New guidelines on sodium, potassium intake

Live and let liver

Recognizing cow’s milk protein allergy in children

“My father has red eyes; My mother has itchy eyes; My husband has dry eyes But I have healthy eyes with Refresh”
Most hypertensive patients need more than 1 agent to help get them to BP goal\textsuperscript{1,2}

PICK YOUR POWER
New guidelines on sodium, potassium intake

By Elvira Manzano

The WHO has issued new guidelines on recommended levels of sodium and potassium intake in the diet.

Essentially, it suggests that adults and children should cut back on sodium and increase dietary intake of potassium to reduce the risk of heart disease and stroke.

In the updated guidelines, adults (16 years and older) are recommended to reduce their daily sodium consumption to <2g (5g of salt) from the current recommendation of 2g, and increase potassium intake to at least 3.51g a day. For children (2 to 15 years of age) these amounts should be lowered proportionately according to their energy requirements.

This is the first time the agency has recommended limits on sodium intake for children and offered dietary recommendation for potassium intake. The guidelines apply to individuals with or without hypertension, including pregnant and lactating mothers, except those with illnesses or are taking medications that may cause hyponatremia or acute build-up of body water, or patients (with heart failure and type 1 diabetes) requiring special diets.

“The successful implementation of these recommendations would have an important public health impact through reductions in morbidity and mortality, improvement in the quality of life for millions of people, and substantial reductions in health-care costs,” according to a WHO report.

Sodium is found naturally in milk products and eggs, but is present in much higher levels in processed foods such as bacon, bread, soy sauce and bouillon or stock cubes. Natural sources of potassium include beans, peas, and nuts, vegetables such as spinach and cabbage, and fruits such as bananas, papayas and dates.

The WHO is also updating its guidelines on the intake of fats and sugars, which are linked to obesity and many chronic and non-communicable diseases.
Medical researchers at the Malaghan Institute in New Zealand are investigating the use of a vaccine to treat allergy and asthma, and believe pharmacists would be well placed to administer it.

The research is currently in the discovery phase. However, the hope is it will eventually be developed into a safe and accessible treatment available through pharmacies, director Graham Le Gros said.

Asthma, food allergy, eczema and hay fever are caused by an overreaction of the immune system to environmental triggers including, pollen, dust mites, mold and some foods.

The Th2 immune response, which normally protects people from parasitic worm infections, is then activated.

New research, led by Mr Le Gros and Franca Ronchese, has shown if the Th2 immune response is shut down before it is activated, asthma and allergy symptoms can be prevented.

“What this [proposed immunotherapy] is attempting to do is to get right down into the specifics of the immune system and to take out the one or two cells that cause this particular immune response,” Mr Le Gros said.

Allergy treatments presently on the market can cause some side effects for users.

Steroid inhalers suppress all immune responses, both good and bad, which can leave the person more susceptible to common infections.

Desensitization therapy, where the person is injected with a small amount of a specific allergen, can be dangerous. It requires a doctor working in a clinic, in case the patient goes into anaphylactic shock.

There is a lot of room for improvement when it comes to allergy treatments and there need to be some breakthroughs to help allergy sufferers, Mr Le Gros said.

Over the next couple of years, the research team will prepare to move into the clinical trial phase. Later stages will also look at what age group the allergy treatment would target and the specific allergies it could treat. It is important to make sure the research is right, even if this takes time, he said.
Live and let liver

By Leonard Yap

They say ignorance is bliss, but ignorance about the liver and what we do to it could cost you your health. The liver is one of the most ignored organs of the body, and people often do not realize they have a problem until it is too late, says an expert.

“The liver is very important, but it gets very little attention. A lot of people are not even aware of where the liver is in the body. It is the same thing with its function. The liver has about 500 known functions, and these range from storing proteins to clearing the blood of drugs and other poisonous substances,’’ said Loong Yik Yee, a consultant gastroenterologist.

The problem is that today’s lifestyle imposes a lot of stress on the liver, Dr Loong told Pharmacy Today. Habits like poor diet, lack of exercise, stress, smoking and regular alcohol consumption are some examples of poor lifestyle habits which can affect liver function. Diets rich in saturated fat and trans-fatty acids promote the accumulation of fat in the liver.

Lack of exercise contributes to the increased incidence of obesity: the prevalence of obesity in Malaysia is estimated to be around 16% of the population. Just simply burning more calories by walking or moving around more and reducing the intake of calories can be liver-protective, he said.

It is important for people to know that regular consumption of alcohol for a number of years can be enough to lead to cirrhosis of the liver. Fortunately, loving your liver is pretty easy when you know how. Lifestyle modification like exercise, maintaining a healthy diet and consumption of nutritional supplements are effective in preventing fatty liver in most individuals.

Liver, keepin’ it alive

Dr Loong had the following advice for maintaining proper liver health:

- Making good dietary choices: For proper functioning of the liver, you need a balanced diet rich in different vegetables, fruits and proteins. Excess fats and carbohydrates can lead to fatty deposits in the liver. Eat small meals as they can easily be digested and create less burden to the liver.
- Minimize or avoid alcohol.
- Take medicines as prescribed and not exceed recommended doses: Even seemingly harmless medicines can damage the liver. If you have diabetes and high blood cholesterol and triglycerides levels, strictly follow your doctor’s prescribed treatment.
- Avoid environmental pollutants: Inhaled chemicals from aerosol sprays, paints and car exhausts may damage the liver.
- Exercise: There is good evidence that gradual weight loss, coupled with increased exercise, can reduce fat deposits in the liver. “We just want the liver to burn off some
fat. It should be a combination of cardio, aerobic and anaerobic exercise. Muscle-building does help you burn more calories, which is important in keeping weight down. Adequate exercise can be defined as regular exercise of about 30 minutes a day most days of the week.”

- Nutritional supplements: Supplements containing polyunsaturated fatty acids, which are also known as essential phospholipids, are vital nutrients which can support the liver. When a liver is damaged, the membranes of its cells lose phospholipids, which are an important component of all cell membranes. Silymarin, from milk thistle, is believed to have hepato-protective and antioxidant qualities that stabilize and protect the membrane lipids of liver cells.

What does the liver do?
The liver regulates most chemical levels in the blood and excretes a product called bile, which helps to break down fats. All of the blood leaving the stomach and intestines passes through the liver. It is a very vital organ that performs many functions that are often taken for granted. Some of the more well-known functions include:

- production of bile, which helps carry away waste and breaks down fats in the small intestine during digestion.
- production of cholesterol and proteins to help carry fats through the body.
- conversion of excess glucose into glycogen for storage.
- regulation of blood levels of amino acids, which form the building blocks of proteins.
- processing hemoglobin for use of its iron content.
- conversion of poisonous ammonia to urea. (Urea is one of the end-products of protein metabolism. It is secreted via urine)
- clearing the blood of drugs and other poisonous substances.
- regulating blood clotting.
- resisting infections by producing immune factors and removing bacteria from the bloodstream.

Packaging solutions for growing pharma market

By Saras Ramiya

SCHOTT Pharmaceutical Packaging is expanding its production capacity in Southeast Asia to meet local demand.

“In anticipation of the growing demand for pharmaceutical products in Indonesia, we are expanding our local production capacity significantly,” said Gunawan Setokusumo, SCHOTT’s regional sales director for Asia.

SCHOTT was one of the exhibitors at CPhI Southeast Asia 2013 and is an expert in high-quality pharmaceutical packaging. CPhl was a pharmaceutical ingredients exhibition held from 20-22 March at the Jakarta-
ta International Expo.

“For us, the CPhI was the perfect venue to discuss market trends and to present our wide range of products. Together with our customers, we want to support the Indonesian pharmaceutical market continue its growth,” Mr Gunawan added.

SCHOTT’s booth at CPhI featured the company’s wide range of ampoules and vials. In addition, the international technology group also presented innovative versions of its cartridges and prefillable syringes.

“SCHOTT considers CPhI Southeast Asia to be an important trade exhibition and an excellent platform for presenting its solutions, expertise and products in the area of pharmaceutical packaging,” said Mr Gunawan.

SCHOTT has been manufacturing ampoules, vials and pipettes for the pharmaceutical industry in Indonesia for 15 years.

The company operates the largest plant for pharmaceutical primary packaging in Southeast Asia in Bekasi. The plant is also known for its strict adherence to the Good Manufacturing Practice (GMP) guidelines. It has also been certified based on all of the relevant ISO standards, such as ISO 15378.

Due to its local production, SCHOTT’s customers in Indonesia benefit from reliable lead times, excellent customer service and technical support.

SCHOTT introduced a set of delamination-resistant vials for the first time at CPhI. SCHOTT Type I plus® vials are particularly well-suited for pharmaceutical products that cannot be stored in conventional Type I glass. These include biopharmaceutical proteins, for example, which tend to show denaturation, or formulations that interact with their containers.

SCHOTT Type I plus features a coating on the inside that is covalently bonded with the glass matrix and drastically reduces interactions between the glass surface and the respective medication. This translates into greater security and higher stability for medications.

The vials, with their outstanding barrier properties, can be subjected to all types of normal pharmaceutical procedures, including washing, autoclaving, sterilization and depyrogenation.
HKL’s recipe book for dialysis patients highlights nutritional management

By Saras Ramiya

Committing to a healthy diet is crucial for dialysis patients, says Ghazali Ahmad, head of the nephrology department at Kuala Lumpur Hospital (HKL).

In view of the limited function of the kidneys to remove waste products from the body, it is vital that the nutrient content of foods consumed by patients is given special consideration.

HKL’s departments of nephrology, dietetics and food services, in collaboration with AbbVie Sdn Bhd, recently launched the Recipe Book for Dialysis Patients. The book is a comprehensive, kidney-friendly cookbook based on expert recommendations and adapted Malaysian cuisine.

“Chronic kidney disease can be a major threat to health and quality of life. A well-planned diet is essential for patients to stay fit as their kidneys are no longer functioning at full capacity. The recipe book will serve as a diet guideline that will help in prevention and treatment of complications that could arise from the disease. The launch of this recipe book will help to highlight the importance of nutritional management for dialysis patients,” said Datuk Dr. Ghazali, who is also an advisor to the Ministry of Health.

“In order to manage their condition, dialysis patients need to monitor their diet closely.

It is essential for dialysis patients to be aware of the amount of protein, calories, fluids, vitamins and minerals they [consume] on a daily basis,” Datuk Dr. Ghazali added.

Patients will experience protein loss when they are on dialysis treatment, so they require their dietary protein intake to be optimized. Too little protein and calorie intake can lead to malnutrition. On the other hand, protein generates waste products, which need to be removed. These waste products build up between dialysis treatments. Protein-rich foods in general also have high phosphate content, so it is important to choose the correct forms of protein.

Chronic kidney disease (CKD) is a serious health concern in Malaysia, with the need for dialysis or transplantation to sustain life at the most advanced level of disease. According to the 19th Report of the Malaysian Dialysis and Transplant 2011, there were 25,688 registered dialysis patients and 1,884 kidney transplant recipients nationwide. CKD significantly affects all aspects of patients’ lives, from studying and working, to raising a family and contributing to society. While most people think of dialysis or transplantation as the way to manage the disease, what is not well understood is that the role of diet is vital.

The Recipe Book for Dialysis Patients is available for download at www.hkl.gov.my/content/cookbook.pdf.
Relieves & Suppresses Chesty Cough

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- Relieves coughing

Duhh … stress increases blood pressure

By Leonard Yap

It might sound like stating the obvious, but mental stress does increase blood pressure (BP) and there is mounting evidence to back it up. But all is not lost; there are some simple (in theory) ways to keep BP under control, says a specialist.

Stresses in life, the dwindling bank account, traffic jams, the gossipy colleague etc, conspire to take BP through the roof. “Mental stress and hypertension appear to be inextricably linked to the development and maintenance of hypertension,” said Mohd Arifin Mohd Ali, an internal medicine specialist.

The relationship between stress and hypertension has a significant and long history. In the 1930s, US physiologist Walter Bradford Cannon, after working with soldiers injured during World War 1, found that the hormones epinephrine and norepinephrine played significant roles in times of stress.

Stress exceeding a critical threshold could cause long-term damage beyond the body’s ability to adapt, Dr Mohd Arifin said.

Stress affects our bodies both mentally and physically. In addition to emotional discomfort in the face of stressful situations, the body reacts by releasing the stress hormones epinephrine and cortisol into the bloodstream. These hormones prepare the body for the fight-or-flight response by making the heart beat faster and constricting blood vessels to get more blood to the core of the body instead of the extremities. Constriction of blood vessels, in turn, raises BP. In modern day life, the body experiences this more often and for prolonged periods of time, he said.

So what can we do to bring our BP down? Dr Mohd Arifin suggested the following:

• Simplify your schedule. If you constantly feel rushed, take a few minutes to review your calendar and to-do lists. Look for activities that take up a lot time, but are not very important. Schedule less time for these activities or eliminate them completely.

• Breathe deeply. Taking time and making a conscious effort to deepen and slow down breathing can aid relaxation.

• Exercise. Physical activity is a natural stress buster.

• Yoga and meditation not only strengthen the body and aid relaxation, but may lower systolic BP by 5 mmHg.

• Sleep! Sleep deprivation can make problems worse than they really are.

• Change your perspective. When dealing with problems, resist the tendency to complain. Acknowledge your feelings about the situation and focus on finding solutions.

The goal is to discover what works for each person. The willingness to try something different and being open to new avenues will
help in your quest to keep your BP and health under control. It is important to know that most of the morbidity and mortality associated with hypertension is seen with just mild-to-moderate elevations in BP: therefore, any effort to keep BP down is good, he said.

Pharmacologic intervention for stress-related hypertension may be helpful, but controversial. Drug therapy should be directed toward the preservation of target organs like the kidney. Therapeutic interventions using a combination of lifestyle modalities i.e. optimizing nutrition, exercise, weight control and stress management should be the priority before considering medication in many cases of stress-related hypertension.

Dr Mohd Arifin was speaking at the Malaysian Society of Hypertension’s 10th Annual Scientific Meeting 2013 in Kuala Lumpur.

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**Exercise plays a positive role in hypertension**

By Leonard Yap

We have always known that exercise is good for preventing cardiovascular disease and hypertension, but the reason for this and the amount of exercise needed to elicit a positive response on blood pressure (BP) have not been clear, says an expert.

Exercise has been shown to reduce systolic and diastolic BP, increase serum HDL cholesterol and decrease serum triglycerides, said Mohd Nahar Azmi Mohamed, a consultant sports physician at University Malaya Medical Center, Kuala Lumpur. (Am J Cardiovasc Dis 2012;2(2):102-10, Sports Med 2000;30(3):193-206)

Exercise has also been shown to reduce total body and intra-abdominal fat, increase insulin sensitivity and reduce platelet adhesiveness and aggregation, he said. A meta-analysis of 54 randomized clinical trials found a reduction in systolic BP of an average 3.84 mmHg and diastolic BP of 2.58 mmHg when patients were randomized to perform aerobic exercise. Dr Mohd Nahar proposed a mechanism of how exercise affects BP lowering. He said exercise decreases catecholamines and total peripheral resistance, improving insulin sensitivity, which also alters vasodilatation and vasoconstriction of blood vessels.

Exercise is the cornerstone therapy for primary prevention, treatment and control of hypertension. Optimal training frequency, intensity, time and type (FITT) should be better defined and individualized to optimize BP lowering, he said.

Dr Mohd Nahar recommended the following exercise regimens for hypertensive patients:

- **Frequency**: on most, preferably all, days of the week.
- **Intensity**: moderate intensity exercise like brisk walking or gardening.
- **Time**: 30 minutes of continuous or accumulated physical activity per day.
- **Type**: primarily endurance physical activity supplemented by resistance exercises i.e. walking at the supermarket and carrying shopping bags filled with groceries.
He said studies have shown that low-to-moderate training is just as efficient in lowering BP as high-intensity (less than 70 percent VO2 max) cardiovascular exercise. The fitness level of the individual plays a central role in determining optimal intensity and should be tailored to the patient.

He cautioned that special considerations should be taken with patients on antihypertensive medications, particularly beta-blockers and diuretics. These medications impair the ability to regulate body temperature during exercise and may provoke hypoglycemia. People using these medications should be educated on the signs and symptoms of heat illness, the role of adequate hydration and proper clothing to facilitate evaporative cooling.

They should also be educated on the importance of decreasing exercise time and intensity during periods of high temperature and humidity, and on ways to prevent hypoglycemia. Beta-blockers can substantially alter submaximal and maximal exercise capacity, particularly in those with myocardial ischemia, he said.

Many hypertensive patients are overweight, with a body mass index (BMI) of 25 to 29.9 kg/m2 or obese, BMI of more than 30 kg/m2. Exercise programs must emphasize a daily caloric expenditure of more than 300 kcal, coupled with reduced energy intake. This can be accomplished with moderate intensity prolonged exercise such as walking. A combination of regular exercise and weight loss should be effective in lowering BP, he added.

Dr Mohd Nahar was speaking at the Malaysian Society of Hypertension’s 10th Annual Scientific Meeting 2013 in Kuala Lumpur.
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A new, bladeless vision correction surgery has been introduced in the country. Known as iLASIK2, it is capable of restoring vision in less time and with better accuracy.

iLASIK2, developed by Abbott Medical Optics, US, is the culmination of 10 years of refinement of the existing LASIK (laser assisted in situ keratomileusis), which is basically the use of a laser to correct eye defects such as myopia, hyperopia and astigmatism.

iLASIK2 combines a No-Blade Intralase Femtosecond Laser iFS 150 with a state-of-the-art procedure known as Advanced CustomVue, which, according to the website, gives an ‘incredible level of precision and accuracy.’

Powering the Advanced CustomVue is the iDesign Advanced WaveScan Studio aberrometer, a diagnostic tool capable of mapping the patient’s cornea with five times the data-point than existing technology. This translates into a better detailed map of the eye’s imperfections, thus allowing for customized refractive treatments for better and clearer vision.

The new technology allows for the creation of channels and other forms of incisions, including frontal and posterior side cuts, and multi-layered incisions. The laser is capable of creating customized corneal flats such as inverted bevel-in side cuts of up to 150 angle and elliptical flaps. These, added to the fact that corneal flaps can be performed in less than 10 seconds, makes for quick recovery. According to the fact sheet, the unique angle of incision promotes ‘quicker healing and nerve generation,’ coupled with shorter postoperative effects such as dry eyes. The end result is better patient comfort and satisfaction.

In fact, the recovery time is so short that it could be feasible for the person undergoing the procedure to have the eye correction surgery done in the morning and be back to work the next day. Hence, high-flying and busy executives will well benefit from this procedure.

Apart from Malaysia, iLASIK2 can be found in countries such as the US, France, Germany, Spain and China. For now, the technology is only conducted by VISTA Eye Specialist out-lets.
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- Superior efficacy to Fiber-alone\(^10\), and lactulose\(^11\)
- Suitable for use in pregnant women\(^12\), geriatrics\(^11\) and diabetics\(^1\)

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**References:**

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Many people are still unaware that 90 percent of cancers occur randomly and are not inherited genetically. However, an unhealthy lifestyle, a potential risk factor for cancers, can be passed on to family members especially children as it is easy for them to emulate unhealthy habits, says an expert.

“If a gene is what I inherit from my mother and my father, and a change in this gene leads to cancer, then surely this gene can be transmitted from one person to another? This is not the case. The individual cell that has acquired the genetic change that made it cancerous is not passed on from you to your child nor can it be inherited from your parents. It occurred during your lifetime when a random process which occurred in that particular cell and gene has caused cancer,” said Teo Soo Hwang (PhD.), chief executive officer of Cancer Research Initiatives Foundation (CARIF).

On the other side of the spectrum, it is important for people to know that having a genetically inheritable cancer gene does not necessarily mean that they will get cancer. It does, however, mean that they are at an increased risk of getting cancer. In this instance, the knowledge that we have about genes today may not allow us to prevent cancer, but it can allow us to alter the risk and the likelihood of fatality.

“Only a handful know that 10 percent of breast cancer is inherited from family members, thus, putting them at high risk. For these individuals, genetic tests combined with counselling are very important as they will be monitored right from the very beginning and the cancer can be detected at an early stage,” said Ms. Teo.

“Today, we still see a large number of patients being diagnosed with breast cancer at late stages. This is because of the taboo surrounding breast cancer. Some patients who have been diagnosed with breast cancer suffer in silence as they refuse to inform their family members because they feel like failures,” said Yip Cheng Har, a consultant breast surgeon.

According to Dato’ Dr. Yip, it is a common misconception among women that breast cancer is painful. This leads women to believe that if they do not feel any pain, they do not have cancer. Some women are also falsely convinced that cancer is an old age disease. One other misconception among women is that removal of the breast would almost always lead to death.

“There is apparent low breast health literacy and symptom recognition. People do not recognize that a painless breast lump can mean that it is cancerous. There is also a strong belief that alternative therapy as an active form of treatment can cure them of cancer. Women are also more prone to putting their children and husband’s needs before theirs and, hence, do not have the
New indication for denosumab

By Pank Jit Sin

Denosumab, the receptor activator of nuclear factor kappa-B ligand (RANK-L) inhibitor, has been given a new indication – the treatment of postmenopausal osteoporosis in women with increased risk of fracture.

This comes a little more than a month after the launch of denosumab for the treatment and prevention of skeletal-related events (SREs) in those with bone metastases. Denosumab works by preventing the action of osteoclasts. Reduced osteoclastic activity results in the delay of bone loss.

The drug comes with a new name, Prolia® and is given in the form of 6-monthly injections for a total of two injections a year. According to Jay Soriano, marketing director of GlaxoSmithKline Pharmaceutical, the drug will “serve as an alternative to patients who look for a convenient, well-tolerated treatment with better efficacy [than current conventional treatment].”

Also present at the launch, Steven R. Cummings, professor emeritus of medicine and epidemiology, University of California, San Francisco, and senior scientist at the California Pacific Medical Center Research Institute, US, said osteoporosis in the Asian region, including Malaysia, is greatly underdiagnosed and undertreated.

Dr. Cummings said possible reasons for underdiagnosis and undertreatment could be the lack of epidemiological and economic data in the region, as well as the presence of more prominent health issues overshadowing osteoporosis in terms of resources.

In Malaysia, one out of two menopausal women in the urban setting has mild osteoporosis. [Singapore Med J 2000;41(9):431-5] Despite the availability of osteoporosis treatment, substantial numbers of fractures still occur. [International Osteoporosis Foundation (2002). Osteoporosis in the Workplace: The social, economic and human costs of osteoporosis on employees, employers and governments.]

Singapore, Hong Kong and Indonesia are also expected to experience an increase in hip fracture rates due to their rapidly aging populations. [Osteoporosis in Asia. Available at: www.nbihealth.com/t-asia.aspx Accessed on 21March]
Recognizing cow’s milk protein allergy in children

Food allergy is becoming increasingly common in today’s society. Cow’s milk protein allergy (CMPA) is a form of food allergy that commonly affects children under the age of three. Its prevalence in children is thought to be between 2 – 7.5%.\(^1\) CMPA usually presents in early infancy, often at the time of initial exposure to cow’s milk-based formula or introduction of solids containing CMP. There are limited data to estimate the prevalence of CMPA in Malaysia, although milk has been recognized as the most common food allergen.\(^2\)

Growing out of CMPA
It used to be thought that the majority of children would eventually outgrow CMPA around the age of three. A study by Skripak et al demonstrated otherwise. When CMPA resolution was assessed using the most accurate tolerance criteria of passing a food challenge or having a cow’s milk specific-immunoglobulin E (IgE) < 3 kU/L and no reactions over the previous year, only 19% of children achieved tolerance by the age of four, while 79% outgrew their allergy by age 16.\(^3\)

Apart from that, there are a few clinical and laboratory features identified as meaningful predictors of CMPA resolution. Of these, peak cow’s milk specific-IgE level has been found by far to be the most significant and clinically
useful predictor i.e., the higher the peak cow’s milk specific-IgE, the lesser the chance of developing resolution. Meanwhile, the presence of clinical conditions such as asthma and allergic rhinitis are indicative of poorer prognosis.³

**Signs and symptoms of CMPA**

CMPA is a result of an immunological reaction to CMP i.e., casein and/or whey present in milk. It is this immunological etiology that differentiates CMPA from other adverse reactions to cow’s milk such as lactose intolerance. Basically, lactose intolerance describes symptoms such as abdominal distention, flatulence, abdominal cramping and diarrhea that are due to lactose malabsorption and lactase deficiency. In contrast, CMPA may be mediated by immunoglobulin E (IgE), non-IgE mediated or even mixed. Clinically, it is difficult to differentiate whether a child has IgE-mediated, non-IgE mediated or mixed CMPA based on history of CMPA and physical examination.

CMPA causes a diverse range of symptoms in children. The clinical signs and symptoms of CMPA may manifest in many different organ systems. However, there are a few organ systems that are commonly involved and they are the skin, gastrointestinal (GI) and respiratory tracts. CMPA symptoms are also typically classified as ‘immediate’ (early) reactions or ‘delayed’ (late) reactions. Immediate reactions occur from minutes up to 2 hours after ingestion of cow’s milk. These early reactions typically manifest as urticaria, angioedema, vomiting or an acute flare of atopic dermatitis.¹

On the other hand, delayed reactions describe symptoms that manifest up to 48 hours or even 1 week after ingestion of allergens. Typical examples include atopic dermatitis or GI symptoms. Studies have noted that children with early reactions are also more likely to have positive skin prick test or test positive for specific IgE,¹ while children presenting with late-onset reactions tend to have non-IgE-mediated CMPA².

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<tr>
<th>IgE mediated symptoms</th>
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<td>Reactions involving skin, respiratory symptoms (dyspnea, bronchospasm, wheezing), fall in blood pressure, GI symptoms (colic, vomiting) and shock</td>
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Common signs and symptoms related to CMPA²
Living with CMPA is not easy for the whole family. Mothers are faced with the balancing act of avoiding harmful CMP while ensuring their children get all the nutrients required for growth and development. Questions like “Is my child getting sufficient nutrients?” or “Does this contain hidden sources of CMP?” are real, day-to-day questions that parents face to avoid accidental consumption of CMP-containing milk formula and food products.

CMPA associated with poor family quality of life and high healthcare cost

A study by Sladkevicius et al revealed that it took a mean time of 2.2 months before children with CMPA finally received their first prescription for a clinical nutrition preparation, from initial visit to a general practitioner (GP). During this period, parents were given a multitude of prescriptions for anti-reflux medication and/or topical dermatologicals and/or antihistamines to manage the symptoms of CMPA. This study also revealed that it took a mean of 3.6 months from initial GP visit before the diagnosis of CMPA was made i.e., one month after the symptoms had resolved.¹

Children with CMPA also have high fre-
quency of clinician visits in a year. In the same study, Sladkevicius et al found that those who had dietary changes recorded higher visit frequency per year (>20 visits) compared to those who remained on initial diet (17-19 visits). The waiting time to a specialist referral was also evaluated: a mean 3.7 months for pediatricians and 7.6 months for a hospital clinician.4

In the United Kingdom, it is estimated that CMPA incurs an average of £1,381 per patient per year, depending on presenting symptoms. Some 44% are due to GP visits, while clinical nutrition prescriptions accounted for close to 40% of the cost. Additionally, 33% of the annual cost was due to diagnosis i.e., the time from initial presentation to a GP up to the time a diagnosis of CMPA was made, and that 52% of this ‘diagnosis’ cost was accounted for by a mean of seven GP visits per patient.4

Diagnosing CMPA
The first step in diagnosing CMPA is a thorough medical history and physical examination. Although it is useful to provide evidence of cow’s milk-induced allergic reaction, it cannot be considered as diagnostic of CMPA. CMPA is suspected if any of the signs and symptoms is present in the child that cannot be attributed to other possible causes.

Skin prick test
A skin prick test (SPT) is often used to screen patients with IgE-mediated CMPA. In this test, standardized extracts of allergens are applied by the prick puncture technique and compared against a positive (histamine) and a negative (saline) control. Presence of CMPA is defined by a wheal diameter cut-off of ≥ 6 mm (≤ 2 years of age) and ≥ 8 mm (> 2 years of age). Having a positive SPT does not prove causal relationship to CMP, but merely suggest the presence of clinical food allergies. The accuracy of SPT for positive responses is less than 50%, although its accuracy of negative responses is greater than 95%. Hence, the SPT may be used to exclude non IgE-mediated allergies.2

Oral food challenge
Most cases of suspected CMPA need to be confirmed or excluded by oral food challenge (OFC) procedures. OFC is the most valuable tool to confirm suspected CMPA and, of these, the double-blind, placebo-controlled food challenge (DBPCFC) is regarded as the ‘gold’ standard to diagnose food allergies. This is because DBPCFC has the ability to minimize false positive diagnoses. It is, however, costly and inconvenient to perform clinically on a routine basis.2

OFCs are suitable in children with a history of CMPA to establish/exclude the diagnosis of CMPA and also to establish tolerance when the children are thought to have outgrown their allergies. However, OFC may not be suitable for all children especially those documented history of anaphylaxis, repetitive reactions to minimal quantities of food with positive SPT and patient with chronic atopic disease such as asthma or atopic eczema.2

Role of the pharmacist – what to advise parents
Recognize the signs and symptoms of CMPA.

Some of the symptoms like urticaria, angioedema, diarrhea and vomiting are transient and will subside over 1 to 2 days. Some like atopic eczema may require a longer time to subside.

Medical consultation should be sought to confirm if the child has CMPA.
Breast milk is the gold standard in milk feeding for children as it contains essential nutrients in the right proportion to meet the nutritional requirements in the first 6 months of life. Breast milk is also regarded as suitable for primary prevention of food allergy in children. Indeed, the incidence of CMPA in exclusively breast-fed children is as low as 0.5% and the symptoms of CMPA are typically mild-to-moderate.1

In breastfed children with proven CMPA, elimination of CMP from the mother’s diet is important. Healthcare professionals should advise mothers to continue breastfeeding their children, but to avoid the causal foods in their diet. This includes dietary counseling to identify hidden sources of CMP in the mother’s diet. Calcium supplemen-
tation (eg, 1000 mg/day spread across the day) may be introduced into the mother’s diet to ensure her nutritional needs if she chooses to continue to maintain a CMP-free diet.5

Despite the many benefits of breastfeed-
ing, it may not be an option for all as some mothers are unable to or choose not to breastfeed. In non-breastfed children with CMPA, strict avoidance of CMP-containing foods, including cow’s milk-based formula, supplementary foods and other unmodi-
fied animal milk products found in goat’s or sheep’s milk, is a must. For these children, a variety of treatment options that also meet their nutritional needs are available. These include switching to soy-based, extensively hydrolyzed or amino acid formulas.

Soy formula for children with CMPA
Switching to soy-based formula may be a viable treatment and nutritional option for children with CMPA who cannot tolerate the taste of extensively hydrolyzed or amino acid formulas. The study by Lasekan et al demonstrated that children fed on soy-based formula had normal growth (weight, length and head circumference) that were comparable to children on mixed feeding. Biochemistry profiles i.e., plasma albumin at 2 months of age and hemoglobin at 12 months of age were also found to comparable to mixed feeding group.6

There are concerns that children with CMPA may develop cross-reactivity to other foods. Studies have shown that the incidence of soy allergy in children with CMPA is low.7,8 In the study by Zeiger et al, children with documented CMPA tolerated soy formula and had significant improvement in weight and height scores.7 Similarly, Katz and his colleagues concluded that soy allergy is uncommon in children with IgE-mediated CMPA unless the patient has documented multiple food allergies.8

Allaying the fear of phytoestrogens in soy-
based formula
There is a large body of evidence document-
ing the role of phytoestrogens in influenc-
ing hormone-dependent states. This raises concerns of whether soy-based formula may have a permanent effect in the development of young children. A study by Strom et al had specifically looked into the association be-
tween early childhood exposure to soy-based formula and later years reproductive health of young adults.9

This large, long-term study found that there were no significant changes in weight
and height of adults exposed to soy-based formula during childhood compared to those fed on cow’s milk formula. Evaluation of reproductive health ie, menstrual history, pregnancy history and pregnancy outcomes also did not reveal any significant changes. Similarly, other secondary outcome measures such as cancer, reproductive organ disorder and hormonal-related disorders were found to be similar between both groups.9

References:
Free radicals are atoms or groups of atoms with an unpaired (free) electron, usually conferring high reactivity; in biological systems, most free radicals contain oxygen. Free radicals are produced in both normal and pathological processes, and can be formed when oxygen interacts with certain molecules. Once formed, these highly reactive radicals can start a chain reaction, like dominoes. Their chief danger comes from the damage they can do when they react with im-

Nutrients minimize free-radical damage

Free radicals are often blamed for the effects of aging and diseases. But what are free radicals? And how are they formed? How do you advise customers on ways of getting rid of free radicals and protecting themselves from the bad effects of free radicals? Read on for answers to these often asked questions.
important cellular components such as DNA or the cell membrane. Cells may function poorly or die if this occurs.

Free radicals are proven or suspected agents of tissue damage in a wide variety of circumstances, including radiation, damage from environment chemicals and aging. Natural and pharmacological prevention of free-radical damage is being actively investigated.

To prevent free-radical damage, the body has a defense system of antioxidants. Antioxidants are involved in the prevention of cellular damage, which is the common pathway for aging, cancer and a variety of diseases.

Antioxidants are molecules which can safely interact with free radicals and terminate the chain reaction before vital molecules are damaged. Although there are several enzyme systems within the body that scavenge free radicals, the principle antioxidants are vitamin E, beta-carotene (pro-vitamin A) and vitamin C.

Vitamin E is a fat-soluble antioxidant that stops the production of reactive oxygen species (ROS) when fat undergoes oxidation. Vitamin E is also involved in immune function and metabolic processes. Vitamin A is fat soluble and is important for normal vision, immune system and reproduction. Vitamin A also helps our vital organs function properly. Vitamin C is a water-soluble antioxidant that helps protect our cells from free-radical damage due to metabolic processes, cigarette smoke, air pollution and ultraviolet ray from the sunlight. Vitamin C is also involved in collagen production, as well as improving the absorption of iron from plant-based foods and helping our immune system function properly.

Selenium, which is a trace metal required for proper function of one of the body’s antioxidant enzyme systems, is sometimes included in the category of antioxidants.

Apart from antioxidants, it is vital to consume foods and supplements containing zinc, chromium, and vitamins B1, B6 and B12. Zinc helps the immune system fight off invading bacteria and viruses. Our body also needs zinc to make proteins and DNA in all cells, hence zinc is vital during pregnancy, infancy and childhood. Zinc also helps wounds heal and is important for proper senses of taste and smell. Chromium is required in trace amounts and is known to enhance the action of insulin. Chromium also appears to be directly involved in carbohydrate, fat and protein metabolism.

While all B vitamins help our body convert carbohydrate into glucose, vitamin B1 (thiamine) has a specific function of strengthening our immune system and improving our body’s ability to withstand stressful conditions. Vitamin B6 is required for the enzyme reactions involved in metabolism. Vitamin B6 is also involved in brain development during pregnancy and infancy, as well as immune function. Vitamin B12 helps keep our nerves and blood cells healthy and is involved in DNA production. Vitamin B12 also helps prevent a type of anemia called megaloblastic anemia that makes people tired and weak.

Epidemiologic observations show lower cancer rates in people whose diets are rich in fruits and vegetables. This has led to the theory that these diets contain substances, possibly antioxidants, which protect against the development of cancer. There is currently intense scientific investigation into this topic.

Dietary supplements may help to ensure that we get an adequate dietary intake of essential nutrients. However, supplements should not replace the variety of foods that
are important to a healthful diet, so be sure to advise your customers to eat a variety of foods as well.

Antioxidants are thought to have a role in slowing the aging process and preventing heart disease and stroke. New data from ongoing studies will be available in the next few years and will shed more light on this constantly evolving area.

**Antioxidant combination to counter free radicals**

We are constantly exposed to free radicals as they are everywhere around us. These highly reactive molecules are responsible for aging, tissue damage and diseases. Antioxidants, on the other hand, protect our bodies from harmful free radicals. They neutralize free radicals to minimize oxidative damages to the tissues and cells of the body. Major sources of antioxidants include vitamins A, C and E, beta-carotene, lycopene, selenium and zinc. These can be commonly found in green leafy vegetables, carrots, pumpkins and others. **Seven Seas Chromium ACE Selenium Plus** contains an excellent combination of antioxidants, including vitamins A, C and E, with selenium and zinc to enhance your protection against the ravages of free radicals. It also contains chromium, an essential mineral required by the body and known to regulate sugar levels in the blood. Vitamins B1, B6 and B12 are also present to assist in metabolizing food into energy for the body and maintenance of a healthy nervous system. **Seven Seas Chromium ACE Selenium Plus** is suitable for diabetics. Kindly contact the Consumer Health Division of Merck Sdn Bhd at 03-7494 3688 for further information.
Smokers need support to stub out habit

The New Year period is an extremely common time for smokers to vow to put down the cigarette for good. However, New Year’s resolutions to quit smoking are not always enough to keep people on track with their goals, ABC educator for the New Zealand’s Canterbury District Health Board Lynore Weeks says.

Ms Weeks educates Canterbury pharmacists on how to provide smoking cessation advice based on the New Zealand Ministry of Health’s ABC strategy – ask everyone about their smoking status and document this, give brief and specific advice to everyone who smokes, and make an offer of and provide evidence-based cessation treatment.

The ABC strategy was originally designed for training hospital staff, but it has now been rolled out in primary care. Ms Weeks believes community pharmacists can use this approach effectively to support smokers with their goal to quit smoking.

“If they’re just giving up because it’s a new year it isn’t always enough to keep them going when times get tough. Often those attempts are really short ones.”

Pharmacists need to be extremely supportive of people with their attempts and explain to them for many people it takes a number of tries to knock it on the head.

Studies have shown it takes smokers as many as 14 attempts to permanently give up smoking, she said.

Pharmacists can encourage people to return to the pharmacy when their goals become hazy and they have started smoking again.

This will help to take the pressure off people quitting on their first attempt, Ms Weeks said.

“Tell people to look at what they’ve learned from each quit attempt and to go from there.”

This is also a chance for pharmacists to find out what the person’s triggers are for starting smoking again and to give them individual advice based on these triggers.

Pharmacists are often hesitant to broach the topic of quitting smoking with people, but they should remember the majority of people want to quit, she said.

According to the Quitline website, 80% of smokers would not smoke if they had their time again.

When people come into the pharmacy to pick up cough and asthma medicines, pharmacists can also let people know they offer advice for smokers wanting to quit.

“They’re [pharmacists] helping them along the way with information, the same as they would with lots of other products.”
Making an open-ended statement, rather than simply telling someone to quit, can often open up a dialogue.

“Smokers are very sensitive about being lectured to. They know that smoking is bad for them,” she said.

Pharmacists can also take a less confrontational approach by setting up stands with information about nicotine replacement therapy (NRT) products and wearing badges letting people know the pharmacy provides a smoking cessation service.

Messages about the negative health effects of smoking are already out there, but health professionals need to get better at providing people with the tools to quit smoking, Ms Weeks said.

It is also important for pharmacists to recognize they may be restricted on how much support they can provide smokers, depending on how much time they can spend with them. In some cases, a technician may be able to step in and help out with a consultation but in most cases it is helpful to refer the person onto a follow-up service such as Quitline.

Pharmacists should have a list on hand of smoking cessation support services they can refer people to, Ms Weeks said.

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Note: The smoking cessation service provider course is available online at the Malaysian Academy of Pharmacy website (www.acadpharm.org.my/index.cfm?&menuid=2)

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Local Events

**Pharmacy Enforcement Conference**
23/4 to 25/4; Penang
Info : Mr. Mazlan Ismail
Tel : (03) 7841 3200
E-mail: mazlan@moh.gov.my

**National Regulatory Conference 2013**
7/5 to 9/5; Kuala Lumpur
Info : Ms. Rachel Thong
Tel : (03) 7801 8480
E-mail: rachelthong@bpfk.gov.my

**Workshop on Antimicrobial Resistance: Promoting Antibiotic Stewardship**
June; Kuala Lumpur
Info : Mrs. Noraini Mohamad / Mrs. Siti Hir Huraizah MdTahir
Tel : (03) 7841 3200 / (06) 2822 344
E-mail: norainimohd@moh.gov.my / sitihir@mlk.moh.gov.my

International Events

**Clinical Pharmacy Congress 2013**
26/4 to 27/4; London
www.pharmacycongress.co.uk/

**International Pharmaceutical Federation (FIP) World Congress 2013**
31/8 to 5/9; Dublin
www.fip.org/dublin2013/
New facial tissue with cucumber extract

By Saras Ramiya

The latest innovation from Kleenex® takes softness to another level. The soft, comforting touch of the new Kleenex Natural three-ply facial tissues is infused with cucumber extract for natural, gentle cleansing that leaves the skin refreshed and soothed.

“Our skin is easily affected by harsh dry air, irritants, as well as excessive wiping. It deserves to be treated with gentleness,” said Soo Woon Yee, marketing director, Kimberly-Clark Malaysia.

“What better way to give our skin the gentlest care than treating it with soothing cucumber, which is known for its natural rejuvenating benefits. So, when cucumber extract is infused in facial tissues, the wiping of messes and make-up, even when done excessively, becomes a softer and more soothing experience,” added Ms Soo.

Kleenex facial tissue has a softness that gently cleanses all skin types. Every sheet is made from 100% quality virgin fiber that leaves no residue behind to reduce skin irritation. This ensures not only clean skin, but gentle care and the finest hygiene.

Kleenex tissues are available in both facial and bath tissues, and in a variety of attractive and convenient packaging formats. They are distinctive for their softness, strength and absorbency.

In conjunction with the new product launch, Kleenex invited Malaysians to join the exciting new 2013 edition of Share The Softness with Kleenex consumer program, which ran from March to April this year.

For the second year running, the program celebrated the importance of sharing simple words and gestures to lift the spirits of friends and loved ones, reminding us that despite our hectic lifestyles, we all deserve some tender, loving care.

Fans of the Kleenex Facebook page posted and shared a series of heartfelt notes of encouragement with family and friends. Participants stood to win a relaxing spa experience and Kleenex Natural facial tissues. Log on to facebook.com/Kleenex.Malaysia for further information.

For more information, please call Kimberly-Clark Consumer Care-line at 1-800-82-1188 (toll-free) on weekdays from 9am to 5pm.
Stretch marks commonly plague pregnant women and those who experience dramatic weight loss, and their appearance can affect self-confidence. However, a potential solution is now available in Malaysia with the launch of Re-Gen Oil.

“Re-Gen Oil is a high-quality and affordable skincare solution specifically formulated for use on stretch marks, scars, dry skin, and blemished skin. The philosophy behind this product is that people can now give their skin a second chance to regenerate its natural beauty. Originating and manufactured in England, Re-Gen Oil has been used by well over one million customers since it was launched in 2008,” said Seena Seka, managing director of Re-Gen brand owner Linco Care Ltd.

The oil contains the active ingredient PCL liquid, which promotes skin regeneration. It is also rich in vitamins A and E, which help fight the skin’s aging process.

Natural ingredients such as lavender, calendula, chamomile and rosemary oils help skin restore moisture and aid with the improvement of blemished skin and scar tissue.

“Re-Gen Oil has proven to help minimize the onset and appearance of stretch marks caused by pregnancy and weight loss. In addition, Re-Gen Oil has scar-healing abilities, which is also effective in reducing the appearance of blemishes and pigmentation marks,” said Carolyn Loo, marketing manager of Healthcare Consumer Health, DKSH Malaysia.

Re-Gen Oil has a pleasant scent and it does not aggravate sensitive skin. It is not tested on animals, is halal certified and suitable for all ages. It absorbs into the skin quickly and does not leave a greasy residue.

The product comes in a slim cylinder bottle which can conveniently be carried on the go. For best results, it is advised that the oil be gently massaged onto problematic skin two to three times a day.

Stretch marks be gone!
Managing the Red Eye

By Dr Kewaljit Singh MBBS, MS (Ophth)
Consultant Ophthalmologist
Subang Eye Specialist Centre

One of the most common eye problems that pharmacists will encounter is red eye. Red eye is a clinical sign and not a diagnosis, just like fever is a symptom and not a diagnosis. A red eye is caused by dilation of conjunctival or ciliary blood vessels in the eye. Conjunctival injection mainly affects the vessels at the posterior part and is seen in conjunctivitis. Ciliary injection involves anterior ciliary arteries and usually is seen in inflammation of the cornea, iris or ciliary body.

Red eye can be due to many causes and can be classified in many different ways. The most common cause of red eye is conjunctivitis. Conjunctivitis can be differentiated on the basis of etiology into:

- Infectious conjunctivitis – due to virus or bacteria
- Allergic conjunctivitis – due to exposure to pollen or other allergens
- Chemical conjunctivitis – due to exposure to chemicals.

Some other causes of red eye are blepharitis, episcleritis, scleritis, uveitis, glaucoma, corneal ulcers, corneal foreign body, subconjunctival hemorrhage, hyphema, marginal keratitis, stye, pterygium, entropion, ectropion and dry eye.

With such a large number of causes of red eye, how should the pharmacist manage a patient who walks into the pharmacy requesting for some eye drops for red eye? The pharmacist needs to know which patient just needs some OTC medication and which patient needs to be referred. The most important step in managing a patient with red eye is getting a good history.

The first thing to look out for is whether the patient has unilateral or bilateral red eye. If bilateral (affecting both eyes), it is most likely conjunctivitis. We now need to differentiate among infective, allergic and chemical con-
junctivitis. The typical features of infectious conjunctivitis are generalized redness of the conjunctiva, foreign body sensation, discharge from the eyes and usually stickiness of eyelids in the morning. Vision is not affected. History of other family members also having red eye points to a diagnosis of infective conjunctivitis. In early cases and, sometimes all along, conjunctivitis can be unilateral.

Viral infections tend to produce a more watery and mucoid discharge compared to the purulent discharge of a bacterial infection. A recent history of an upper respiratory tract infection suggests viral conjunctivitis.

Treatment of infectious conjunctivitis
If the history is suggestive of infective conjunctivitis, the pharmacist can explain to the patient that conjunctivitis is a self-limiting condition and that it will subside in a few days. The patient should be educated that it is highly contagious and to avoid spreading it to other people a few measures have to be taken, such as frequent washing of hands and no sharing of towels and bed. Lubricant eye drops can be prescribed to ease the discomfort. Lid wipes can also be prescribed to clean the eyelids.

Antibiotic eye drops prescribing by pharmacists
Chloramphenicol eye drops are available in Malaysia and as in UK and Australia, pharmacists are allowed to prescribe and sell them to patients for the treatment of acute bacterial conjunctivitis. The usual safe dose is one drop four times a day.

Patients who are self-medicating with chloramphenicol eye drops should be advised to consult a doctor if their symptoms do not improve in 48 hours or if they persist after the recommended 5-day course. Causes of persistent symptoms after the use of chloramphenicol drops include sensitivity to the drug or the preservative in the drops. Consumers should be advised to stop the treatment and see their doctor.

Allergic conjunctivitis is usually a bilateral condition caused by pollen or other allergens. It typically occurs in children, and they present with redness and itchy eyes. Parents will also say that their child blinks his/her eyes frequently and that there is ropy discharge in the morning. Approximately 70% of patients with allergic conjunctivitis also have asthma, rhinitis and/or atopic dermatitis. An important point to remember is ‘If it itches, it is usually allergy.’

When choosing a treatment strategy, the first factor to consider is elimination or avoidance of the allergen. Second, artificial tears help lubricate the eye and decrease the amount of the offending allergen within the eye. In addition, cool compresses are a noninvasive treatment that offer comfort with a mild anti-inflammatory mechanism.

There are many different types of allergy eye drops. Some are sold over the counter while others require a prescription from a doctor. Some relieve symptoms quickly. Others provide long-term relief. Allergy medications consist of decongestants, antihistamines, combination eye drops, mast cell stabilizers and anti-inflammatory eye drops.
Decongestant eye drops
In cases of mild allergy, a decongestant eye drop can be prescribed. Decongestant eye drops can quickly brighten the whites of the eyes and reduce eye redness for a short amount of time. They work by constricting the blood vessels in the eye. This relieves the red, bloodshot appearance of the eyes. Topical decongestants are prescribed four times daily. They typically work within minutes and the effect lasts about 2 hours.

Examples of over-the-counter topical decongestants include eye drops containing antazoline and naphazoline. An alternative is to use a decongestant antihistamine combination.

Combinations of topical decongestant and an antihistamine that are frequently used are naphazoline and pheniramine maleate. These are all Group C medicines and can be recommended and sold by a pharmacist.

Decongestant eye drops (with or without antihistamines) should only be used for short periods of time, as overuse can lead to conjunctivitis medicamentosa (characterized as rebound eye redness and dependence on the eye drops). These eye drops should not be used by people with glaucoma, and used with caution by people with heart or blood pressure problems.

Antihistamine eye drops
Patients who have itchy eyes and who are not better with decongestants may be relieved by antihistamine eye drops. These medicines block histamine buildup in the body. Antihistamine eye drops can quickly relieve eye allergy symptoms. But relief may only last a few hours. The patient may need to use the drops a few times a day. Antihistamine drops containing ketotifen are available. A common prescription antihistamine eye drop that is used by doctors contains emedastine difumarate.

NSAID eye drops
NSAID eye drops can also be used if there is no improvement. An eye drop containing ketorolac is the only NSAID approved for the treatment of itchy eyes and it has to be prescribed by a doctor. Itching usually starts to go away about 1 hour after using the eye drops. These eye drops often cause stinging or burning when first placed in the eyes.

Mast cell stabilizer
Mast cell stabilizers are another group of eye drops that prevent allergy. They help prevent the release of histamine during an allergic reaction. Mast cell stabilizers do not provide immediate relief of eye allergy symptoms. Instead, they are used to prevent eye allergy symptoms in people with known allergies. These are useful for patients who have chronic allergy and helps reduce the frequency of attacks. Patients can use these drops for a few months without any side effects. Common mast cell stabilizer eye drops include those containing sodium cromoglycate and lodoxamide.

If OTC medications do not provide effective relief within 10 days or the condition worsens, patients should be referred to the ophthalmologist for further assessment and treatment. If a diagnosis of allergic conjunctivitis is confirmed by the ophthalmologist, the patient will be started on prescription anti-allergy eye drops.

Topical antihistamine/mastcell stabilizer combinations are newer eye drops that are especially helpful. These generally work faster than oral antihistamines at relieving ocular symptoms. The antihistamine quickly relieves itching. The mastcell stabilizer prevents itching for an extended period of time, usually 12 hours. Late phase reactions are terminated by blocking the release of eosinophils. Olopatadine hydrochloride is available as eye drops to be used twice daily or once daily and is a Group C drug. An eye drop containing epinas-
tine, which has to be prescribed by a doctor, can also be used twice daily.

In more severe cases, anti-inflammatory eye drops will also be prescribed. Corticosteroid eye drops are used to treat severe, long-term eye allergy symptoms. Some steroid eye drops that may be used include those that contain dexamethasone and loteprednol etabonate.

Because of possible side effects, corticosteroid drops are not generally recommended for long-term use, except for the most severe allergic eye conditions. These patients do extremely well with steroid eye drops. However, many of these chronic severe allergy patients usually end up self-medicating themselves with steroid eye drops over a prolonged time and end up with glaucoma. There are many cases of patients who self-medicated without any ophthalmologist follow up and ended up losing vision!

If a patient is on steroid eye drops he should have regular checkups with an eye specialist. Prolonged use of steroid eye drops can cause glaucoma and cataracts. Caution should be exercised in the dispensing of these products and patients should be warned about, and monitored for, prolonged usage.

**Chemical conjunctivitis**

Chemical contamination of the eye (with irritants such as alkalis eg, wet cement) or acids is usually painfully obvious. To minimize damage, copious irrigation of the eye with water has to be instituted immediately and the patient must be referred to an ophthalmologist.

Another cause of bilateral red eye is prolonged contact lens wear. The patient will complain of burning pain and redness of both eyes. They will give a history of sleeping with contact lens on, or using contact lens for very long hours. The first advice to them is to stop wearing their contact lens. It is advisable to refer them to a doctor as there is a danger or presence of corneal ulcer.

**Blepharitis**

Blepharitis is an inflammation of the eyelids, usually involving the lid margins. It may be seborrhea or may be caused by staphylococcal infection. Patients usually complain of a gritty sensation and red eye that is worse upon waking. Careful examination of the eyelids will show dandruff-like material at the base of the eyelashes.

![Blepharitis Image](image)

Patients with blepharitis can be treated by advising them to wash the eyelids with diluted baby shampoo or lid scrubs. Warm compresses followed by lid massage are also useful. Lubricating eye drops also help relieve the grittiness. While patients should experience relief within one month, this treatment should be continued indefinitely. If symptoms do not improve, patient needs to be referred to an ophthalmologist. A prescription ophthalmic antibiotic may be required. In severe cases, oral antibiotics and topical steroids may be required.

**Dry eye**

Pharmacists will commonly encounter patients who say they have dry eye and want some treatment. First, it has to be confirmed that it is dry eye and not some other condition. Dry eye is usually bilateral and the redness is mild. Patients frequently complain of burning sensation, grittiness, tired and watery
eyes. Some patients may complain of blurring of vision especially when reading for a long period or upon using computers. The blurred vision usually improves with blinking of eyes.

Dry eyes usually consist of two types:

- **Aqueous tear-deficient dry eye** is a disorder in which the lacrimal glands fail to produce enough watery component of tears. The most common cause is aging. Other causes are systemic diseases like Sjögren’s syndrome and rheumatoid arthritis. Drugs such as antihistamines, beta-blockers and oral contraceptives also cause dry eyes.

- **Evaporative dry eye** may result from inflammation of the meibomian glands and is usually seen in meibomitis and blepharitis. Air conditioning and prolonged use of computers exacerbates dry eyes.

Mild-to-moderate cases of dry eye can be easily managed. The mainstay of treatment is ocular lubricants. Ocular lubricants such as artificial tear solutions contain preservatives and inorganic electrolytes to achieve tonicity and sustain pH, as well as water-soluble polymeric systems. Patients with mild cases of dry eye can be prescribed artificial tears once or twice daily. Some common OTC lubricants available are Tears Naturale®, Genteal®, Refresh Plus®, Dacrolux® and Systane® Ultra.

Patients should be reminded that artificial tear products containing preservatives may themselves cause allergic reactions and should be immediately discontinued if a reaction occurs. Preservative-free artificial tears are less likely to irritate the ocular surface and are useful in patients with severe dry eyes who need to instill the eye drops more frequently. Preservative-free artificial tears can be used as frequently as every 2 hours. Common preservative-free artificial tears available are Refresh Plus®, Blink®, Tears Naturale Free® and Hyalid®.

Other advice that can be given to patients with dry eyes are to wear glasses or sunglasses that fit close to the face. This helps slow tear evaporation from the eye surfaces. Indoors, a humidifier may also help by adding moisture to the air. Advice patients to stop and blink their eyes to allow their eyes to rest when performing activities that require use of their eyes for long periods of time. Instilling lubricating eye drops while performing these tasks will help to reduce the dryness. In patients with severe dry eyes, in addition to frequent use of preservative-free artificial tears, lubricating ointments are useful and can be applied at night. If patients are not better with these treatments, they need to be referred to an ophthalmologist. Prescription eye drops cyclosporine (Restasis®) may be used by an ophthalmologist in severe cases, in addition to artificial tears and ointments.

If a patient with unilateral red eye walks into the pharmacy and asks for eye drops, be alert and beware. Conjunctivitis should be the last diagnosis. Just think that the patient most likely has a more serious eye condition and needs to be referred. To understand this better, it is necessary to know the common causes of unilateral red eye.

Below is a list of causes of unilateral red eye.

- **Group 1**
  Bacterial corneal ulcer, viral keratitis, anterior uveitis, acute angle closure glaucoma, hyphema and corneal foreign body. All of these are usually associated with blurring of vision.

- **Group 2**
  Subconjunctival hemorrhage, stye and pterygium are other very common causes of unilateral red eye.

If you look at the two groups above, the conditions in the first group are all sight-threatening conditions and need to be re-
ferred immediately to an ophthalmologist. The conditions in the second group are not as dangerous but may also need treatment by a doctor or ophthalmologist.

Below are more details of each condition to help in their assessment and management.

- **Bacterial corneal ulcer** is a sight-threatening condition and should not be missed. Patients will give a history of pain and redness of the eye which is associated with watery eyes or discharge. Most have blurring of vision except if it is a very small ulcer at the periphery of the cornea. Patient will usually give a history of contact lens wear or trauma. Contact lens users are at a higher risk of developing aggressive bacterial infections, and associated keratitis or a corneal ulcer. The most common organism is *Pseudomonas aeruginosa*. Contact lens use can impair corneal sensitivity and, therefore, wearers may not always feel pain although they may have a corneal ulcer. For these reasons, contact lens users should never self-medicate for red eye.

- **Fungal corneal ulcer.** In addition to the above symptoms, patients will give a history of some plant or leaf entering the eye.

- **Viral keratitis.** Patients will have the same symptoms of pain, redness and blurring of vision. A history of recent skin spots and rashes similar to cold sores followed by red eye may indicate herpetic keratitis. Ophthalmic examination with fluorescein is required to look for the branching or ‘dendritic’ corneal ulcers typical of the condition. **Caution:** In all the above conditions, a whitish spot on the cornea may be seen in the patient’s eye. Steroid or antibiotic-steroid combination eye drops should never be given to these patients. They will flare up the condition and cause the infection to spread faster.

### REMEMBER
- Unilateral red eye - Beware
- Unilateral red eye + pain - Beware
- Unilateral red eye + pain + blurring - REFER
- Unilateral + pain + blurring + contact lens - REFER REFER

### Anterior uveitis
Another cause of red eye with blurring of vision is anterior uveitis, which is an inflammation of the anterior uveal tract. It may be unilateral or bilateral. Patients usually also complain of photophobia.

![Irregular pupil and ciliary congestion in anterior uveitis](image-url)
Anterior uveitis may be associated with systemic disease. The patient needs to be referred to an ophthalmologist. Once diagnosis is made the patient is treated with steroid eye drops and mydriatics. Bilateral cases or recurrent cases need to be investigated. However, in most cases, the cause cannot be determined.

**Acute angle closure glaucoma**

Angle closure glaucoma occurs in patients with pre-existing narrowing of the anterior chamber angle. Far-sighted patients and older patients are at increased risk. In addition to redness and blurring of vision, the patient will also give a history of eye pain, headache and vomiting.

Direct blunt trauma to the eye can likewise lead to unsuspected damage of internal ocular structures. These patients need to be referred to the ophthalmologist for further evaluation and treatment.

**Corneal foreign body**

Another common condition for unilateral red eye is the presence of a corneal foreign body. Hammering, grinding or welding without eye protection can cause projectile foreign bodies to impact on the cornea. High-velocity fragments can even cause unsuspected penetrating injury. Patient usually complains of unilateral pain and redness with foreign body sensation and watering of eyes. This is occasionally associated with blurred vision if the foreign body is in the centre of the cornea. If you look carefully, you will be able to see a brown particle on the cornea.

**Hyphema**

Hyphema (blood in anterior chamber) is another cause of red eye and blurring of vision. Patient will usually give a history of blunt trauma such as shuttlecock injury.
These patients need to be referred to ophthalmologists for removal of the corneal foreign body. Those with a history of hammering have to be examined to rule out an intraocular foreign body.

**Stye**
Stye is a bacterial infection of the eyelash follicle at the margin of the eyelid. It is usually caused by *Staphylococcus* species. The patient will complain of pain, redness and swelling of the eyelid.

Warm compresses are typically recommended to provide symptomatic relief and quicken recovery. In most cases, the stye will heal by itself within 1-2 weeks. Patients may need to be referred to a doctor if there is no improvement with warm compresses and antibiotic eye drops.

Episcleritis is an inflammation of the episcleral vessels, usually of autoimmune origin. It can be caused by systemic condition affecting the body such as rheumatoid arthritis, Sjögren’s syndrome, syphilis, zoster, or tuberculosis. Most often, no specific cause can be determined.

The redness is usually sectorial and does not involve the whole eye. In episcleritis, the patient may complain of discomfort or pain. Both these conditions are self-limiting and usually resolve in 2-3 weeks. Artificial tears can be prescribed four times a day. In episcleritis, if pain and symptoms persist, they need to be referred.

**Subconjunctival hemorrhage** results from bleeding of the conjunctival or episcleral blood vessels into the subconjunctival space. It is a painless condition. The most common cause is idiopathic. Other causes could be due to anticoagulant therapy or bleeding disorders. Recurrent subconjunctival hemorrhage will need to be referred to a doctor for further evaluation and investigations to rule out bleeding disorders.

**Role of the pharmacist**
While pharmacists are not experts in treating eye conditions, they are in a position to give
patients advice based upon the symptoms presented to them and explain the correct use of the medications. Pharmacists can also teach the patients how to instill the eye drops and ointments. The information above and a good and detailed history can guide the pharmacist in managing the red eye patient. Remember, if in doubt – refer.

Questions that may guide you in the management of patients with red eye:
- How long have you had the problem?
- Is it unilateral or bilateral?
- Is there blurring of vision?
- Is there any discharge?
- Is there itchiness?
- Is there pain?
- Is it getting worse?
- Any history of trauma?
- Any history of contact lens wear?
- Any medical problems like asthma, arthritis or tuberculosis?

Most importantly, any redness of eyes with,
- Blurring of vision - refer
- Contact lens wear - refer
- Trauma - refer
- No improvement with OTC treatment - REFER
- Unilateral - be ALERT

To answer the quiz for your CPD points, please go to www.mims-cpd.com.my
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* For medical professionals only


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