

A SELECTION OF TEN CURRENT READINGS ON BRONCHIAL ASTHMA AVAILABLE AS FREE FULL-TEXT

Selection of readings made by: A/P Prof Goh Lee Gan

The URLs of the articles are given below the reference.

EVIDENCE-BASED THERAPEUTICS

Reading 1

Drake AJ, Howells RJ, Shield JP, Prendiville A, Ward PS, Crowne EC. Symptomatic adrenal insufficiency presenting with hypoglycaemia in children with asthma receiving high dose inhaled fluticasone propionate. *BMJ* 2002 May 4; 324(7345):1081-2.

<http://bmj.com/cgi/reprint/324/7345/1081.pdf>

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SUMMARY

Although inhaled corticosteroids remain a cornerstone of asthma management, the potential for serious side effects remains, particularly with high doses. This is notably the case for fluticasone in relation to adrenal suppression in children. Alternative treatments, such as long acting beta₂-agonists (LABA) and leukotriene receptor antagonists (LTA), should be considered for children in whom asthma is not controlled with fluticasone 200 µg daily, the maximum licensed dose for children.

Reading 2

Brocklebank D, Wright J, Cates C. Systematic review of clinical effectiveness of pressurised metered dose inhalers versus other hand held inhaler devices for delivering corticosteroids in asthma. *BMJ* 2001 Oct 20; 323(7318):896-900.

<http://www.acpj.org/Content/136/3/Issue/ACPJC-2002-136-3-110.htm>

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ABSTRACT:

To determine the clinical effectiveness of pressurised metered dose inhalers (with or without spacer) compared with other hand-held inhaler devices for the delivery of corticosteroids in stable asthma.

DESIGN: Systematic review of randomised controlled trials.

DATA SOURCES: Cochrane Airways Group trials database (Medline, Embase, Cochrane controlled clinical trials register and hand searching of 18 relevant journals), pharmaceutical companies and bibliographies of included trials.

TRIALS: All trials in children or adults with stable asthma that compared a pressurised metered dose inhaler with any other hand-held inhaler device delivering the same inhaled corticosteroid.

RESULTS: 24 randomised controlled trials were included. Significant differences were found for forced expiratory volume in one second, morning peak expiratory flow rate and use of drugs for additional relief with dry powder

inhalers. However, these were either within clinically equivalent limits or the differences were not apparent once baseline characteristics had been taken into account. No significant differences were found between pressurised metered dose inhalers and any other hand-held inhaler device for the following outcomes: lung function, symptoms, bronchial hyper-reactivity, systemic bioavailability and the use of additional relief bronchodilators.

CONCLUSIONS: No evidence was found to prove that alternative inhaler devices (dry powder inhalers, breath actuated pressurised metered dose inhalers or hydrofluoroalkane pressurised metered dose inhalers) are more effective than the pressurised metered dose inhalers for delivery of inhaled corticosteroids. Pressurised metered dose inhalers remain the most cost effective first line delivery devices.

Reading 3

FitzGerald M. Acute asthma. *BMJ* 2001 Oct 13; 323(7317):841-5.

<http://bmj.com/cgi/content/full/323/7317/841>

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SUMMARY

Interventions that are beneficial are: Spacer devices for delivering inhaled medications from pressurised metered dose inhalers in acute asthma (as good as nebulisers); short courses of oral corticosteroids for acute exacerbations; Ipratropium bromide added to beta₂-agonists for acute exacerbations.

Interventions that are likely to be beneficial are: Continuous nebulised delivery of bronchodilators for acute asthma (better than intermittent treatment); oxygen supplementation for acute asthma (no direct randomised evidence available); intravenous magnesium sulphate for people with more severe acute asthma; mechanical ventilation for people with near fatal asthma (no direct randomised evidence available); specialist versus generalist care for acute exacerbations; asthma education for people with acute asthma.

Interventions that have unknown effectiveness are: Intravenous versus nebulised delivery of short acting beta₂-agonists for acute asthma.

Reading 4

Cleary-Hammarstedt C, Flynn CA. Do children with acute asthma benefit more from anticholinergics and beta₂-agonists than from beta₂ agonists alone? *Am Fam Physician* 2002 Aug 1; 66(3):417-8.

<http://www.aafp.org/afp/20020801/cochrane.html>

Family Medicine Department, State University of New York Upstate Medical University, Syracuse 13210, USA.

SUMMARY

A five-year-old female child presents with moderate asthma exacerbation of four hours' duration.

Clinical Question: Do children with acute asthma benefit more from combined anticholinergics and beta₂-agonists than from beta₂-agonists alone?

Evidence-Based Answer: A single dose of an anticholinergic agent is not effective in the treatment of mild and moderate asthma exacerbations and is insufficient in the treatment of severe exacerbations. Adding multiple doses of anticholinergics to beta₂-agonists therapy appears safe, improves lung function and would avoid hospital admission in one of 12 such treated patients. Although multiple doses should be preferred to single doses of

anticholinergics, the available evidence supports their use only in school-aged children with severe asthma exacerbations. There is no conclusive evidence for using multiple doses of anticholinergics in children with mild or moderate exacerbations.

DIAGNOSIS

Reading 5

Krieger BP. When wheezing may not mean asthma. Other common and uncommon causes to consider. *Postgrad Med* 2002 Aug; 112(2):101-2,105-8,111.

http://www.postgradmed.com/issues/2002/08_02/krieger.htm

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ABSTRACT:

Establishing that wheezing is not due to asthma requires attention to the patient's history, physical examination results and response to therapy. If the diagnosis of asthma is questionable, appropriate pulmonary function tests should be performed to firmly establish or refute that the wheezing is due to asthma. If asthma is not the cause, other entities need to be considered so that inappropriate therapy is not prescribed.

Reading 6

Li JT. Allergy testing. *Am Fam Physician* 2002 Aug 15; 66(4):621-4.

<http://www.aafp.org/afp/20020815/621.html>

Also summary for patients: *Am Fam Physician*. 2002 Aug 15;66(4):626.

<http://www.aafp.org/afp/20020815/626ph.html>

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ABSTRACT:

Percutaneous and intradermal skin tests and laboratory assays of specific IgE antibodies may be useful in selected cases of allergy management. Percutaneous testing kits are available from various manufacturers. A number of common allergens are available in standardized preparations. Positive and negative skin controls are important in establishing reliable results. Antihistamine medications can interfere with skin testing and should be stopped beforehand. Serious reactions to skin testing are rare. Establishing the sensitivity and specificity of percutaneous testing is difficult because there is no widely accepted gold standard for defining a true allergic reaction. Intradermal testing is more sensitive than percutaneous methods but much less specific. Its use is restricted to testing for allergy to insect stings or penicillin. In cases where skin testing is not available or desirable, laboratory assays for IgE antibodies to specific allergens may be used. These assays are generally less sensitive than skin testing methods. Selected patients with allergic rhinitis or asthma that is not controlled with standard therapy may benefit from allergy testing, especially when it can target allergen avoidance measures or guide immunotherapy.

OCCUPATIONAL ASTHMA

Reading 7

Kor AC, Lee HS, Chee CB, Wang YT. Occupational asthma in Singapore. Singapore Med J 2001 Aug; 42(8):373-7.

<http://www.sma.org.sg/smj/4208/4208a6.pdf>

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ABSTRACT:

AIM: Since the first notified case of occupational asthma in 1983, a total of 90 cases were confirmed as on 31st December 1999. In this study, demographic data, causative agents and impact on the workers were described.

METHODS: The data was derived from notifications to the Ministry of Manpower and referrals to the Occupational Lung Disease Clinic jointly run with Department of Respiratory Medicine, Tan Tock Seng Hospital.

RESULTS: Of the 90 cases, 19 (21%) were females and 71 (79%) were males. There were 48 (53%) Chinese, 22 (24%) Malays, 14 (16%) Indians and 6 (7%) of other ethnic origins. The mean age at diagnosis was 35.8 +/- 9.3 yrs. The mean duration of exposure prior to onset of symptoms was 34.9 +/- 57.3 months. The most common causative agent was isocyanates (28 cases, 31%) followed by solder flux (12 cases, 13%) and welding fumes (8 cases, 9%) respectively. Thirteen (14.4%) workers were assessed to have permanent disability under the Workmen's Compensation Act.

CONCLUSIONS: Since 1990, occupational asthma has overtaken silicosis and asbestosis as the most common occupational lung disease in Singapore. The most common causative agent is isocyanates. Occupational asthma is a condition associated with disability in the workplace and may still be largely under-reported.

PRACTICE

Reading 8

Tan NC, Chow MH, Goh P, Goh LG, Lim TK. Primary care doctors' practice in the management of adult asthma patients. Singapore Med J 2002 Feb; 43(2):061-6.

<http://www.sma.org.sg/smj/4302/4302a1.pdf>

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ABSTRACT:

There is apparent disparity between the international guidelines on asthma management and the current practice in reality. This can be attributed to both patient's and doctor's factors. This study examines the practice of asthma management by a group of family physicians using a self-administered questionnaire. This comprises of questions relating to the main principles of asthma management set by international guidelines. The results showed that majority of the doctors (>90%) in the study reviewed patient's asthma status based on symptoms, educate their patients on types of asthma medications and advised them on allergen avoidance including smoking. Fewer of them (50 to 1 90%) check trigger factors or inhaled device technique, nocturnal symptoms or ER visits. Even fewer doctors (1 50%) bothered to check the patient's peak expiratory flow rate (PEFR) or used spirometry.

Reading 9

Douglass J, Aroni R, Goeman D, Stewart K, Sawyer S, Thien F, Abramson M. A qualitative study of action plans for asthma. *BMJ* 2002 Apr 27; 324(7344):1003-5.

<http://bmj.com/cgi/content/full/324/7344/1003>

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ABSTRACT:

OBJECTIVES: To investigate the perspectives of patients with asthma on the use of an action plan and the implementation of this plan during an asthma attack that culminated in a visit to an emergency department.

DESIGN: Qualitative study.

SETTING: Tertiary teaching hospital, suburban hospital and rural hospital.

PARTICIPANTS: 62 patients aged 18 to 69 years who presented to an emergency department with asthma over a two month period.

RESULTS: 29 participants described having action plans given to them by their doctors. Most patients with action plans reinterpreted their plan from the perspective of their own experiences with asthma. 33 patients did not have an action plan, the most common reason being that they had not been given one by their doctors. Some occupational groups were significantly less likely to have been given an action plan by their doctor than others. Most patients with an action plan found them useful for management of their asthma.

CONCLUSIONS: Action plans were viewed positively by patients. Participants modified their prescribed plan according to their experience of asthma. To facilitate the implementation of a prescribed action plan, doctors need to acknowledge and include the patient's personal experience of their disease.

EXACERBATIONS OF ASTHMATIC ATTACKS

Reading 10

Green RM, Custovic A, Sanderson G, Hunter J, Johnston SL, Woodcock A. Synergism between allergens and viruses and risk of hospital admission with asthma: case-control study. *BMJ* 2002 Mar 30;324(7340):763.

<http://bmj.com/cgi/content/full/324/7340/763>

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ABSTRACT:

OBJECTIVE: To investigate the importance of sensitisation and exposure to allergens and viral infection in precipitating acute asthma in adults resulting in admission to hospital.

DESIGN: Case-control study.

SETTING: Large district general hospital.

PARTICIPANTS: 60 patients aged 17-50 admitted to hospital over a year with acute asthma, matched with two controls: patients with stable asthma recruited from the outpatient department and patients admitted to hospital with non-respiratory conditions (inpatient controls).

MAIN OUTCOME MEASURES: Atopic status (skin testing and total and specific IgE), presence of common respiratory viruses and atypical bacteria (polymerase chain reaction), dust samples from homes and exposure to allergens (enzyme linked immunosorbent assay (ELISA): Der p 1, Fel d 1, Can f 1, and Bla g 2).

RESULTS: Viruses were detected in 31 of 177 patients. The difference in the frequency of viruses detected between the groups was significant (admitted with asthma 26%, stable asthma 18%, inpatient controls 9%; $P=0.04$). A significantly higher proportion of patients admitted with asthma (66%) were sensitised and exposed to either mite, cat, or dog allergens than patients with stable asthma (37%) and inpatient controls (15%; $P < 0.001$). Being sensitised and exposed to allergens was an independent associate of the group admitted to hospital (odds ratio 2.3, 95% confidence interval 1.0 to 5.4; $P=0.05$), whereas the combination of sensitisation, high exposure to one or more allergens and viral detection considerably increased the risk of being admitted with asthma (8.4, 2.1 to 32.8; $P=0.002$).

CONCLUSIONS: Allergens and viruses may act together to exacerbate asthma.
