

THE NZ JOURNAL OF RESPIRATORY HEALTH

AUGUST 2015



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References: 1. Ventolin Data Sheet, GSK New Zealand.

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PUBLISHER
Asthma New Zealand
– The Lung Association
581 Mt Eden Road, Mt Eden
Auckland 1024
PO Box 67066
Mt Eden, Auckland 1349

CONTACT
Phone: 09 623 0236
Fax: 09 623 0774
Email: anz@asthma.org.nz

PRODUCTION & ADVERTISING
Asthma New Zealand
Editor: Linda Thompson
Email: editor@asthma.org.nz



ON THE COVER
Cold damp houses aggravate
asthma



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DISTANCE LEARNING ASTHMA/COPD NURSING COURSE INFORMATION

Applications are now invited from registered nurses wanting to enrol in the Asthma New Zealand/Unitec Institute of Technology Asthma Nursing Course for February 2016 and COPD Nursing Course for April 2016. The programmes are offered by distance learning. Not everyone has the same pace of learning. Some students pick up things fast, others need time to grasp a concept. One of the biggest advantages of distance learning is that you can study at a pace that is comfortable for you. The primary aim of the Asthma and COPD Nursing Courses are to provide nursing health professionals with a high level of evidence-based asthma and COPD knowledge that promotes best practice and is consistent with national policy.

Since the commencement of the Asthma and COPD Nursing Courses, 1040 nurses have enrolled. Many applicants had not undertaken any additional study since completing their nursing training, which may have been years before. However, most find the courses to be challenging but a thoroughly enjoyable learning experience that is within the grasp of any competent nurse practitioner.

Asthma New Zealand in association with Unitec Institute of Technology offers these courses within the Bachelor of Nursing Programme. Both courses are level 7 courses and attract 15 credits. **A grant towards the cost is available for registered nurses from Asthma New Zealand.**

For information contact: Ann/Swarna
Asthma New Zealand – the Lung Association
PO Box 67066, Mt Eden, Auckland
Phone 09 623 4777 Ann or 09 623 4771 Swarna
Fax 09 623 0774
Email annw@asthma.org.nz
swarnah@asthma.org.nz

The closing date for enrolment is
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Further enquiries for any of these events phone **09 630 2293** or www.asthma.org.nz



MESSAGE TO READERS

Welcome to the August issue of O₂. We've been working hard to keep our clients healthy over winter, and we're now looking forward to some warmer temperatures!

Health Minister Jonathan Coleman recently announced the influenza immunisation programme will be extended until the end of August. The extension follows reports that an unusual pattern of sickness is developing in the North and South Islands, with health professionals recording peaks of different influenza strains – something not seen in more than 30 years.

Reports of influenza-like illnesses were peaking so fast they had almost reached the total number for last year, despite two months of the flu season to go.

Have you had your shot yet? It may be free, ask your Doctor today!

Also the government announced they would not be implementing the debated Warrant of Fitness (WOF) for rental homes, instead announcing a 'watered-down' version, with all rental properties requiring smoke alarms to be installed by July next year and to be insulated by July 2019.

These new regulations are not coming in soon enough. Why have four years been allowed for something as simple to implement as insulation? That's four more cold winters, like we're experiencing at the moment, for families to endure. For those with respiratory conditions like asthma, bronchiectasis and COPD it's even worse.

The 2015 Budget has been released since the last issue. Additional funding was allocated to healthcare, a spend which Health Minister Jonathan Coleman stated showed a "commitment to supporting and growing" New Zealand's health services. While this does demonstrate the government's commitment to developing the health sector, we have some reservations as to exactly where these funds are being placed.

The government has been reviewing contracts with community health providers, and yet asthma societies throughout New Zealand have not received a funding increase through the DHB's in many years, and does not receive filter-through funding from Ministry of Health.

Despite my best efforts, I have not yet been able to meet with the Health Minister. The community health sector is not sustainable; more societies are finding the pinch too hard to continue and be sustainable. However, both Wellington and Rotorua regions are currently in the process of becoming branches and we look forward to seeing where a branch-led system can take us.

Regardless of funding, we must never lose sight of our vision and our mission – New Zealanders have entrusted us to guide them in managing their respiratory health. This includes advising best practice and offering practical solutions to any issues impacting on their health, keeping them out of hospital and in work or school. While funding may be limited currently, this is what we strive for and so will continue to find ways to keep working toward better health outcomes for our communities.

Between now and the next issue, we'll continue to lobby for the government to place its funds where they're needed most. In the meantime, spring is just around the corner, so remember to put measures in place to combat hayfever! For more advice, get in touch with your local society.

Linda Thompson
Executive Director
Asthma New Zealand

CLEAN AND GREEN NEW ZEALAND? OR IS AIR POLLUTION CONTRIBUTING TO ASTHMA?

By Alice Paul RN
Asthma Nurse Educator

Introduction

We live in what is termed the cleanest and greenest country in the world. But is this just a fallacy, and advertising slogans are luring us into a false sense of security? New Zealanders' relationship with the environment has always been a defining feature of this country and shapes the New Zealand identity.

Clean air is so important for everyone, and for anyone who has ever visited Shanghai and seen the local people wearing masks to protect themselves against the air pollutants will see the extreme end of the pollution scale.

I travelled into Wellington at 6.30am this morning and while sitting in a traffic jam all the way, I noted that almost every car including my own had one occupant. All that pollution!

Good outdoor air quality is fundamental to our well-being. On average, a person inhales about 14,000 litres of air every day, and the presence of contaminants in this air can adversely affect people's health.¹ (see Figure 1.)

The diagram (see Figure 1.) shows how pollution adversely affects our health. Some of the impacts are headache and anxiety; irritation of eyes, nose and throat; cardiovascular diseases; and impacts on the respiratory system, liver, spleen and blood, and the reproductive system.¹

New data collected by the World Health Organisation shows that outdoor air pollution kills over three and a half million people worldwide every year – far more than was previously estimated. Air pollution has now become the biggest environmental cause of premature death, overtaking poor sanitation and lack of clean drinking water.²

What do we know about air pollution in Aotearoa/ New Zealand?

Aotearoa's air quality is managed by Regional Councils who are required to comply with the National Standards for Air Quality.³

How the standards are set and what do they mean to the average person breathing the air?

The criteria are strictly set and ban outdoor fires, e.g. burning tyres and rubbish outdoors. There are strict design requirements for wood burners and rules for landfill emissions. New Zealand Climate and Health Council co-convener Alex MacMillan said in a 2012 study that 1100 people a year died prematurely from air pollution in New Zealand. "More than half of that man-made air pollution gas came from domestic fires," Dr MacMillan said.²

Road transport is the next biggest factor. At the launch of the Organisation for Economic Co-operation and Development (OECD)



report – "The Cost of Air Pollution – Health Impacts of Road Transport", Angel Gurría, OECD Secretary-General explained that while emission standards have been improving, diesel vehicles are still the source of most of the harmful air pollutants generated by road transport – as much as 80 to 90 per cent in some countries.⁴ Furthermore, in many countries, the majority of new cars entering the market today are diesel vehicles. This is often because the taxes on vehicles and fuels favour diesel. In fact, Switzerland, the United Kingdom and the United States are the only countries where the taxes on diesel are higher than those on gasoline.⁴

According to the National Institute of Water and Atmospheric Research (NIWA), we spend around 80 per cent of our time indoors – recent research indicates that exposure to pollutants can be higher indoors than outdoors. Understanding which pollutants might be in the air around us, inside as much as outside our homes, is becoming increasingly important, says Computing Associate Professor Paul Pang. "Poor air quality in New Zealand is estimated to cause 1175 premature deaths, and costs over NZ\$4 billion each year. It's a hot topic for a lot of people."⁵

Why does pollution increase your risk of asthma symptoms or an asthma attack?

An asthma "trigger" is anything that provokes symptoms making it difficult to breathe. There are many asthma triggers, from exercise, extreme temperatures, to even stress, and some of the most common triggers are impurities in the air. Being aware of what's in the air, and things you can do to reduce the risk is an important key to living an active and healthy life with asthma. People with asthma are particularly sensitive to the health risks of outdoor air pollution. Ozone

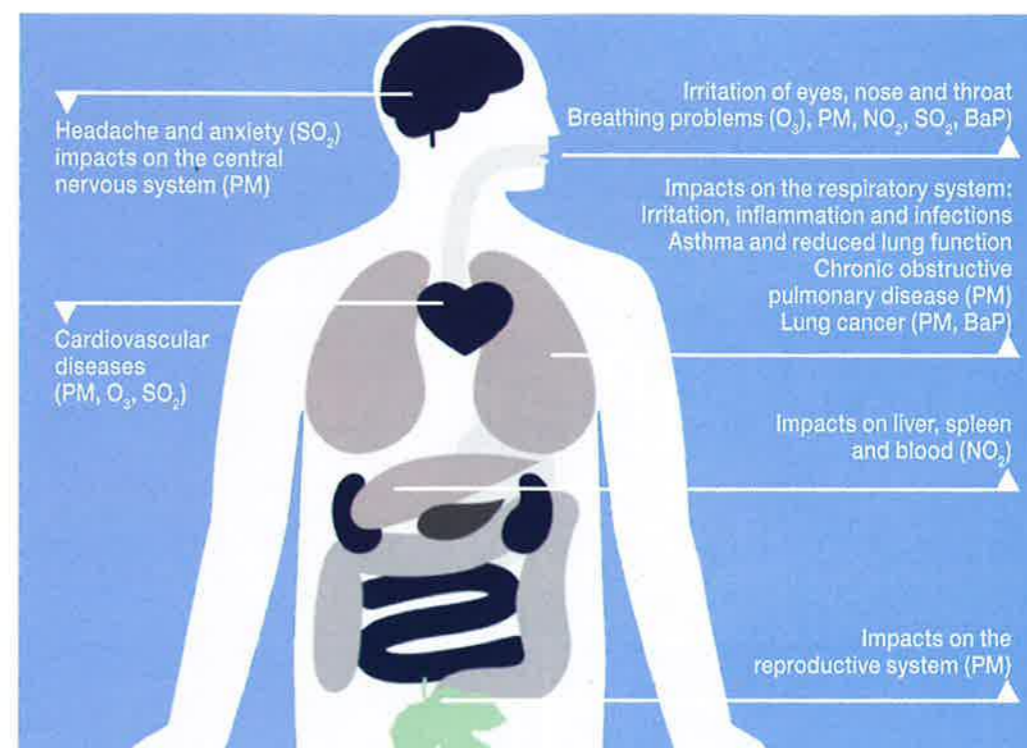


Figure 1: Examples of health impacts of air pollution.

Note: BaP = benzo(a)pyrene; NO₂ = nitrogen dioxide; O₃ = ozone; PM = particulate matter; SO₂ = sulphur dioxide. Source: European Environment Agency, 2013.

pollution (smog) and particle pollution (soot), the most common air pollutants, are powerful asthma triggers, as are vehicle exhaust, wood smoke and fumes. Because outdoor air quality can be beyond your control, the best defence is knowledge.⁶

New Zealand's continued reliance on primary production for much of our economic wealth continues to shape the pressures on our environment today. However, through emissions trading, New Zealand can make a positive contribution to efforts to reduce global greenhouse gas emissions. On a local level, there are many easy actions we can each take to reduce our emissions at home, at work and on the road.⁷

Greenpeace is a great advocate for our safe and healthy environment and campaigns on our behalf for policies put in place by Government to implement smart farming measures as well as for agriculture to be bought into the Emissions Trading Scheme well before 2015.⁸

Pope Francis also referred to the pollution in his encyclical titled: 'Laudato Si' which is impacting on the health of many people particularly the poor.⁹ Sadly in Aotearoa, we have this situation where people from the lower socio-economic groups are always the ones who suffer most.

A direct quote from Pope Francis encyclical:

"Some forms of pollution are part of people's daily experience. Exposure to atmospheric pollutants produces a broad spectrum of health hazards, especially for the poor, and causes millions of premature deaths.

People take sick, for example, from breathing high levels of smoke from fuels used in cooking or heating. There is also pollution that affects everyone, caused by transport, industrial fumes, substances which contribute to the acidification of soil and water such as fertilizers, insecticides, fungicides, herbicides and agro toxins in general. Technology, which, linked to business interests, is presented as the only way of solving these problems, in fact proves incapable of seeing the mysterious network of relations between things and so sometimes solves one problem only to create others".⁹

The reassuring words and sentiments of both church and political leaders is a

wake-up call for urgent action, and we can all contribute in some small way. As asthma educators we are all too aware of the poor quality of life a person can experience as a result of uncontrolled asthma, add the air pollutants into the mix and this can have a detrimental effect on their lives.

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DEAR NURSE



Dear Nurse, my 3-year-old son was on the orange puffer through a spacer, when I went to the chemist to get his new prescription he was given a round orange inhaler, what is this? Mrs D, Timaru

Dear Mrs D,

This device is called an Accuhaler and delivers a dry powder (the same medicine as your orange puffer called Flixotide). You must be over four years of age to be prescribed one. Check with your doctor as I am sure he will want him back on the puffer. If he is prescribed this when he is older ask your asthma nurse or chemist how to use it. There are also detailed instructions inside the package it comes in.

Dear Nurse, could you please advise me about my asthma inhalers? I have a purple Seretide Accuhaler and a green Serevent aerosol inhaler. I take both every morning and every night but my friend just told me I should have a blue inhaler? Is this correct? Mr J, Auckland

Dear Mr J,

Everybody with asthma should really have a blue reliever inhaler for symptom relief and emergencies. It's not usual

for Seretide and Serevent to be taken at the same time as Seretide is a combination of Flixotide and Serevent. So you are, in actual fact, having double the recommended dose of Serevent. Perhaps you should talk to your doctor about your medications. It may be that when the doctor originally put you on Seretide, he/she did not intend you to take both together. So give them a call, or better still make an appointment for an asthma review and ask your doctor to complete an asthma management/action plan so that you know exactly what inhalers to take when you're well and what to take if you're getting symptoms.

Dear Nurse, I heard that there was a new inhaler for asthma. Is this correct? Mr S, Tauranga

Dear Mr S,

Yes, there is now another preventer inhaler called Qvar. It contains beclomethasone dipropionate. Qvar is an extra-fine aerosol, so more of each dose is delivered to your lungs with correct technique. Remember it is a preventer, so you must use it every day morning and night. If your asthma is not well controlled you could ask your doctor about Qvar.

IF YOU HAVE A QUESTION PLEASE EMAIL OR POST TO:

editor@asthma.org.nz or Dear Nurse, Asthma New Zealand, PO Box 67066, Mt Eden, Auckland 1349.

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SAMTER'S TRIAD – AERD

By Vicki Lyford RN
Asthma Nurse Educator

Originally identified in 1922 by Widal et al, this condition remained overlooked until 1968 when Samter and Beers identified patients with common factors of asthma, nasal polyps and aspirin sensitivity. Hence the condition became called Samter's Triad.¹ Nowadays with a fourth symptom of chronic hyperplastic sinusitis added, the preferred name is Aspirin Exacerbated Respiratory Disease – (AERD).¹

Samter's Triad (AERD) is a chronic condition consisting of asthma, rhinosinusitis – complicated by polyps and sensitivity to aspirin and non steroidal anti-inflammatory drugs (NSAIDs).^{2,3,5} It is seen as a recognisable phenotype of asthma.⁵ It commonly begins in early adulthood with 10% of adult asthmatics and 40% of people with asthma and nasal polyps having sensitivity to aspirin and NSAIDs.⁵

Sometimes called a pseudo-allergy, Samter's Triad produces symptoms that are similar to an allergy. Aspirin and NSAID's are COX1 inhibitors which means they block the cyclo-oxygenase1 enzyme, thus leading to an excess of leukotrienes which results in the production of histamines and prostaglandins, causing severe allergy-like symptoms.¹ This can happen from 30 minutes to 3 hours after ingestion of these medications.

Diagnosis

Good clinical history is vitally important because if the patient has an obvious sensitivity to aspirin/NSAIDs then they may not need an aspirin challenge. However, if this sensitivity is only suspected an aspirin challenge is needed as it is the only conclusive process for diagnosis.¹ This is classed as the 'gold standard' for diagnosing AERD. The challenges can be done by four routes, oral, bronchial inhalation, nasal inhalation and intravenous, and are conducted by specialists, in a facility that is equipped to handle any adverse reactions that may incur.⁷ For this procedure, antihistamines may be withheld prior to the test and patients may be given a leukotriene-modifying agent (Singulair) as this is known to reduce the severity of the respiratory reactions but does not alter the nasal reactions which mean the test results are usually clear. Oral/topical corticosteroids or long-acting bronchodilators should still be taken.

Treatment

Attempting to control the symptoms with medication is one of the first steps, beginning with nasal sprays and sinus rinses. Avoidance of Aspirin/NSAIDs is an obvious first choice. In those with mild symptoms, the leukotriene receptor antagonist, Singulair may be enough to control the presenting signs. Sometimes corticosteroids are needed as well. Avoidance of Aspirin may not be possible if the patient requires this drug for cardiovascular care. If medications fail, the next step would be surgery. Surgical intervention with removal of polypoid tissue can be considered but there can be significant re-growth and further surgeries may be needed in as little as 3-10 years.¹

Aspirin desensitisation and continuous aspirin therapy is a process where a patient takes gradually progressive amounts of aspirin starting at 10mg increasing up to 325mg but this can go as high as 650mg twice a day.¹ This has been shown to be a very effective method of treatment with significant improvements in symptoms being seen within one month. These include improvement of asthma symptoms, less episodes of sinusitis, delayed regrowth of polypoid tissue, decreased use of steroid medication and lastly fewer hospitalisations.⁴

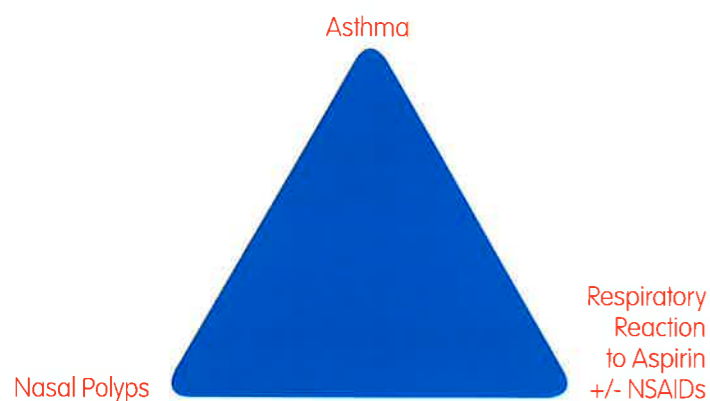
A disadvantage of continuing aspirin therapy is that high dosages can cause side effects such as indigestion, and some people stop their medication because of this. If cessation of medication is for 24-48 hours the aspirin can be recommenced at the same dose but if it is longer than 3 days the aspirin cannot be recommenced. After 7 days, full hypersensitivity can return and the whole desensitisation process must begin again therefore the lower dose of 325mg is more tolerable.¹ Some think that a diet low in omega-6 and high in omega-3 oils may be beneficial.⁸

Conclusion

Samter's Triad can often pose a serious challenge to allergists because of its distinctive phenotype of bronchial asthma. Therefore, the importance of an extensive diagnostic and therapeutic approach is vital.⁶ As our awareness of AERD grows, the availability of more aspirin desensitisation centres are needed to adequately and successfully treat and manage this condition. Further research is needed to fully understand and build awareness of this unique condition.

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Initially the first symptom is sneezing, a runny nose and congestion as seen in rhinitis.¹ This usually develops in the patients early thirties and does not always respond to normal medication. Loss of smell (anosmia) is usual. With asthma, there are the usual symptoms of cough, wheeze, chest tightness and shortness of breath.² Some people with true allergic rhinitis/asthma often show symptoms of AERD.¹ Aspirin sensitivity is the last symptom to show and the reaction can vary in severity from mild nasal congestion to asthma attack or anaphylaxis.

Reaction to NSAIDs such as Ibuprofen/Voltaren or other cyclo-oxygenase-1 (COX-1) inhibitors is also common and is often dose-related, i.e. the smaller the dose the milder the reaction.¹ It is important to thoroughly check labels of cough or cold syrups or lozenges as they often contain NSAIDs. Paracetamol (Acetaminophen) is generally considered the safer option for mild analgesia. In some patients the consumption of alcohol can produce similar respiratory reactions to Aspirin.²



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LOCAL SIDE EFFECTS OF INHALED CORTICOSTEROIDS

By Karen Little RN
Asthma Nurse Educator

Many parents are reluctant to give inhaled corticosteroids (ICSs) every morning and night, even when the child is well, as they have heard about many side effects from the use of steroids. Oral steroids are approximately a thousand times stronger than the inhaled corticosteroids that are used in preventer maintenance therapy for asthma. Inhaled corticosteroids, especially at higher doses, may induce systemic and local side effects. Compared with systemic side effects, local side effects are considered to constitute infrequent and minor problems, but may hamper compliance, affect patient quality of life, and mask symptoms of more serious disease. The local side effects include pharyngitis, dysphonia, pharyngitis, oropharyngeal candidiasis (oral thrush), and cough.

People with asthma who do not use ICS regularly have poorer outcomes.¹ A high dose of ICS is defined as $\geq 1,000$ mcg beclomethasone dipropionate (BDP) equivalent per day. The dose delivered will depend on other factors such as inhaler technique, the ICS formulation, type of delivery system and patient compliance with administration instructions. The main strategy to minimise the risk of ICS-induced side effects is dose optimisation. In most patients with asthma, there is limited evidence that increasing the dose of ICS above 800mcg BDP equivalent per day improves asthma control, although the high doses are associated with an increased risk of adverse events.²

Pharyngitis

It is well known that hoarseness and pharyngeal discomfort are common problems in asthmatic patients using inhalers, especially among those using inhaled steroid preparations. Little is known about the very action that causes this. Some have speculated that a residue from the inhaled substance irritates the pharyngolaryngeal mucosa. The problem is probably multifactorial, depending on the steroid, the inhaler device, intrinsic inflammation of the upper airway, irritation because of cough, concurrent inflammatory diseases such as rhinitis, and also inhaling noxious particles such as with smoking. It is speculated however, that inflammation is a result of irritation of oropharyngeal mucosa, caused by residue from the inhaled substance. It is known for example, that the propellant and lubricant components of metered-dose inhaler (MDI) formulations can elicit pro-inflammatory local effects. Lactulose, a component in some dry powder inhalers (DPIs), may also irritate the oropharyngeal mucosa.³ The incidence of pharyngitis ranges from 4% to 25% and is generally accompanied by the symptoms of pain, irritation, or soreness in the throat.

Dysphonia

Dysphonia is a disorder characterised by altered vocal quality, pitch, loudness, or effort that impairs social and professional communication. Dysphonia has been reported to affect 5% to 58% of patients using ICS. Rachelefsky et al analysed data from 23 studies published from 1966 through 2004, and determined that, compared to placebo, ICS at all doses was associated with a 5.2 fold greater risk of dysphonia.⁴ Lavy et al noted that the primary cause was difficult to establish because of the various findings; they maintained that corticosteroids had a direct effect on the mucosa or on the mucus-secreting glands of the ventricles (in the larynx) or the trachea – a specific cause or mechanism of this disorder has not been elucidated. Any evaluation of dysphonia should consider use of ICS or

other medications as an adverse effect, include a thorough examination of the larynx, and rule out vocal cord nodules, post suction trauma, and gastroesophageal reflux.⁵

Oropharyngeal candidiasis

Deposition of ICS in the oropharyngeal cavity can also cause oropharyngeal candidiasis, or thrush. The Flixotide data sheet informs us that frequencies are defined as very common ($\geq 1/10$), candidiasis of the mouth and throat is listed as very common and oesophageal candidiasis as rare ($\leq 1/10,000$ to $1/1000$).⁶ Oral candidiasis is thought to be a consequence of local immunosuppression at the oral mucosal surface by deposition of ICS particles in the higher respiratory airways. This involves inhibition of normal host defence function of neutrophils, macrophages, and T-lymphocytes or because of an increase in salivary glucose levels, which stimulate growth of *Candida albicans*.⁷ Symptomatic candidiasis can be treated with topical anti-fungal therapy whilst still continuing with the ICS.



Cough

Although bronchospasm and persistent cough are rare side effects of ICS, reflex cough during inhalation is common. Cough is most likely caused by an irritant effect of inhaled excipients (bulking agents) in the ICS formulation or from a nonspecific direct irritant effect of ICS. A study by Dubus reported a cough in 54% of patients.⁸ The incidence of cough was similar among the three ICS tested and was not influenced by the type and volume of the spacer device or the use of a mask or mouthpiece. Cough has been associated with DPIs containing lactose formulations.³

All patients using ICS should be advised to rinse out their mouth with water (spitting out the rinse) and brush their teeth after using their device, which will reduce the risk of developing sore throat or hoarseness. The lowest effective dosage of ICS should be prescribed. Spacer devices can also be used to reduce oropharyngeal deposition of drug particles, and should be recommended for all metered dose inhalers. Correct spacer care such as washing weekly with warm soapy water and not rinsing or drying the soap bubbles should be explained. If a mask is being used for children under the age of three years old, the face around the mouth should be wiped with water.

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THE IMPORTANCE OF SMALL AIRWAYS IN ASTHMA

By Ann Wheat RN BN
Asthma Nurse Educator

Asthma is triggered by various factors, which can be allergic or non-allergic. Triggers such as dust mites, pollen, animal dander, respiratory infections, cold air, exercise and many others to name but a few are the factors that trigger the asthma response.

Asthma is one of the commonest conditions in New Zealand, with 1 in 9 adults (11%) and 1 in 7 children (14%) who have medicated asthma.¹ Asthma is characterised by airway obstruction and airway hyperresponsiveness. There is also an inflammatory response to airway triggers. Despite being on optimal therapy there are a group of people whose asthma is not well controlled, who have more exacerbations, have more nocturnal symptoms, more exercise induced asthma and more severe bronchial hyper-responsiveness.

Why could this be?

Previously it was thought that the small airways (less than 2mm diameter) were the quiet zone in the lungs because they have a large reserve capacity.² These small airways though are difficult to assess and treat in patients,³ and there can be extensive disease present with little abnormality in conventional lung function tests.⁴ The small airways account for about 98.8% of the lung volume and they contain little or no cartilage.² As a result of not having a lot of cartilage, these small airways are easily collapsible.

What happens to the airways in asthma?

The whole of the bronchial tree is involved in asthma. There is an increase in airway smooth muscle mass, excessive mucous production and plugging, plus goblet cell hyperplasia both in the small and large airways.⁴ It has also been discovered

that in fatal asthma at post mortem, the outer wall of the small airways are a major site of inflammation and remodelling whereas it is the inner wall in the large proximal airways that are affected.⁴

It is known that large numbers of immune cells and inflammatory mediators can accumulate in the small airways.⁵ Eosinophils in particular are more common in the small airways than in the large airways.⁵

The physiological characteristics of small airway obstruction can include air trapping, early airway closure, regional ventilation heterogeneity (non-uniform distribution of inspired gas within the lung and may contribute to hypoxaemia and airway hyper-responsiveness⁶) and exaggerated volume dependence on airflow limitation.⁴

So how can the small airways be assessed?

There are several ways that the small airways may be assessed but because of their size it is often quite difficult to make a reliable assessment.

Spirometry is used in asthma to determine obstructive lung disease and to detect expiratory airflow limitation.⁴ Peak Expiratory Flow (PEF) and Forced Expiratory Volume in one second (FEV1) are used to detect lung disease affecting the

proximal airways and the Forced Vital Capacity (FVC) is not specific and insensitive when trying to detect small versus large airway changes during expiratory flow obstruction at low volumes.⁴ Forced Expiratory Flow (FEF)₂₅₋₇₅ (representing the mean expiratory flow between 25% to 75% of FVC) is considered a measure of the small airways but is dependent on the accurate FVC manoeuvre and measurement.⁴ There are several other measures that are being considered to check on small airways but more research is being undertaken on these to clarify their usefulness.

Exhaled breath Nitric Oxide (NO) is another test being looked at in connection with the small airways. Exhaled NO is elevated when a person has intrapulmonary inflammation.⁴ It has also been noted that a person with nocturnal asthma has a higher concentration of alveolar NO.² Patients with severe asthma having both daytime and night-time symptoms will also have a higher NO.²

Other tests that can be used to assess small airways are the single-breath nitrogen wash-out or the multiple breath wash-out tests. These tests can indicate ventilation heterogeneity in the peripheral lungs.⁷ Impulse Oscillometry and high resolution computed Tomography are other potential useful non-invasive methods of assessment.

Overseas a questionnaire is being developed that may also assist in the assessment and identification of small airways disease. This will target, signs, symptoms and health-related issues that possibly vary between clients with or without small airways disease.

Why is it so important to diagnose small airway disease?

This is important as there are now medications available that can target the small airways in asthma and so help to improve management and quality of life for clients.

Lung deposition of inhaled medications depends on many factors. These include; characteristics of the inhaler device, client inhalation technique and airway geometry, the presence and amount of mucous in the airway and the aerodynamic behaviour of the particles.⁷ The most important consideration though is the particle size. Many of the corticosteroid medications available in New Zealand often only target the larger airways as the size of the particles vary in width from 2.4µg to 5.4 µg,⁷ and this means that they will not be able to enter the smaller airways. There have now been developed metered dose inhalers that contain ultrafine particle sizes down to 1 - 2µg thus allowing for higher lung deposition into the smaller airways which will hopefully improve asthma management.⁷

One concern that has been raised about ultrafine particles is that there may be greater systemic effects from these medications. So far this has not proven to be true as several studies have shown that control has been maintained without any difference in systemic effects.⁷ In New Zealand, the only ultrafine corticosteroid available is Qvar and this is only recommended for children over the age of five and adults.

Conclusion:

Small airways disease in asthma is important because if this is controlled then patient management could be improved. Assessment is therefore important and could also lead to better outcomes for many people.

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COLD DAMP HOUSES AGGRAVATE ASTHMA

Going to sleep in a cold, damp room is a reality for far too many New Zealand children. The environment means the regular coughs and colds of childhood quickly become much greater respiratory problems and the kids end up really ill.

One of the effects of living in a house which has mould from damp, constant draughts from leaky windows and doors and no effective form of heating is asthma. Often this will lead to serious asthma where the ongoing lives of the children are affected in many ways.

Occasionally, the impact of the asthma is so bad, the child has to make regular visits to hospital. Or worse, the symptoms are not treated and the child has to learn to live a different kind of life where just climbing on the monkey bars or kicking a rugby ball around are not possible any more.

Professor Philippa Howden-Chapman of Otago University said that houses "get damp and cold and mouldy, but it also damages the people living in them, particularly babies, children, and older people. It damages their lungs. If they have heart problems, it is harder for their circulatory system to work."

"For people who live in cold houses, it's likely to aggravate their heart conditions, but for children, we get this terrible, terrible battery of respiratory infections and close contact infections because people have to crowd together in one room," she said.

"So it's pretty shocking in a country that is as wealthy as we are; we can't make our houses warm enough for people to live in."

When a coroner ruled that poor housing was a contributing factor in the death of two-year-old Emma-Lita Bourne after she was suffering from pneumonia, this may have been the shake up the Government needed to act in order to prevent another tragedy from happening.

Recently the Government stepped in to try and make a difference to, at least, some of the children who are impacted.

Housing Minister Nick Smith has said that he plans to strengthen residential tenancy laws which will require retrofitting of ceiling and underfloor insulation in rental homes over the next four years.

But is this move by the government going to be enough?

Apparently, around 180,000 New Zealand homes required insulation. However, the problem is accentuated as it is estimated that up to 120,000 private sector rental properties will not technically be able to have either underfloor or ceiling insulation fitted.

Executive Director of Asthma New Zealand Linda Thompson

considers a warrant of fitness has to be the answer for all houses before they are allowed to be rented out or sold. "You cannot drive a car on our roads without a warrant of fitness approving it is fit to drive," she said. "Yet, health and safety in our homes is a much bigger, much more expensive issue, but we're forcing people into houses that are not fit for living."

Linda believes it will actually cost more if a warrant of fitness scheme is not put in place. "Housing Minister Nick Smith is saying it is too expensive to implement a warrant of fitness scheme – but isn't it too expensive if we don't," she said.

Chair, Rawiri Jansen from the Māori Medical Practitioners' Association agrees. He says it is clear there are problems with the state houses and he thinks a warrant of fitness should be introduced.

Linda Thompson points out that the cost of insulating public housing might be high but that cost has to be compared to the direct savings on ACC, hospitalisation, insurance pay-outs, doctor's bills and the indirect social costs.

Many studies have been undertaken in New Zealand which indicate the size of the problem. Two years ago the New Zealand Child Poverty Monitor estimated that in New Zealand 40,000 young children are ending up in hospital each year for poverty-related diseases and many of those diseases are related to cold, damp homes.

And yet another study conducted by students at the Wellington medical school found that of 150 acutely ill children admitted to Wellington Regional Hospital over 2 weeks in winter in 2012, 34 percent of them were admitted for respiratory diseases associated with exposure to cold, damp and overcrowded houses.

The New Zealand evidence is backed up by international research. Cold homes are a significant contributor to the level of excess winter deaths in the UK every year. In 2009 there was an estimated 25,400 winter deaths more than normal with almost a quarter attributable to cold homes.

Research found people with asthma were twice as likely to live in homes with damp as those without and the 1 million children living in overcrowded homes in the UK are up to three times more likely to have respiratory problems.

It is also essential for homes to have a good heating source; even well insulated homes can still be very cold. Asthma NZ recommend electric heaters or flued gas heaters. But this raises another issue as heating adds a high cost, especially over winter, to already stretched or tight budgets!

Dr Jim Lello, who works with Asthma New Zealand on issues affecting people with asthma, says a report published in the Journal of Clinical and Experimental Allergy found that living in damp or mouldy homes was associated with asthma, allergies, hay fever and eczema. "Not only does high humidity encourage the growth of moulds and fungi spores which can be highly allergenic, it also encourages the growth of house dust mites" says Dr Lello. "This has been shown to make children much more prone to increased amounts of asthma."

Dr Lello applauds the efforts of Asthma New Zealand to raise public awareness of the problem of damp and poorly insulated houses. "Any government assistance to increase warmth, decrease humidity and improve air quality in homes will go a long way to assisting families in managing childhood asthma" he said.





WORLD ASTHMA DAY



On Tuesday May 5th, Asthma Wellington celebrated World Asthma Day by hosting a dinner for health professionals from the Wellington region. The evening was sponsored by GSK and hosted at the Amora Hotel. We had two prominent guest speakers, Dr Robert Winkler, a paediatrician at Wellington Hospital specialising in asthma and allergies and Dr Shaun Holt, a well-known doctor and researcher in asthma.

Robert Winkler provided an update on the treatment asthma and allergies in children.

Shaun Holt presented his findings on his recent study on the value of the Asthma Control Test (ACT) score and how effective it is as an asthma management tool.

The interest from doctors and respiratory nurses, and subsequent turn out on the night, was very positive, and all attendees were given the opportunity to ask questions and create discussion around what is currently relevant in the treatment of asthma. We would hope to repeat this in the future.

It was an opportunity for networking amongst the regions GPs and asthma nurses, which can only be a positive step in maintaining high standards when dealing with the complexity of asthma in the community.

NORTH SHORE COPD SUPPORT GROUP APRIL MEETING

At the group meeting in April, Lisa Fe'ao, Salvation Army Senior Services Co-ordinator came to talk to us about her role and the work that she does supporting older people in the community.

Lisa is responsible for co-ordinating the volunteer visitors on the North Shore of Auckland who provide free visits to isolated and lonely people. She recruits and matches volunteers to provide friendship and support for elderly people in the local community. The volunteers visit regularly to provide support and contact with the local community and wider world.



The Salvation Army Senior Services advocate for clients with government, health and social agencies, and can also connect clients who want spiritual guidance and pastoral care with Christian services.

Lisa said, "the changes in people's quality of life can be dramatic. There's always a hope and a prayer when you put two people together – and when that relationship clicks, it can be absolutely life-changing for the client and often for the volunteer".

Many thanks for your interesting and inspiring talk, Lisa, and keep up the good work.

If the Salvation Army Senior Services can help you or someone you care about, or you want to become a volunteer, please contact a Senior Services Co-ordinator in your area:

Whangarei – 09 438 9305
West Auckland/Western suburbs – 09 827 3128
Hibiscus Coast/North Shore – 09 478 7567 extn 225
Wellington City – 04 389 0594
Queenstown/Wanaka 03 442 5103
Christchurch 03 332 8277

Lisa Fe'ao, Salvation Army Senior Services Co-ordinator (pictured centre) with some of the North Shore COPD group members.

The group meets on the 2nd Thursday of each month at Sunnynook Community Centre. If you would like further information, please contact Janet Delooze, Asthma Nurse Educator on 09 630 2293.

GLUTEN FREE FOOD AND ALLERGY SHOW 2015 AUCKLAND



The show was again held at the North Shore Events Centre in Glenfield on the weekend of the 23rd and 24th of May. Despite the wet conditions it was well attended. The show offers people with allergies and bowel problems education and food options to assist with living a healthy life. There were several seminars held each day on various topics such as understanding food allergy and intolerance, living with irritable bowel syndrome, endometriosis and pelvic pain as well as many others. There was also, for the first time, a free food demonstration room offering recipes for gluten free food.

The nurses of Asthma Auckland participated in the show by offering free education and information brochures to assist with asthma control including allergies. They were kept busy over the two days and several home visits were arranged as a result of the show for more in-depth education. We were also selling anti-static spacers (La Petite and Le Grande). These spacers are excellent as they increase the amount of medication that reaches the lungs. The major benefit though is that they do not require priming before use.



The stall also had MiteGuard; dust mite barrier bedding products. These are used for people with a proven dust mite allergy to help with reducing the effects of breathing in the faeces of the dust mites while sleeping. Many people took advantage of the show specials in purchasing the covers.

E-cloth brand of products was another excellent addition to our stand. E-cloths use only water for cleaning so are safe to use around the home to help prevent allergies from chemicals and cleaning products.



Karen Little and Janet Delooze.

Other products were also available to assist with the management of asthma and these were also very well received. We look forward to attending the show again next year.

ASTHMA EDUCATION IN THE COMMUNITY – GLENFIELD KINDERGARTEN

Apart from home visits to individuals and families, our asthma educators are often out and about in the community offering free advice to people regarding their asthma and COPD.

Glenfield Kindergarten on Mayfield Road, Glenfield was the venue for Asthma Auckland nurse educator Janet Delooze (pictured with one of the mums, Decelyn Burasco) on 2nd July. Janet was invited to attend for the morning to be available to talk with parents as they drop off their children to offer advice and support. This was a great opportunity to meet the children, parents and staff, and to spread the word about our free educational services. Our five asthma nurse educators

cover the whole of the greater Auckland region and people can refer themselves to our service.

If your organisation would like an education session for parents, clients or staff, information or a home visit, please contact us on 09 630 2293.



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ANNUAL GENERAL MEETING - WELLINGTON

Tuesday 25th August 2015. 6 p.m. at the offices of Asthma Wellington. Level 1, Salvation Army Bldg, 125-137 Johnsonville Road. Wellington 6440. Ph: 04 237 4520.

EOSINOPHILIC OESOPHAGITIS

By Janet Delooze RN
Asthma Nurse Educator

Introduction

The link between pulmonary and oesophageal disease has long been established, as oesophageal reflux is known to be a common trigger for asthma both in adults and children, however, there is an increasing awareness that eosinophilic oesophagitis (EoE) is also associated with asthma.¹ I first came across it when I visited a five year old boy and his family for asthma education. He had been investigated for EoE but was later diagnosed with reflux which was one of the triggers for his asthma. Conversely, his younger brother (3-years-old) was atopic with no symptoms of asthma, and a diagnosis of EoE. Although EoE is not life-threatening, it causes "a significant symptom burden for sufferers" (p528).²

What is eosinophilic oesophagitis?

Eosinophils are white blood cells that help the immune system to combat infections and parasites, and are frequently involved in allergic responses as seen in asthma and allergies. Oesophagitis is inflammation of the oesophagus, or the muscular tube that connects the throat to the stomach.

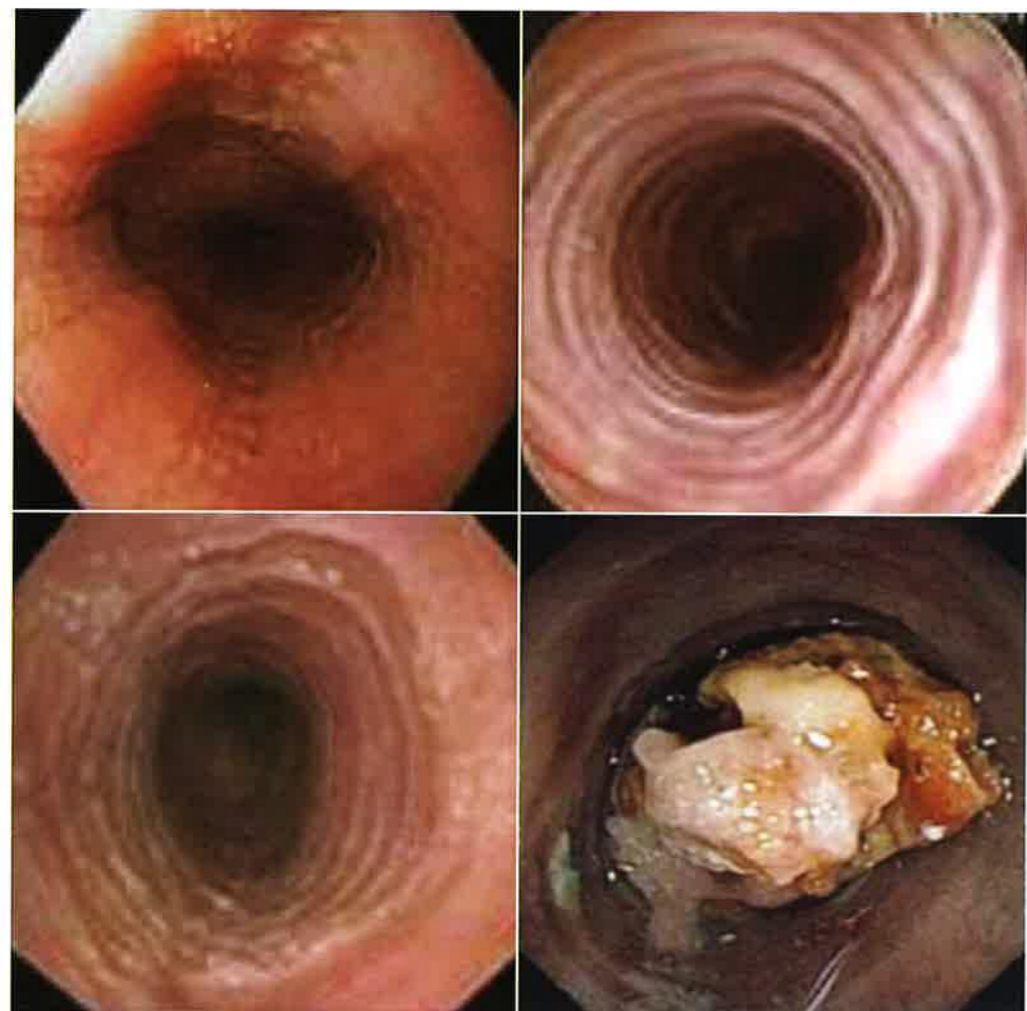


Figure 1. Endoscopic photographs showing common features of eosinophilic oesophagitis. Top left – linear furrows; top right – concentric mucosal rings; bottom left – white papules representing eosinophilic abscesses in the oesophageal mucosa; bottom right – meat bolus obstructing oesophageal lumen.²

EoE has been defined as "a chronic, immune/antigen-mediated (o)esophageal disease characterised clinically by symptoms related to (o)esophageal dysfunction and histologically by eosinophil predominant inflammation".³ In many cases there is significant overlap with reflux and EoE.² It has been named by some as asthma of the oesophagus.⁴

Incidence and clinical features

It is estimated to occur in 0.9% to 6.5% of the population, depending on which studies you look at and occurs more commonly in younger Caucasian males and in those for whom dysphagia (difficulty swallowing) and food impaction is a problem.⁵ It is also prevalent in people with oesophageal rings or furrows, (see Fig. 1), and those with a history of atopy (a tendency to develop allergic conditions) or food allergies. Up to 50% of people with EoE have been found to have asthma also.³ It is associated with feeding difficulties, vomiting, abdominal pain and failure to thrive in infants.⁵ Unfortunately, it is often not diagnosed until dysphagia becomes bad enough to warrant endoscopic evaluation.¹

There are often variations seasonally when there is higher level of exposure to certain allergens such as pollens.² As the eosinophils build up in the tissues, they degranulate and release other chemical mediators that damage the oesophageal tissues (Fig. 2). It is thought that the tissue injury and chronic inflammation lead to wall thickening and fibrosis in the oesophagus similar to airway remodelling – seen on oesophageal ultrasound.⁶

Diagnosis

It is diagnosed by oesophageal biopsy where a high eosinophil count is found in the oesophageal tissues (more than 15 eosinophils per high power field on H & E stain).^{1,6} The hallmarks of EoE commonly found on endoscopy are linear rings, furrows, fibrous strictures, white plaques indicating abscesses and a narrow lumen in the oesophagus, however, EoE can still be present with a normal endoscopy, particularly in children.²

Management

An elimination diet can be a useful start although this should be done under specialist care to prevent malnutrition problems. The six foods that

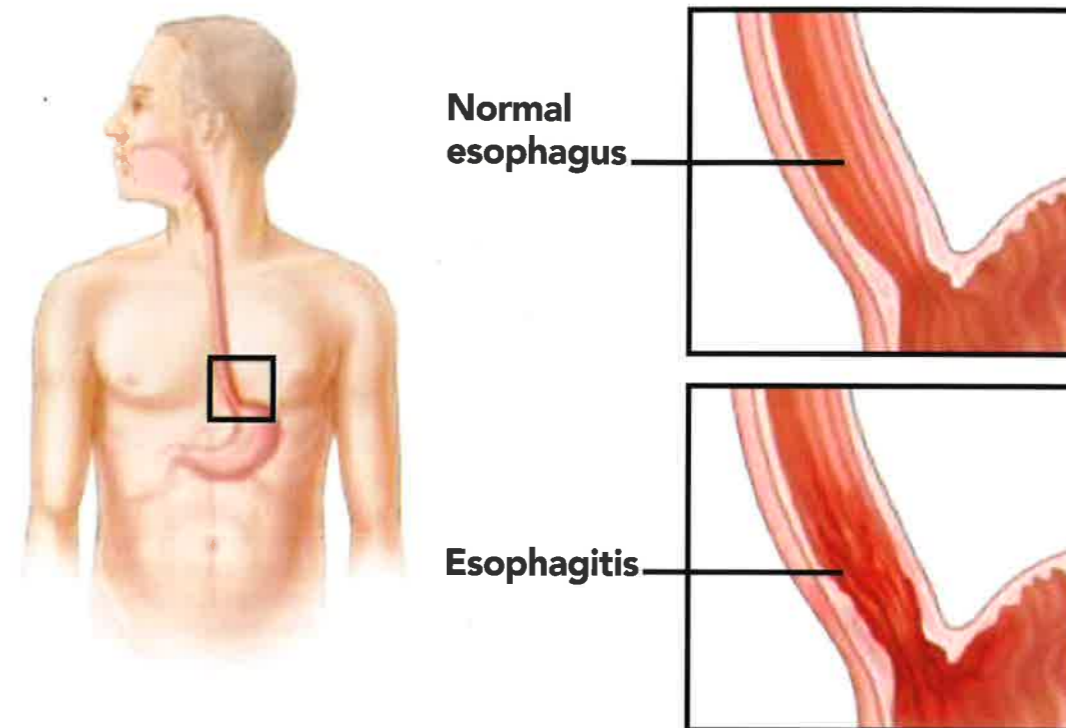


Figure 2. Normal (o)esophagus and (o)esophagitis. https://www.google.co.nz/search?q=oesophagitis&espv=2&biw=2133&bih=1052&source=lnms&tbn=isch&sa=X&ei=1oGQVZmiNOXFmQW3kLHDw&ved=0CAYQ_AUoAQ&dpr=0.9#imgrc=u8KWWcmmoxVGJM%3A

commonly trigger allergy – cow's milk protein, wheat, soy, egg, seafood and peanuts, are excluded.⁷ Smaller food boluses that are well chewed and washed down with fluids can help too. Medications that suppress the stomach's acidity are sometimes first line therapy. Proton pump inhibitors, such as omeprazole, should be reserved for those with EoE/reflux overlap.² Topical corticosteroids such as swallowed beclomethasone and fluticasone are commonly used treatments. Inhaled steroids seem to be protective in the development of EoE¹ although accidental swallowing of inhaled steroids are not thought to be in sufficiently high enough doses.⁸ Montelukast, and the monoclonal antibody, mepolizumab have been used to treat EoE with variable success.²

Conclusion

EoE is becoming an increasingly recognised condition in many patients with asthma and atopy. Identifying potential allergens by skin prick test or RAST may highlight possible asthma or allergy triggers. In order to identify EoE earlier, it would be good practice to specifically ask about dysphagia when reviewing asthma patients. Elimination diets and medications to control excess stomach acid are helpful for some people as are changing eating habits to smaller, well chewed mouthfuls of food washed down with plenty of fluids. Swallowed corticosteroids seem to settle symptoms significantly although further research needs to be carried out to ascertain if other asthma medications are beneficial. Classic characteristics diagnostic of EoE can clearly be seen on endoscopy.

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KEEPING ACTIVE WHEN COPD IS DIAGNOSED

By Adie Riddell RN
Asthma Nurse Educator

Occasionally, in my position, I see clients who have been diagnosed with chronic obstructive pulmonary disease (COPD) and who are still actively employed in the work force. If they cannot fit a pulmonary rehabilitation course into their work schedule then it is important to discuss how and why physical activity should be part of their COPD management.

As we know, COPD is described as a disease of the lungs characterised by airflow obstruction or limitation. The airflow limitation is usually progressive in nature, and not fully reversible. Its impact on the body is both physical and psychological, and often compounded by other comorbidities such as hypertension, cardiovascular disease or coronary artery disease.¹ Shortness of breath, weakness and lack of energy are common factors that can interfere with daily living for people diagnosed with COPD.

Exercise is important – it builds up endurance, strength and flexibility. It can slow down the progression of the disease and save lung function. Learning the basics of exercising,



and incorporating a regular exercise programme into the daily schedule, will be beneficial to living a more healthy and active lifestyle and managing symptoms when they occur. In an article in the American College of Sports Medicine, light to moderate physical activity (30 minutes a day, on most, if not all days of the week) is beneficial for improving the quality of life in persons diagnosed with COPD. The earlier a person gets into a good exercise routine the better.²

While there may be programmes in the community such as 'pulmonary rehabilitation' courses, there are also strategies that can be done individually and independently.

Pulmonary rehabilitation can be a great way to stay active, and learn how to exercise with COPD. This programme consists of education and exercise classes that teach you about your lungs and your disease, and how to exercise and be more active with less shortness of breath. The classes take place in a group setting, giving you the chance to meet others with a similar condition, and both give and receive support.² Ask your doctor or practice nurse to refer you to a programme operating in your area.

Regular exercise has many benefits. It can help maintain or increase skeletal and respiratory muscle function, and increase physical capacity. Reduced anxiety (often created by breathlessness), greater independence in daily activities, reduced fatigue, and improved quality of life are all positive outcomes of a good exercise regime.

When looking at exercise plans, there are some key areas that should be discussed between health professional and client, such as how much exercise should be done on a daily basis, and how often, what type of exercise is best suited and what type of activities should be avoided.

Exercise can be divided into three basic types:

- Stretching
- Cardiovascular or aerobic
- Strengthening.³

Stretching: Regular stretching increases the flexibility and range of motion of the muscles. By stretching the arms and legs pre- and post-exercise, the muscles are prepared for activity and less likely to be strained or injured.



Aerobic exercise involves using the major muscle groups of the lower extremities. This type of exercise strengthens the heart and lungs and improves the body's ability to use oxygen. The goal for this type of activity should be for a total of **20-30** minutes, consecutively where possible. While walking is an obvious exercise, stationary cycling is often well tolerated and a treadmill inside can avoid changeable weather. Over time, aerobic exercise can decrease your heart rate and blood pressure, and improve respiration.

Strength training of the upper body is also very helpful and provides practical benefits, and should accompany any aerobic training. This involves repeated muscle contractions (tightening) until the muscles become tired (at least 8 to 12 repetitions). These exercises should help strengthen respiratory muscles.

Exercise should be stopped if there is any experience of chest pain, neck, arm or jaw pain. Any of these symptoms may indicate inadequate blood flow to the heart tissue. The onset of nausea, light-headedness, dizziness, and headache during exercise are other good indicators to stop the exercise and seek medical advice. Breathlessness is best managed by 'slowing' down the activity (not necessarily stopping), as it is normal for some degree of breathlessness to occur when exercising.³

In my review of COPD literature, the advice and guidelines in breathing and exercise programmes are similar to what should be recommended for any exercise programme –

- Set realistic goals. Gradually increase the number of minutes and days you exercise.
- Start out slow. Warmup for a few minutes.
- Choose activities you enjoy, and vary them to stay motivated.
- Find a buddy to share them with.
- Cool down at the end of your exercise programme.

In summary, existing evidence-based guidelines would support the viewpoint that light to moderate physical activity is beneficial for improving the quality of life in persons with COPD. Exercise cannot reverse the damage to the airways, but it can reduce disability associated with this condition.

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BREATHE WELL TO BE WELL

By Elaine Murray RN
Asthma Nurse Educator

Inhalation and exhalation are the processes by which the body brings in oxygen and gets rid of the carbon dioxide. When you breathe in the diaphragm moves downwards which creates a vacuum and this helps pull the air into the lungs. When you breathe out the diaphragm pushes up onto the lungs to help push the air out. We breathe in and out about 10-14 times every minute all day every day.

The oxygen that we breathe in needs to travel down the airways to the smallest airways which end in the alveoli or air sacs where it is able to seep through the very thin cellular walls into the blood stream. From there, the oxygenated blood leaves the lungs and goes to the heart where it is pumped around your body to provide oxygen to the cells and tissues of every organ in your body. As the cells use the oxygen, carbon dioxide is produced and the blood returns this back to the lungs. It is removed when we breathe out.

To be able to breathe efficiently, our airways need to be open and free from inflammation or swelling and excess or abnormal amounts of mucous. The airways have a built in system to help prevent harmful substances entering the lungs. The thin layer of mucous (clear in colour) present in the airways is there to keep the airways moist and help trap dust, bacteria and viruses and allergy-causing substances from entering the airways. Both infections and inflammation cause more mucous to be made: more mucous in the lungs can lead to infections. This cycle of infection, inflammation and more mucous can damage the airways and lower lung function.¹

The airways also have cilia (small hairs) which filter the air and waft any foreign substances and mucous up and out of the airways to the back of your throat which you then swallow or cough out. It is important to note that if you smoke, you are inhaling harmful substances that cause the cilia to stop working causing health problems like chronic bronchitis. But, if you stop smoking the cilia will start to work again!

It is very important to breathe correctly. We should breathe in and out through our noses (when resting) in a regular pattern. You will notice that your abdomen rises when breathing in, and falls when you breathe out. Unfortunately, poor breathing patterns are far more common than we would like to think, especially for those who have a respiratory condition such as asthma, chronic obstructive airways disease (COPD) or bronchiectasis.

When you breathe correctly you are allowing the muscles to relax which helps to reduce stress and the histamine levels in the blood; it relaxes your thoughts and gives you more control, and for those with respiratory problems it helps to reduce your breathlessness, which will save you energy.

People with chronic breathing problems such as COPD have to work harder to breathe and often have poor breathing patterns. The main symptom for people with COPD is shortness of breath, often made worse by activity or stress which in turn may cause anxiety and panic leading to more breathlessness.

Common ineffective breathing patterns are-

- Over-using the upper chest (shoulders may be raised and

neck muscles stand out).

- Breath-holding (for instance, when bending over, climbing stairs or lifting arms above the shoulders).
- Hyperventilation (rapid, shallow breathing)
- Gulping in air.²

Learning to breathe better is not easy especially when you are not feeling well. Ask your doctor to refer you to a physiotherapist or for pulmonary rehabilitation at your local hospital where you can learn new breathing techniques under supervision so that you feel safe. It will take time and practice to improve your breathing pattern. Pursed lip breathing helps to regulate the amount of air you breathe. Breathe in slowly through your nose and then breathe out through pursed lips, taking twice as long to exhale.

Fear of breathlessness leads to people with chronic breathing problems to do less and less. Feeling short of breath with exercise is NOT harmful, but lack of exercise IS. It leads to muscle weakness, weak bones, weight increase, depression and less activity. This is a vicious cycle. This cycle can be prevented or broken by exercise. People with chronic breathing problems should exercise every day. Walking is the easiest.² Rest and relaxation are also important.

Remember – balance, rhythm, pace yourself.

Ask your doctor to refer you to pulmonary rehabilitation or a physiotherapist to help you with a program that is suitable for you.

For people with bronchiectasis or cystic fibrosis clearing the mucous from the airways is important to help reduce lung infections and improve lung function. There are many airway clearance techniques that are very simple to do but they do need to be done regularly. Sometimes bronchodilators are prescribed to use beforehand to help open the airways and this will help to make whatever technique you are using to be more effective. If you are prescribed an inhaled antibiotic then of course this will be used after the airways have been opened up.

Coughing is the most basic airway clearance technique. It is a natural reflex, and everyone coughs to clear mucous but



for some, coughing can make you feel more short of breath especially if you are trying to cough up thick sticky mucous. Huffing is a type of cough. It involves taking a breath in and then actively exhaling. It is not as forceful as a cough but huffing helps to loosen the mucous which makes it easier to cough it up.

Positive Expiratory Pressure (PEP) Therapy gets air into the lungs and behind the mucous, and holds the airways open. A PEP system includes a mask or mouth piece attached to a resistor. You breathe in normally and then breathe out a little harder against the resistance.

Active cycle of breathing involves a set of breathing techniques which can be changed to meet each person's needs. It gets behind the mucous, lowers airway spasm and clears mucous.

Oscillating PEP (such as Flutter®, Acapella®, Cornet®) is where the person blows out many times through a device which vibrates the large and small airways helping to dislodge the mucous and assist in coughing it up. Your physiotherapist may do postural drainage or percussion (chest clapping) to help in dislodging and moving the mucous.¹ You may be prescribed hypertonic saline via a nebuliser to help with mucous clearance. If you are concerned about ongoing problems with

mucous or you have trouble getting it up please discuss it with your GP or physiotherapist.

Remember that a good posture is important for effective breathing. When your body is rigid or slouched, the air flow becomes rigid. If you are stressed or tense your breathing becomes shallow. Yoga breathing exercises may help in improving your breathing pattern.

Tai Chi which is different from yoga may also be beneficial by improving overall health. It is low impact and puts minimal stress on muscles and joints. It may decrease stress and anxiety, improves mood and depression, improve aerobic capacity, increase energy and stamina, balance and agility, improve muscle strength and definition.³

Remember – breathe well to be well.

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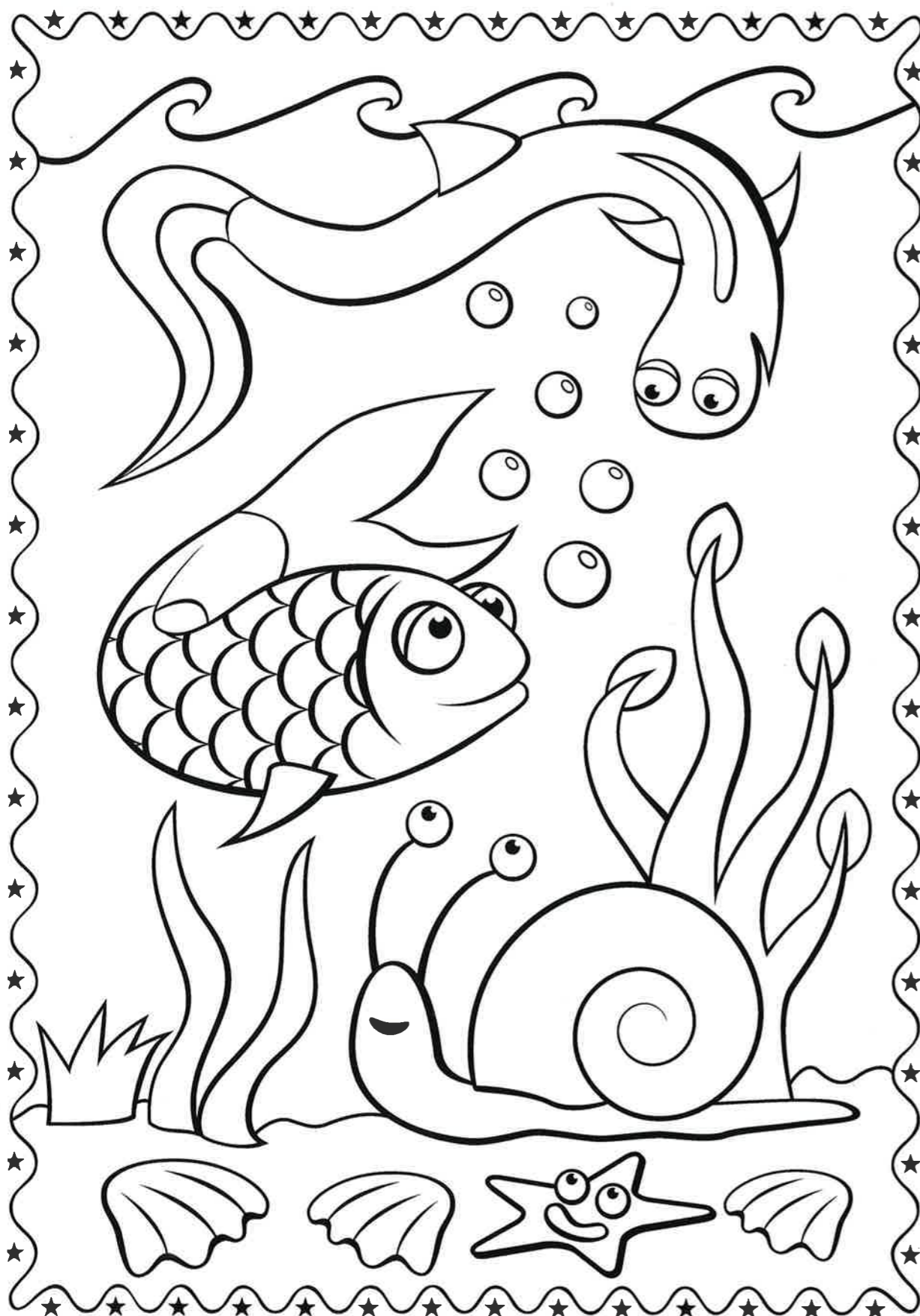
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You may like to photocopy this page for multiple entries.

NEWSTREAM

Source: J Asthma

Patients' and providers' perceptions of asthma and asthma care: a qualitative study;

Mowrer J, Tapp H, Ludden T, Kuhn L, Taylor Y, Courtlandt C, Alkhazraji T, Reeves K, Steuerwald M, Andrew M, Dulin M; Journal of Asthma 1-8 (May 2015)

BACKGROUND: Differences in patients' and providers' perceptions of asthma and asthma care can create barriers to successful treatment. The primary goal of this qualitative study was to further explore patient and provider perceptions of asthma and asthma care as part of a larger Asthma Comparative Effectiveness Study.

METHODS: Focus groups held every 6 months for 3 years were designed to have a mix of both patients and providers allowing for unique understanding around asthma care.

RESULTS: The discussion centered on goal setting, asthma action plans and prevention strategies for asthma exacerbations. Three overarching themes, with a variety of subthemes, emerged as the main findings of this study. The three main themes were Cost/Economic Barriers/Process, Self-Governance/Adherence and Education.

CONCLUSIONS: These themes indicated a strong need for patient educational interventions around asthma as well as education for providers around cost, insurance coverage and patient-centered communication. Specifically, education on learning to use inhalers properly, avoiding triggers and understanding the importance of a controller medication will benefit patients in the long-term management of asthma.

Source: Annals of Allergy; Asthma; & Immunology

Forced oscillometry track sites of airway obstruction in bronchial asthma;

Hafez M, Abu-Bakr S, Mohamed A; Annals of Allergy; Asthma; & Immunology (May 2015)

BACKGROUND: Spirometry is the most commonly used method for assessment of airway function in bronchial asthma but has several limitations. Forced oscillometry was developed as a patient-friendly test that requires passive cooperation of the patient breathing normally through the mouth.

OBJECTIVE: To compare spirometry with forced oscillometry to assess the role of forced oscillometry in the detection of the site of airway obstruction.

METHODS: This case-and-control study included 50 patients with known stable asthma and 50 age- and sex-matched healthy subjects. All participants underwent spirometry (ratio of force expiration volume in 1 second to forced vital capacity, percentage predicted for forced expiration volume in 1 second, percentage predicted for forced vital capacity, percentage predicted for vital capacity, and forced expiratory flow at 25-75%) and forced oscillometry (resistance at 5, 20, and 5-20 Hz).

RESULTS: By spirometry, all patients with asthma had airway obstruction, 8% had isolated small airway obstruction, 10% had isolated large airway obstruction, and 82% had large and small airway obstruction. By forced oscillometry, 12% had normal airway resistance, 50% had isolated small airway obstruction with frequency-dependent resistance, and 38%

had large and small airway obstruction with frequency-independent resistance. There was significant difference between techniques for the detection of the site of airway obstruction ($P = .012$). Forced oscillometry indices were negatively correlated with spirometric indices ($P < .01$).

CONCLUSION: Forced oscillometry as an effortless test, conducted during quiet tidal breathing, and does not alter airway caliber; thus, it can detect normal airway function better than spirometry in patients with asthma. Forced oscillometry detects isolated small airway obstruction better than spirometry in bronchial asthma.

Source: Public Health Nutr

Asthma control in pregnancy is associated with pre-conception dietary patterns;

Grieger J, Grzeskowiak L, Wood L, Clifton V; Public Health Nutrition 1-7 (Apr 2015)

OBJECTIVE: To examine pre-conception dietary patterns in pregnant asthmatic women and to identify associations between maternal diet and asthma control during pregnancy.

DESIGN: Cross-sectional study. Pre-conception food frequency data were collected retrospectively. Asthma control was assessed using the Global Initiative for Asthma guidelines. Dietary patterns were derived using factor analysis. Binary logistic regression analyses were used to test the association between uncontrolled asthma and each dietary pattern (Z-score), with values presented as odds ratio and 95 % confidence interval.

SETTING: Antenatal clinic in a tertiary hospital, Adelaide, Australia, May 2009-July 2013.

SUBJECTS: One hundred and fifty-eight asthmatic pregnant women.

RESULTS: Three dietary patterns were identified: (i) 'high protein/fruit' (strong food group loadings for fish, meat, chicken, fruit); (ii) 'high fat/sugar/takeaway' (takeaway foods, crisps, refined grains); and (iii) 'vegetarian-type' (vegetables, fruit, soya milk, whole grains). A 1 sd increase in score on the high fat/sugar/takeaway pattern was associated with increased likelihood of uncontrolled asthma (adjusted OR=1.54; 95 % CI 1.07, 2.23; $P=0.022$). Women with uncontrolled asthma (n 115) had higher energy-adjusted intakes of saturated fat, monounsaturated fat, carbohydrate, sugar and fibre compared with women with controlled asthma (n 43, all $P \leq 0.05$).

CONCLUSIONS: Pre-pregnancy dietary patterns may influence maternal asthma control. Our work highlights the importance of achieving a healthy diet before pregnancy that is low in saturated fat, sugar and takeaway foods, and therefore higher in lean meats, poultry and fish, as well as fruits, vegetables and whole grains. A healthy dietary pattern should be encouraged in all asthmatic women who are of childbearing age, and should additionally be promoted before pregnancy and beyond.

Source: Chest

Determinants of underdiagnosis of COPD in national and international surveys;

Lamprecht B, Soriano J, Studnicka M, Kaiser B, Vanfleteren L, Gnatiuc L, Burney P, Miravittles M, García-Río F, Akbari K, Ancochea J, Menezes A, Perez-Padilla R, Montes de Oca M, Torres-Duque C, Caballero A, González-García M, Buist S, BOLD Collaborative Research Group, the EPI-SCAN Team, the PLATINO Team, and the PREPOCOL Study Group; Chest (May 2015)

BACKGROUND: COPD is a frequent condition ranking within the top three causes of mortality in the Global Burden of Disease, yet it remains largely underdiagnosed. We assessed the underdiagnosis of COPD and its determinants in national and international surveys of general populations.

METHODS: We analyzed representative samples of adults aged ≥ 40 years randomly selected from well-defined administrative areas worldwide (44 sites from 27 countries). Post-BD FEV1/FVC $<$ LLN was used to define chronic airflow limitation consistent with COPD. Undiagnosed COPD was considered when participants had post-BD FEV1/FVC $<$ LLN but were not previously diagnosed with COPD.

RESULTS: Among 30,874 participants with a mean age of 56 yrs, 55.8% were female, and 22.9% were current smokers. Population prevalence of (spirometrically defined) COPD ranged from 3.6% in Barranquilla, Colombia to 19.0% in Cape Town, SA. Only 26.4% reported a previous lung function test, and only 5.0% reported a previous diagnosis of COPD, while 9.7% had post-BD FEV1/FVC $<$ LLN. Overall, 81.4% of (spirometrically defined) COPD cases were undiagnosed with the highest rate in Ile-Ife, Nigeria (98.3%) and the lowest rate in Lexington, US (50.0%). In multivariate analysis, a greater probability of being underdiagnosed with COPD was associated with male gender, younger age, never and current smoking, lower education, no previous spirometry and less severe airflow limitation.

CONCLUSION: Even with substantial heterogeneity in COPD prevalence, COPD underdiagnosis is universally high. Since effective management strategies are available for COPD, spirometry can help to diagnose COPD at a stage when treatment will lead to better outcomes and improved quality of life.

Source: Clin Respir J

European screening for alpha-1 antitrypsin deficiency in subjects with lung disease;

Greulich T, Averyanov A, Borsa L, Rozborilová E, Vaicius D, Major T, Chopyak V, Tudorache V, Konstantinova T, Camprubi S; The Clinical Respiratory Journal (Apr 2015)

INTRODUCTION: Alpha1 -antitrypsin deficiency (AATD) predisposes individuals to early-onset emphysema. Despite its prevalence, especially among patients with chronic obstructive pulmonary disease, AATD is still underdiagnosed.

OBJECTIVES: To identify individuals with lung disease and severe AATD in central-eastern Europe.

METHODS: Subjects with respiratory symptoms that could be indicative of AATD provided blood samples as dried blood spot. The alpha1 -antitrypsin (AAT) concentration was determined by nephelometry and, if lower than 1.70 mg/dL in DBS (equivalent to 1.04 g/L in serum), polymerase

chain reaction was used to detect the PiS and PiZ alleles. Isoelectric focusing was used for confirmation of doubtful genotype results.

RESULTS: From 13 countries, 11,648 subjects were included. Genotyping of 1,404 samples with AAT levels $<$ 1.70 mg/dL revealed 71 (5.06%) PiS, 151 (10.8%) PiZ, 1 (0.071%) PiSS, 8 (0.57%) PiSZ and 32 (2.28%) PiZZ. Phenotyping of 1,363 samples negative for the S and Z alleles or with PiS and PiZ genotype showed 2 (0.147%) PiZ(rare) and 2 (0.147%) Pi(null)(null). The countries with the highest rate of severe AATD were Croatia, Russia, and Slovakia. By regions, The Baltic countries area showed the highest rate of both PiZ and severe AATD (2.45% and 1.20%, respectively) while the lowest rates were observed in the Balkan Peninsula (0.48% and 0.31%, respectively).

CONCLUSION: This study confirms the need for targeted testing of symptomatic patients and provides AATD genotype data from countries for which only some estimates of prevalence were available until now.

Source: Respir Med J

Fear of falling in people with chronic obstructive pulmonary disease;

Oliveira C, McGinley J, Lee A, Irving L, Denehy L; Respiratory Medicine 109 (4), 483-9 (Apr 2015)

BACKGROUND: Increased fear of falling (FOF) has been associated with impaired physical function, reduced physical activity and increased fall risk in older adults. Preliminary evidence suggests that individuals with chronic obstructive pulmonary disease (COPD) may have an increased FOF. This study aims to compare the level of FOF in people with COPD with healthy controls, and to determine the associations between FOF and measures of physical function, physical activity and fall risk in COPD.

METHODS: FOF was assessed in 40 participants with COPD and 25 age- and gender-matched controls using the Falls Efficacy Scale-International (FES-I). Physical function was evaluated using quadriceps hand-held dynamometry, the Berg Balance Scale and the Six-minute Walk Test. Associations between FOF, physical activity and fall risk were evaluated using the Physical Activity Scale for the Elderly and the Falls Risk in Older People – Community Setting. Pearson's correlation coefficient and stepwise multivariate linear regression were used.

RESULTS: Individuals with COPD (mean \pm SD; age: 71 \pm 8 years, FEV1: 45 \pm 16 %pred) had higher FOF compared to controls (FES-I: 25.0 \pm 7.9 vs 20.2 \pm 5.2, $p=0.01$). Higher FOF was associated with lower quadriceps strength ($p=0.02$) and an impaired balance ($p < 0.01$); these explained 26% of the FOF variance. Reduced levels of physical activity ($p=0.01$) and a higher fall risk ($p < 0.01$) were associated with an increased FOF in COPD.

CONCLUSION: People with COPD have a higher FOF compared to the healthy peers, which is related to lower quadriceps muscle strength, impaired balance, lower levels of physical activity and an increased fall risk.

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