	1424	5.0	1508	5.2	1422	4.9	1667	5.6	14.3
Crotona - Tremont	1659	10.5	1870	11.5	1723	10.4	1897	11.0	5.8
High Bridge - Morrisania	1573	10.1	2035	12.6	1675	10.1	1745	10.1	0.0
Hunts Point - Mott Haven	1216	12.0	1442	13.5	1237	11.3	1330	11.6	2.7
Bronx	**8089**	**6.7**	**9372**	**7.6**	**8756**	**7.0**	**9646**	**7.5**	**7.1**
Greenpoint	382	3.6	348	3.2	320	2.9	329	2.8	-3.4
Downtown - Heights - Slope	900	4.4	847	4.1	839	3.9	889	4.0	2.6
Bedford Stuyvant - Crown Heights	1605	5.6	2010	6.9	1855	6.3	1991	6.7	6.3
East New York	662	4.5	895	6.0	872	5.7	889	5.6	-1.8
Sunset Park	454	4.2	365	3.3	352	3.1	383	3.2	3.2
Borough Park	550	1.8	526	1.7	488	1.5	473	1.4	-6.7
East Flatbush - Flatbush	895	2.9	927	3.0	899	2.9	880	2.8	-3.4
Canarsie - Flatlands	423	2.1	458	2.2	460	2.2	534	2.5	13.6
Bensonhurst - Bay Ridge	278	1.3	284	1.3	255	1.1	248	1.0	-9.1
Coney Island - Sheepshead Bay	760	2.3	888	2.7	825	2.4	710	2.0	-16.7
Williamsburg - Bushwick	1935	12.1	1705	10.4	1611	9.5	1458	8.2	-13.7

Results

210 studies were completed with a response rate of 70% (302 total patients). However, 82 of those 92 patients had incorrect contact information and was unable to be spoken to. 51 (24%) respondents either did not take the medication or did not take it appropriately. Of these 51 respondents, 27 (53%) used their corticosteroid only when symptoms occurred. 15 (29%) were afraid of side effects. 6 (12%) respondents stated they could not afford it financially. 5 (10%) did not think the medication would help. 6 (12%) felt that it was not needed. 27 (53%) stated that they have other medications but do not take as prescribed at all times.

Figure 2. Age Distribution of patients in our study



	18-35 years	35-50 years	50-65 years	>65 years
Age	115	47	35	13

Figure 4. Respondent's reasons for not using their inhaled corticosteroids. The top reason being that the inhaler was used only when symptoms were present.

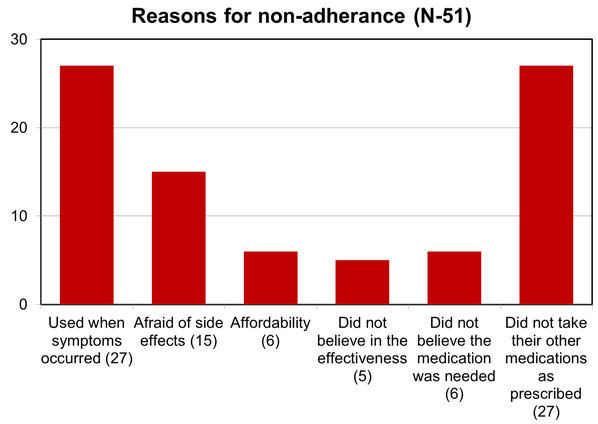
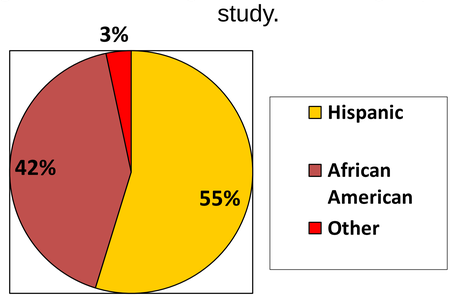


Figure 3. Percentage of each ethnic group in our study.



Discussion

A variety of factors appear to influence adherence of inhaled corticosteroid use. In our study, 53% of the respondents whom did not take the medication appropriately did not know basic facts such as the need to use the inhaler daily. In addition, it appears that many of the non-compliant respondents were also non-compliant with their other medication treatment.

The response rate was 70% (210/302). However the response rate likely would have been higher due to 82 of the 92 no responses being due to incorrect phone numbers.

One limitation of our study involved the patient population. An overwhelming 97% of our patients were either Hispanic and African American. Thus, the study results may not be applicable to other areas.

Another limitation involves the patient responses. 76% of our patients stated that they take their medication as prescribed. Studies in the past have shown that positive responses tend to be inaccurate in regards to compliance. However, the same studies have shown that negative responses tend to be accurate. Thus the non-adherence rates may be higher in our study than our results indicate.

Lastly, some of our older patients may in fact have COPD instead of Asthma. Although, all patients have Asthma documented as a medical problem in their record, some patients were unsure of their medical history. And we did not have all out-patient records of all patients to confirm the diagnosis.

Methods

The study was conducted by telephone survey and approved by St. Barnabas Hospital Institutional Review Board. Patient information was randomly collected from the hospital EMR to find patients with a history of asthma that were prescribed an inhaled corticosteroid. The selection criteria is as follows: 1. Patients >18 years old; 2. History of Asthma; and 3. Prescribed inhaled corticosteroid use.

References

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Conclusions

Based on our study, there is a sizable amount of patients who do not understand basic knowledge in asthma treatment. A larger focus on patient education may help improve medication use compliance.