

Asthma control is influenced by patients' ability to use their pMDI

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Poster P851

Abstract: Asthma control is influenced by patients' ability to use their pMDI

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Body:

Patients' inability to use a pMDI results in poor asthma control, (*J of Asthma*. 2008;45(2):109-13; *ERJ* 2002;19(2):246-51). We related asthma control and health care utilisation (HCU) to ability to use pMDIs.

Method:

Evaluation of 3981 (46% male) asthma patient reviews, including inhaler technique and asthma control by specialist nurses in primary care in 2009.

Data analysis:

X² and Logistic regression (SPSS v18).

Results:

Asthma was controlled in 50% of patients. For preventer medication, there was evaluable data for 2887 patients (73%) and of these 68% and 6% were using a pMDI alone and with a spacer respectively; 10% were using Easi-Breathe and 10% Turbohalers.

The majority of patients (60% of 3686) were using reliever pMDIs; 13% with spacers. Incorrect pMDI use was associated with poor asthma control, (p<0.0001), more exacerbations (previous 3 mths) (p=0.030) and more systemic steroid prescriptions in the last year. (p=0.038). Of patients using beclometasone (the most frequently prescribed preventer), more of those using i) a breath actuated pMDI device (p=0.038) and ii) a spacer (were controlled compared with those on pMDIs (p<0.0001). Males were better controlled than females (p < 0.0001) who were less able to use their pMDIs (p<0.0001)

Conclusions:

Patients able to use pMDIs have better asthma control. Beclometasone via a breath actuated device resulted in better control than via pMDI. In this population females seem less able to use pMDIs than males and their asthma control was not as good. Further study is needed.

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INTRODUCTION:

The **IMPACT*** service (*Improving the Management of Patients Asthma and COPD Treatment; started March 2009), provides a service for primary care practices in the UK, which includes a detailed clinical asthma review by trained nurses, according to agreed practice protocols, based on National Guidelines. Data collected systematically during the asthma reviews offers a unique opportunity to evaluate factors affecting asthma control.

There is evidence that many patients are unable to use their inhaler devices correctly.^[1,3] There is also evidence that poor inhaler technique results in poor asthma control.^[4,5]

International guidelines recommend that inhalers should be prescribed only:

- After patients have received training in the use of the device
- Have demonstrated their ability to use it

AIM:

This service evaluation predominantly focussed on retrospectively evaluating those using pMDIs with our without spacers and BAs (in the previous 12 months in 2009). Our particular interest was in relating inhaler technique to asthma control.

Method

IMPACT provides a service for primary care practices, which includes a detailed clinical asthma review by trained asthma nurses, according to agreed practice protocols.

Patients are selected for asthma review by the IMPACT nurses on the basis of a proxy measure of control – i.e. the total number^[4,6] of short-acting Beta-2-bronchodilators (SABA) prescribed in the previous 12 months, whether they have had an asthma review, an inhaler technique check or a hospital admission the previous 12 months and whether they are compliant with their preventer medication. This, together with 77 pre-determined clinical parameters (including prescribing and healthcare utilisation data) forms the basis of detailed discussion with the practices.

During the clinical review:

- All patients prescribed pMDIs in the previous 12 months had at least two assessments using Vitalograph AIM.
- All patients had their asthma control assessed, using a modified form of the GINA Control Tool^[6]

Data analysis:

X² and Logistic regression (SPSS v18).



Vitalograph Aerosol Inhalation Monitor

Levels of Asthma Control			
Characteristic	Controlled (All of the following)	Partly controlled (Any present in any week)	Uncontrolled
Daytime symptoms	None (2 or less / week)	More than twice / week	3 or more features of partly controlled asthma present in any week
Limitations of activities	None	Any	
Nocturnal symptoms / awakening	None	Any	
Need for rescue / "reliever" treatment	None (2 or less / week)	More than twice / week	
Lung function (PEF or FEV ₁)	Normal	< 80% predicted or personal best (if known) on any day	
Exacerbation	None	One or more / year	1 in any week

GINA Control Table^[6]

Results

3981 (46% male) asthma patient reviews were performed by the IMPACT Nurses during the review period.

- The majority of patients 2375 (64% of 3686 evaluable patients) were using reliever pMDIs alone (14% with spacer)
- 2047 (73%) were using a pMDI for administering their preventer medication. (68% used a pMDI alone and 6% together with a spacer)

1437/2483 (58%) of the evaluable patients who had their inhaler technique checked with the AIM failed their first test

- 40% failed the flow criterion
- 58% failed the synchronisation criterion, and
- 34% failed the breathholding

Incorrect pMDI use was associated with:

- poor asthma control (p<0.0001)
- more exacerbations (previous 3 mths) (p=0.030) and
- more systemic steroid prescriptions in the last year (p=0.038).

Result 1

Incorrect pMDI use was associated with poor asthma control, (p<0.0001)

GINA Control		pMDI Technique AIM 1st Test		
		Fail	Pass	Total
GINA Control	Controlled	476 (33%)	697 (67%)	1173 (47%)
	Partly controlled	634 (44%)	263 (25%)	897(36%)
	Uncontrolled	325 (23%)	85 (8%)	410 (17%)
	Total	1435	1045	2480

Incorrect pMDI use was associated with more exacerbations (last 3 mths) (p=0.03) and more systemic steroid prescriptions in the last year. (p<0.05).

Result 2

Spacer with pMDI associated with better control (p< 0.0001)

GINA Control		pMDI Alone and With Spacer		
		BDP pMDI	BDP Spacer	Total
GINA Control	Controlled	508 (51%)	75 (68%)	583 (52%)
	Partly controlled	332 (33%)	33 (30%)	365 (33%)
	Uncontrolled	164 (16%)	2 (2%)	166 (15%)
	Total	1004	110	1114

Result 3

In order to compare patients using breath actuated and pMDI beclometasone dipropionate, the following crosstabulation includes patients on Clenil™ and Qvar Easi-breathe™

In this population Qvar Easi-Breathe is associated with better control than Clenil pMDI (p<0.04).

GINA Control		pMDI vs Breath Actuated		
		Clenil pMDI	Qvar Easi-Breathe	Total
GINA Control	Controlled	269 (54%)	102 (64%)	371 (56%)
	Partly controlled	162 (32%)	45 (28%)	207 (31%)
	Uncontrolled	72 (14%)	13 (8%)	85 (13%)
	Total	503	160	663

Result 4: Sex and Control

Overall asthma control was poorer in females (p<0.0001).

GINA Control		Sex		
		Male	Female	Total
GINA Control	Controlled	988 (55%)	1012 (47%)	2000
	Partly controlled	564 (31%)	769 (36%)	1333
	Uncontrolled	254 (14%)	381 (18%)	635
	Total	1806	2162	3968

Of 2478 patients using pMDIs, more females (61%) failed the 1st AIM test than males. OR 0.72 (CI 0.62 – 0.86)

Conclusions

- Patients who are able to use pMDIs appeared to have better asthma control.
- Qvar (beclometasone) via a breath actuated device (Easi-Breathe) appeared to result in better control than Clenil (beclometasone) via a pMDI.
- In this study population females seem less able to use pMDIs than males and their asthma control was not as good.
- Patients prescribed pressurized metered dose inhalers should be carefully instructed in technique and have their ability to use these devices tested.

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