Optimizing Asthma Management and Treatment through Behavior Modification

The problem of adherence.

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Disclosure of conflicts of interest

The author has no conflicts of interest related to the contents of this educational presentation.
Learning Objectives

- To provide insight into reasons for non-compliance in asthma therapy
- To review effective ways of enhancing treatment compliance at different ages
## Asthma control in diverse regions of the world according to GINA goals for asthma treatment

<table>
<thead>
<tr>
<th>Study</th>
<th>Region</th>
<th>n</th>
<th>1xweek</th>
<th>ED last year %</th>
<th>PRN last month %</th>
<th>Work absences last year %</th>
<th>Never had LF</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRE (1999)</td>
<td>7 European countries</td>
<td>2050</td>
<td>50</td>
<td>27.9</td>
<td>63.6</td>
<td>17.1</td>
<td>45</td>
</tr>
<tr>
<td>AIA (1998)</td>
<td>USA</td>
<td>2509</td>
<td>71</td>
<td>19</td>
<td>NA</td>
<td>25</td>
<td>65</td>
</tr>
<tr>
<td>AIRAP (2002)</td>
<td>Urban centres in 8 areas</td>
<td>2323</td>
<td>51.4</td>
<td>43.6</td>
<td>56.3</td>
<td>26.5</td>
<td>60.3</td>
</tr>
<tr>
<td>AIRLA (2003)</td>
<td>11 LA countries</td>
<td>1376</td>
<td>56</td>
<td>52</td>
<td>55</td>
<td>30</td>
<td>49</td>
</tr>
</tbody>
</table>

Lallou UG, McIvor RA. Int J Tuberc Lung Dis 2006; 10: 474-83
Despite ICS or ICS/LABA therapy, 75% of patients used rescue therapy each day.

**SABA use (inhalations/day in the last week)**

- None: 26%
- 1-2: 38%
- 3-4: 21%
- 5-8: 11%
- 9+: 5%

Base: all respondents (n=3,415)
REASONS FOR POOR ASTHMA CONTROL

- Low Adherence
  - Psychological Problems
    - Depression
  - Drug Abuse
  - Smoking
  - Co-morbidities
  - Medication Costs
  - Pharmacokinetic/Pharmacodynamic
  - Not Attending Medical Consultations
  - Ineffective Delivery

- Low Symptom Perception
- Adverse Effects of Drugs
- Asthma-Exacerbating Drugs
- Misdiagnosis
- Complex Therapeutic Regimens
- Inadequate Treatment
- Lack of Coordination of Care

- Environmental Exposures

- Low Patient/Physician Expectations
Definitions of adherence / compliance

- The extent to which a person’s behaviour, taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.

Rand CS. *Am J Cardiol* 1993; 72: 68D-74D
Patient persistence on medication in chronic diseases

Across classes, 20% - 35% loss in patient base after fill of initial prescription

CCB = calcium channel blocker; SERM = selective estrogen receptor modulator; SSRI = selective serotonin reuptake inhibitor.

Lack of adherence to medical treatments has been identified as the most significant problem challenging the medical practice.

Adherence Problems in Asthma

- Psychosocial and economic problems
- Complex therapeutic regimens
- Route of administration (inhaled vs. oral)
- Frequency of dose
- Apparent need for changes of lifestyle
- Myths
- Supposed addiction
- Corticofobia, etc.
Adherence and outcomes

- Adherence/persistence rates range from 5-50%\(^1\)
- Use patterns tend to be sporadic\(^2\)
- Non-adherence likely accounts for ~60% of hospitalizations\(^3\)

\(^1\)Luskin AT Bukstein DA. Ann Allergy 1999, 2001
\(^2\)Bender B JACI 2003
\(^3\)Williams LK JACI 2004;114:1288-1293
Adherence to Inhaled Therapy during 27 months

Jónasson, Arch Dis Child 2000;83:330
Adherence to Asthma Medication in the United Kingdom

CSI: Inhaled Corticoesteroids

Price, D et al. ATS May 8, 2000
Problems with ICS Use

• Afraid of side effects: weight increase, muscle mass increase, infections, bone disturbances, growth retardation, cataracts/diabetes
• Need for higher doses to obtain similar benefits
• Possible loss of effectivity

Boulet LP Chest 1998;113:587-592
ADHERENCE TO ICS IN AFRICAN AMERICAN AND WHITE PATIENTS STRATIFIED BY TERTILES OF HOUSEHOLD INCOME

CAUSES OF NONADHERENCE

- Misunderstanding of directions and roles of control and rescue medications
- Beliefs about health and asthma
- Doubts about usefulness of ICS
- Fear of side effects
- Low income
- Educational level
- Patient perceptions
- African American race
- Frequency of symptoms

Janson SL et al. Heart Lung 2008; 37: 211-8
Proportion of Children Adquiring a Corticosteroid Prescription

Cooper W. Arch Pediatr Adolesc Med 2001;155:1111
### REPORTED REASONS FOR NON-COMPLIANCE WITH PRESCRIBED MEDICATION REGIME

<table>
<thead>
<tr>
<th>Reason</th>
<th>No. of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forgetfulness</td>
<td>24</td>
</tr>
<tr>
<td>Ineffective medication</td>
<td>7</td>
</tr>
<tr>
<td>Denial</td>
<td>4</td>
</tr>
<tr>
<td>Difficulty using inhaler</td>
<td>4</td>
</tr>
<tr>
<td>Inconvenience</td>
<td>3</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>3</td>
</tr>
<tr>
<td>Fear of side effects</td>
<td>2</td>
</tr>
<tr>
<td>Laziness</td>
<td>1</td>
</tr>
</tbody>
</table>

*Buston KM, Wood SF. Family Practice 2000; 17: 134-8*
Non-adherence Patterns

- Not to get the prescribed medication
- Not to follow the instructions
- Discontinue prematurely the medication
Reasons for not Buying the Medications

51.0% I do not need it
21.7% Not willing
10.5% Cost
2.8% Forgot
10.5% Other
5% Could not find it

Upjohn Survey, 1985
Access to essential drugs for asthma treatment.
Adherence Also Includes

- Attendance to programmed visits
- To call the office when necessary
- To bring medications, diaries or lab results to the visit
- To complete diaries
- To implement environmental control measures and any other aspects of the therapeutic regime
BARRIERS TO ADHERENCE IN ASTHMA TREATMENT

TREATMENT
• Prolonged and complex regimens
• Adverse effects
• Cost
• Delayed onset of action

PATIENT
• Mild or severe asthma
• Poor understanding of the need for treatment
• Insufficient confidence in the clinician or medication
• Psychological problems
  • Low motivation

PHYSICIAN
• Difficulty in scheduling
• Different (rotating) care givers
  • Perceived clinician disinterest
• Time constraints

Alarm signals: Non-adherence factors associated with the patient

- Denial – Patient’s beliefs on the disease and its treatment
- Disruption – personal and family crisis
- Depression – apathy
- Dementia – psychiatric disorders
Health Workers

- Overestimate patient’s adherence and do not identify non compliants
- Are influenced by multiple personal characteristics of the patient

Mushlin. Arch Intern Med 1977;137:318
Rand. Am J Respir Crit Care Med 1994;149:S69
What do Physicians do?

- Dedicate less than 1 minute, out of the medical consultation’s 20 minutes to discuss treatment and control
- Informed decision occurs in less than 9% of medical visits
- In less than half of the visits patients are asked if they have any doubts

Waltzkin H. JAMA 1984; 252: 2441-2446
The treating physician interrupts the patient in less than 18 seconds after beginning to talk.

Beckman HB and Frankel RM Ann Intern Med 1984
FACTORS IMPROVING COMPLIANCE

- Once or twice daily regimen
- Open and honest reporting of compliance
- Discussion of agreed treatment plan
- Written treatment plan
- One-to-one professional relationship with doctor or nurse
- Patient education, leaflets, videos

Effects of the Number of Doses on the Adherence

Gaffey MS. J Coll Gen Pract 1988
<table>
<thead>
<tr>
<th>Inhalation Maneuver</th>
<th>MDI</th>
<th>TH</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the cap</td>
<td>73 (100)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Shake the inhaler</td>
<td>47 (64.3)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Keeping the inhaler upright</td>
<td>64 (87.7)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Exhale to residual volume</td>
<td>30 (41.1)</td>
<td>16 (57.1)</td>
<td>11 (57.8)</td>
</tr>
<tr>
<td>Keeping head upright</td>
<td>71 (97.3)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Place mouthpiece correctly</td>
<td>65 (89.0)</td>
<td>26 (92.9)</td>
<td>18 (94.7)</td>
</tr>
<tr>
<td>Inhaling slowly pressing the inhaler</td>
<td>39 (53.4)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Deep and powerful inspiration</td>
<td>50 (68.5)</td>
<td>25 (89.3)</td>
<td>18 (94.7)</td>
</tr>
<tr>
<td>Breath holding for 5 sec.</td>
<td>47 (64.4)</td>
<td>22 (78.6)</td>
<td>14 (73.7)</td>
</tr>
<tr>
<td>Exhale away from mouthpiece</td>
<td>55 (75.3)</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

TH: Turbohaler(R); CI: Aerolizer(R)

## Assessment of Adherence

- Clinical evaluation
- Diaries/self-report
- Interview/ observation
- Biochemical markers
- Pharmacy sales
- Weigh devices / count tablets
- Electronic monitoring
ADHERENCE AS DETERMINED BY PRESCRIPTION REFILL

Report of Adherence in Children with Asthma

![Bar chart showing adherence percentages for different methods: Maternal report, Child's report, Device weight, Dosimeter.]

KEY ISSUES FOR THE PATIENT

• Role of inflammation in asthma
• How preventer/controller and reliever medicines work and when they should be used
• What to do in an emergency
• Proper technique for self-administration of inhaled medications
<table>
<thead>
<tr>
<th>Clinician Behaviors That Promote Adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Display of willingness to answer all patient’s questions</td>
</tr>
<tr>
<td>• Ordering more tests</td>
</tr>
<tr>
<td>• Having high job satisfaction</td>
</tr>
<tr>
<td>• Busy practice</td>
</tr>
<tr>
<td>• (Attending medical Congresses)</td>
</tr>
<tr>
<td>• Eye contact</td>
</tr>
<tr>
<td>• Transmitting genuine interest</td>
</tr>
<tr>
<td>• Explaining recommendations</td>
</tr>
<tr>
<td>• Praising treatment adherence</td>
</tr>
<tr>
<td>• Willingness to modify therapeutic plan in accordance with patient’s concerns</td>
</tr>
</tbody>
</table>
Promote adherence

Adherence is increased when clinicians use specific communication behaviors:

- Provide more information to the patient
- Ask about adherence to treatment
- Are less critical, negative, angry
- Are supportive, understanding, non-judgmental
- Educate !!!

Hall JA, Roter DL, Katz N Medical Care 1988; 26:657
Promoting Adherence

- Clarify expectatives and answer questions
- Involve patient and his family in development of the plan
- Simplify the plan as much as possible
- Use diaries for exacerbations, symptoms, actions taken, results obtained and peak flow
- Education
Conclusions

- Full benefit of medications is not achieved at current levels of adherence.
- We need to improve adherence to guidelines.
- We are in urgent needs of more "friendly" guidelines.
- We need reliable methods to identify non-adherent patients.
- We need reliable methods to enhance adherence.
- We need easier and more reliable methods to measure adherence.
DRUGS DO NOT WORK IN PATIENTS WHO DO NOT TAKE THEM
We look forward to welcoming you to the 2011 World Allergy Congress.

CANCÚN, MÉXICO
4-8 December 2011
www.worldallergy.org/wac2011

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WAO
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