Impact Of Asthma Education Programme On Patient Knowledge, Inhaler Technique And Compliance

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Introduction

Your asthma can be controlled:
Expect nothing less
Impact Of Asthma in Singapore

Societal Burden
High Prevalence rate
• 140,000 individuals have asthma
• 20% among school children
• 5% in adult population
• 20,000 ED visits/year
• > 100 die of asthma/year

Economic Burden
• $61 million per annum

Chew FT, Aust NZ J Med 1999
Definition Of Patient Education

“patient education is a planned learning experience using a combination of methods such as teaching, counseling, and behaviour modification technique which influence patients’ knowledge and health behaviour.”

Bartlette EE 1985
Asthma Education: What’s its impact?

- “Reduction in asthma morbidity and requirement for acute medical services resulted following the introduction of adult credit card”
  
  Souza et al Eur Respir J 1998; 11:611-616

- “A nurse-led asthma home management training programme significantly reduce subsequent admissions, day and night morbidity”

  Madge et al Thorax 1997; 52:223-228

- “Despite minimal effect on airway function, substantial changes in illness behaviour and use of health care facilities after a brief asthma education program”

  Yoon et al Thorax 1993; 48: 110-116
Asthma Education: What’s its impact?

• “Patient education on asthma in general practice improved knowledge and patient satisfaction, but had no beneficial effect on morbidity.”
  
  Hilton et al Lancet, 1986;i:26-29

• “The education program did not enhance patients’ health and functional status, despite improving a few self-management skill.”
  
  Perneger et al Am J Med, July 2002; vol 113

• “Asthma nurse intervention appeared to increase knowledge of asthma management, but had no significant impact on reducing re-admissions to hospital.”
  
  Morice et al Resp Med 2001; 95(11):851-856
Aim Of Study

To assess impact of asthma education programme delivered by Respiratory Nurse Clinician on patient knowledge of asthma, inhaler technique and (self reported) compliance to treatment
EXCLUSION CRITERIA
- Age greater than 50
- Refused Long-term inhaled steroids
- Discharged to OPS/GP
- Significant co-morbidity
- Undergone several asthma counselling
- Others

EXCLUDED = 105 subjects

INCLUSION CRITERIA
- Age 13 to 50 years old
- On inhaled steroids for 3 month from discharge
- Agreeable to be interviewed-verbal consent

INCLUDED = 98 subjects completed pre-test questionnaire before Education Programme

63 Subjects completed 3 month follow-up and Post-test Questionnaire

Self manage Asthma
Statistical Method

• The measurement instruments for the pretest and posttest were identical.

• The McNemar’s test was used to analyse the statistical significance of the difference between pre- and posttest scores.
Demographic Profile

**AGE**
- 41+ 44.4%
- < 30 34.9%
- 31 to 40 20.6%
- Others 4.8%

Mean = 35.48

**GENDER**
- Female 52%
- Male 48%

**RACE**
- Chinese 57.1%
- Malay 20.6%
- Indian 17.5%
- Others 4.8%

**EDUCATION LEVEL**
- Primary 17.5%
- ITE 6.3%
- A-level 6.3%
- Diploma 6.3%
- Degree 6.3%
- Missing 1.6%
- No Qualification 9.5%
- Secondary 47.6%

Base: 63
Assessment of understanding of Bronchodilator Medicine

Results
Patient showed significant improvement in:
😊 The ability to identify the bronchodilator medicine \( (p = 0.031) \)
😊 Importance of carrying bronchodilator inhaler \( (p = 0.003) \)
Assessment Of Knowledge On Asthma

Results

Patient showed significant improvement in:

😊 Many different triggers can bring an asthma episode (p = 0.016)
😊 Peak flow meter is used to monitor flow rate of airway (p = 0.007)
😊 Symptoms of asthma are caused by swelling / narrowing of airway (p < 0.001)
😊 Steroid inhaler is to be used daily as preventive therapy (p < 0.001)
Assessment Of Knowledge On Asthma

Results

Patient did not show significant improvement in:

😊 Knowledge on asthma is an illness that last many years (p = 0.070)
😊 Asthma cannot be cured, but it can be controlled (p = 0.146)
Results

😊 There was significant improvement in inhaler technique (p < 0.001)
Compliance To Inhaled Steroids

Percentage of patients

<table>
<thead>
<tr>
<th>Number of puff each time</th>
<th>Number of times each day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before</strong></td>
<td></td>
</tr>
<tr>
<td>63.5</td>
<td>54</td>
</tr>
</tbody>
</table>

Base: 63
Reason For Not Using Steroid Inhalers

<table>
<thead>
<tr>
<th>Reason</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tend to forget</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Concern of side effects</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Does' control asthma</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Concern of cost</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Not told of daily use</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Have side effects</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Problem with inhaler device</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Using other remedies</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Concern of cost</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Concern of side effects</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

FREQUENCY
Results

😊 Significant improvement in self-reported compliance to the number of puffs per administration (p < 0.001) and the number of administration per day were seen (p <0.001)
How do you feel about the cost of medication

- Expensive: 66%
- Affordable: 33%
- NA: 2%
Are the cost of the asthma medication causing you to skip doses of medication, postpone buying medication, or postpone or not turn up for the doctor's appointment? The percentages before and after some intervention are as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Before (%)</th>
<th>After (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skip doses of medication</td>
<td>49.3</td>
<td>17.9</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Postpone buying medication</td>
<td>44.8</td>
<td>16.4</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Postpone or not turn up for the doctor's appointment</td>
<td>47.8</td>
<td>17.9</td>
<td>P &lt; 0.001</td>
</tr>
</tbody>
</table>
Explored Fears, Beliefs and Concerns

- I am concerned about taking my inhaled steroids: Before 88.1%, After 65.7%
P = 0.004

- Concerned about becoming addicted to the medication: Before 67.2%, After 50.7%
P = 0.052

- Concerned about the side-effects from the inhaled steroids: Before 82.1%, After 56.7%
P < 0.001

- Natural, herbal, traditional or home remedies may be useful for asthma: Before 65.7%, After 56.7%
P = 0.180
I took tiger’s milk (lingzer) and I stop coughing.
PEFR On Admission, Discharge And Follow-Up

ADM & DISCH: $P < 0.001$

2WK & 3Mth: $P = 0.024$

Discharge & 3Mth: $P < 0.001$
ED VISITS AND ADMISSIONS

Pre ED

Post ED

Total no. of ED Visits

197

104

Total no. of Admission

105

47

Pre ADM

Post ADM

Pre ED

Post ED

Pre ADM

Post ADM
Limitation

- Nonrandomized study

- High Default rates 31/98 (31%)
  
  “despite every encouragement many patients at risk of asthma i.e with multiple admissions and impaired lung functions do not attend education programmes”

Yoon et al Throx 1991; 46:886-890
An "Allergy Test" will show up what you're reacting to. Then you can avoid these "allergens" and prevent your rashes.

Doctor, can you then give me an "Allergy Test"? But add in the test report that I am allergic to my mother-in-law!
Conclusion

The Asthma education programme showed:

- a positive impact on subjects’ asthma knowledge
- improve inhaler technique
- improve self-reported compliance
- Reduce hospital admission and ED visits
- Reduce asthma severity score.