THE JOURNAL OF CLINICAL MEDICINE

MODERN MEDICINE

VOLUME 38 NUMBER 5
MAY 2013

Get Your CPD Points Inside!

MODERN MEDICINE CPD

Additive Anti-Hypertensive Efficacy

LOSAAR PLUS

losartan potassium / hydrochlorothiazide

- Effective Blood Pressure lowering for patients responding inadequately to Losartan monotherapy[1]
- Blood Pressure reduction improves cardiovascular outcomes while significantly reducing the risk of strokes[1]

Sometimes even Tai Chi needs a little help.

accord
healthcare

Accord Healthcare (Pty) Ltd
Building 5, Tuscany Office Park, 6 Coombe Place,
Rivonia, Gauteng, SOUTH AFRICA. Tel: +27 11 234 5701 Fax: +26 11 234 5700
Postnet Suite 182, Private Bag X51, Rivonia 2128, medinfo@accordhealth.co.za

S3 Losaar Plus 50/12,5 Reg. No.: 42/7.1.3/0325. Each tablet contains: 50 mg losartan potassium and 12,5 mg hydrochlorothiazide.
S3 Losaar Plus 100/25 Reg. No.: 42/7.1.3/0326. Each tablet contains: 100 mg losartan potassium and 25 mg hydrochlorothiazide.
Applicant: Accord Healthcare (Pty) Ltd; email: medinfo@accordhealth.co.za

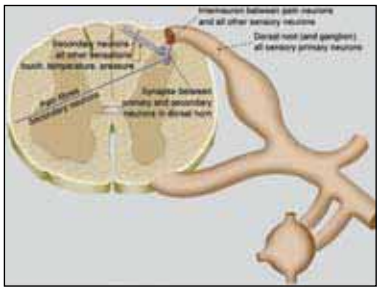
www.accord-healthcare.co.za

Reference 1.: Kjeldsen SE, Lyle PA, Kizer JR, et al. Fixed combination of losartan and hydrochlorothiazide and reduction of riskof stroke. Vascular Health and Risk Management 2007; 3(3): 299-305. Refer to Package Insert for full prescribing information.

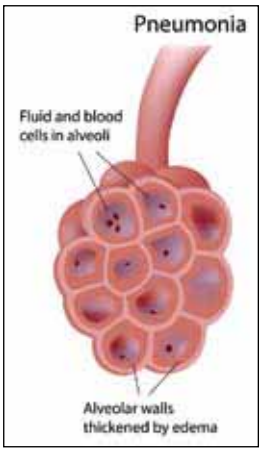
MODERN MEDICINE

Volume 38
Number 5
May 2013

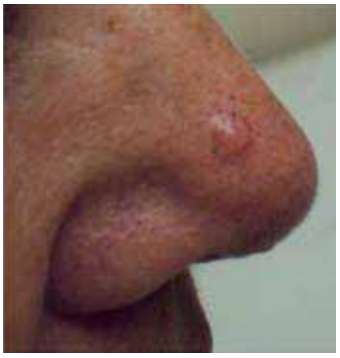
Lifelong Learning



PAGE 18



PAGE 24



PAGE 28

Continued on page 2

MODERN MEDICINE

REGULAR FEATURES

MEDICAL EDITORS
PETE VINCENT, BSc, MB BCh, DOH
KEITH BOLTON, MBBCh, DCH (SA), FCP (Paeds)(SA), MSc Med

BUSINESS & ADVERTISING
Publisher
PETER VAN DYK
peter@modernmedia.co.za
+27 (0)11 326 4171 / +27 (0)82 555 9611

Editorial Manager
MIKE VAN DYK
mike@modernmedia.co.za
+27 (0)79 886 0969

Advertising Contacts
PETER VAN DYK
peter@modernmedia.co.za
+27 (0)11 326 4171 / +27 (0)82 555 9611

GIVEN RAPHOLO
given@modernmedia.co.za
+27 (0)11 326 3968 / +27 (0)72 297 2544

LINDA GELDART
lindag@modernmedia.co.za
+27 (0)11 835 2221 / +27 (0)83 308 5436

PRODUCTION
LEYLAND REAGON
lr1infixion@gmail.com
+27 (0)21 715 2891

PO Box 84622, Greenside 2034, South Africa
Telephone + 27 (0)11 326 4171
Fax: + 27 (0)86 293 7289

SUBSCRIPTION RATES
Republic of South Africa
(including VAT @ 14%)

1 yr	R440,00
2 yrs	R770,00
3 yrs	R990,00

For a subscription request form, please contact:
MODERN MEDIA PUBLISHING
e-mail: veronica@modernmedia.co.za

MODERN MEDICINE is published by Modern Media Publishing (Pty) Ltd.
Reg No 2012/062379/07

Audit Bureau of Circulations of South Africa
transparency you can see

Printed by Tandym Print (Pty) Ltd, Epping, Cape Town.

On the Horizon

Bacopa Improves Memory Performance in Adults and Children

In the fast-pace living of today, mental exhaustion and compromised concentration is becoming more commonplace. Anxiety levels are increasing and depression is far more common than a decade or two ago.

The herb, Bacopa monnieri, long used by Indian medicine tradition, Ayurveda, has been known to have a wide range of effects on cognitive function, memory, ADHD, anxiety and inflammation. Although the exact mechanism of action of Bacopa on cognitive processes has not been determined, evidence suggests a modulation of the cholinergic system with antioxidant and metal chelating effects. Other reported effects include anti-inflammatory, neuroprotective, anxiolytic and antidepressant as well as vasodilative and adaptogenic properties.

Over the last 30 years, the Indian Central Drug Research Institute (CDRI) has researched and developed the modern use of Bacopa monnieri (CDRI08). Scientific evidence gathered from numerous clinical trials has shown:

- Enhanced memory, reduced anxiety and mental fatigue and increased work output for patients with anxiety neurosis
- Enhanced memory and learning ability for children.

A study conducted at Swinburne University, Australia, to investigate the memory enhancing effects showed significant improvements in speed of visual information processing, learning rate and memory consolidation, as well as decreased anxiety. Maximal effects were evident after 12 weeks.

Bacopa appears to have interactions with both dopamine and serotonin systems. It works through dendrite proliferation, thus promoting neuron communication. Its antioxidant properties work both directly by reducing oxidation, and indirectly in cells by inducing Nrf2, an antioxidant gene response.

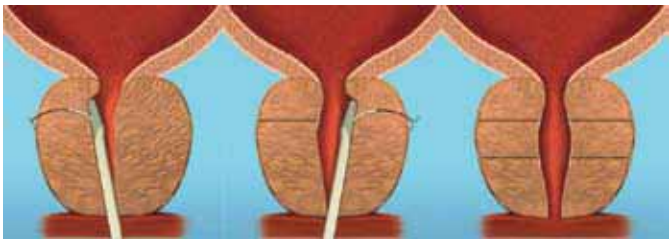
In the stomach, Bacopa appears to protect against ulcers induced by drugs such as aspirin and alcohol, stress, and *heliobacter Pylori* bacteria. Some repair of the stomach lining has been noted.

The use of Bacopa has been found to be safe in children and adults, including the elderly.

Available from:
Flordis South Africa
Tel: +27 72 610 2882
www.flordis.co.za

On the
Horizon

Minimally Invasive System Treats Lower Urinary Tract Symptoms in Benign Prostatic Hyperplasia



The UroLift system of Neotract, California, is a minimally invasive device designed to treat lower urinary tract symptoms (LUTS) in benign prostatic hyperplasia (BPH). The urethra is directly opened by retracting the obscuring prostatic lobes without applying incisions, surgical resection or thermal injury to the prostate. Clinical studies have shown that the system is safe and effective in relieving LUTS as early as two weeks after the procedure, while also preserving sexual functioning.

This system is designed to address quality of life issues for men with BPH. Patients may be those who are candidates for transurethral resection of the prostate (TURP) or laser who want to preserve sexual function, who may be concerned about complications and want a more rapid return to daily life. Patients may also be those men who are dissatisfied with BPH drugs but are concerned about invasive surgery, and are looking for a less invasive solution.

A trained doctor inserts the delivery device transurethrally via a rigid sheath under cystoscopic visualisation to reach the targeted area of obstruction. The precise location of each permanent implant is determined beforehand. Using the delivery device, the obstructing lobes are retracted and a needle is deployed out of the delivery device to deliver the implant. The delivery device and sheath are removed, leaving an expanded lumen. The exact number of implants required, are determined according to the size and shape of the prostate obstruction.

More on... YouTube
Keywords: Urolift System

Following the procedure, endoscopic results can be immediately confirmed. This treatment does not preclude the option for future TURP should one be indicated. The procedure may be performed under local or general anaesthetic. There have been no reports of new onset of sexual dysfunction, retrograde ejaculation or permanent erectile dysfunction.

Now, Minimally Invasive and Open Surgery in a Single Hybrid OR

There is a growing trend towards minimally invasive endovascular procedures due to clinical and cost benefits. With this trend has emerged the need for a more flexible, mobile system to perform these procedures within an existing operating theatre.

GE has brought out their full operating room suite solution which combines NuBoom M4, an articulated monitor docking system, an OEC 9900 Elite MD motorised C-arm system and a Stille ImagiQ table to increase the flexibility of an operating theatre's facilities.

The C-arm allows the operating room to be configured for open surgery or endovascular techniques. It is ideal for ER and OR, surgical imaging or interventional settings. The SmartView pivot joint allows surgeons to capture true lateral views regardless of the imaging angle, minimising the need for repeated exposures. Using the C-arm enables surgeons to move the arm and table themselves, which decreases operating time while providing a slight reduction in radiation dose. The improved monitoring solutions give surgeons the ability to integrate other imaging modalities such as ultrasound and endoscopic images.

The monitor docking system is designed to provide perfect video integration for vascular procedures. It makes the OR flexible and versatile enabling different procedures to be performed in the same room with a quick turnover between procedures. The system can be integrated into the existing theatre structure allowing surgical staff to define the configuration of the system at installation. The pillar and screens can be optimally positioned to give access to information to any member of the team. The system can relay different sources of video input to each of the monitors simultaneously. Monitors may be set up with either full or split screens.

More on... YouTube
Keywords: Middlesex hybrid OR

Affordable, Portable Video Laryngoscope

Difficulty in placing an endotracheal tube is an important cause of morbidity and mortality in the emergency department, operating room, intensive care setting and in out-of-hospital resuscitation. Video laryngoscopes are often useful as either a primary tool for intubation or as a rescue tool if immediately available during a difficult intubation, but prohibitively high costs and poor portability have often prevented this.

The King Vision video laryngoscope, by King Systems, USA, is a portable, battery operated, digital video laryngoscope system. It incorporates an integrated, reusable display and a choice of disposable blades. The device is designed for indirect laryngoscopy, difficult endotracheal intubations as well as routine intubations.

The device has a simple two-piece design that connects together by sliding one into the other. The LED light and CMOS camera are mounted on the disposable blades, keeping the display free of fragile optics. There are blades with a guided channel and standard blades without. The display boasts good clarity and resolution providing white light illumination. It is turned on with a single power button on the back of the display. It's a no-frills design that is simple to understand and use.

More on... YouTube
Keywords: King, Laryngoscopes

There is a mini USB port for video-out function to either a display or digital recorder. The device is powered by three standard AAA size batteries and is rated to last at least 90 minutes.

The robust, full-colour, non-glare display can resist repeated cleaning and normal use and wear and tear. When assembled, the device is water resistant.

Minimally Invasive, Trans-rectal MRI-guided Prostate Intervention

The Invivo Prostate Solution, by Invivo Corp. USA, is a minimally invasive, trans-rectal, MRI-guided prostate solution for analysis, planning and biopsy of the prostate gland. The system comprises the DynaTRIM (Trans-Rectal Interventional MRI), which is a removable device that is designed to attach to an MR imaging table. It has an open design that allows for flexibility in coil choice and a cleanable foam mat for extra patient comfort.

The second component, the DynaCAD for Prostate Solution, provides doctors with a customisable set of advanced tools for performing immediate analysis of prostate MR images. This allows doctors to conduct targeted MRI examinations of suspicious areas within the prostate gland. The better the sample, the more uniformity in diagnosis can be achieved.

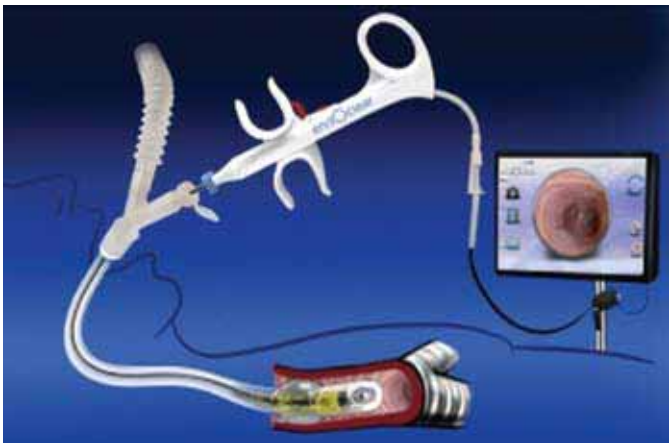
When patients show elevated and/or rising PSA levels, some may have multiple trans-rectal ultrasound guided biopsies done with negative results and without a conclusive diagnosis. This system offers doctors another option.

The procedure begins with the patient lying face down on the MRI table. MR images are taken a few times. An MRI probe is adjusted to find a specific area, then a small needle is inserted approximately 8cm-10cm into the rectum. Patients may hear a click or a snap sound for each biopsy and feel a little pinch. The amount of biopsy samples

taken will depend on the decision of each radiologist, the patient's anatomy, and whether or not a prostate biopsy has been done in the past. The prostate biopsy procedure using this solution typically takes less than one hour and an oral or IV sedative medication may be given before the procedure to help anxious patients.

On the
Horizon

Breakthrough Technology Removes Endotracheal Tube Secretions



Patients undergoing mechanical ventilation can suffer an increased production of secretions within the their native airways. The insertion of an endotracheal tube (ETT) within the patient's airway removes the normal cough mechanism for clearing secretions. Over time, gravity can cause these secretions to pool in portions of the lung. If not promptly removed, ventilator acquired pneumonia (VAP) or other undesired conditions or ailments may result.

The EndoClear Clearing Device, from a Michigan company with the same name, was designed to reduce hospital acquired infections, especially VAP, improve the efficiency and efficacy of ETT clearing, and minimise the number of days on a ventilator.

Dr Vuzales, a cardiovascular surgeon from Michigan, who conceived the device, noted that most ventilator patients who experienced difficulty weaning from a ventilator and subsequently underwent a tracheostomy improved dramatically within 24 hours, and could be weaned shortly afterwards. When examining the ETTs, it was noted that although patients' ETTs were regularly suctioned, almost all were severely occluded by a thick biofilm. The resulting reduction in the ETT diameter increased airway resistance causing a noticeable increase in patients' work of breathing. The biofilm was found to contain the same organisms that colonise the oropharynx of intubated patients and could contribute to VAP.

More on...
YouTube
Keywords:
suction vs
Endoclear

EndoClear's reusable filter optic provides support for optimal positioning and evaluation. The device has a unique wiper action with the capacity to return ETT functioning to normal with one application, without using anti-infectives which lead to collateral antibiotic resistance.

Bronchial Thermoplasty Treats Severe Asthma

Bronchial thermoplasty delivered via the Alair System, manufactured by US company Asthmatx, is a new minimally-invasive procedure for treating severe asthma in adults. The system comprises two main components: the Alair catheter and the Alair radiofrequency (RF) controller. Introduced into the lungs via a bronchoscope, the RF controller provides temperature-controlled delivery of RF energy to the catheter. The RF energy that is delivered to the airway wall reduces airway smooth muscle, resulting in decreased constriction and reduced frequency of asthma attacks.

The catheter is a sterile, single-use, disposable device designed to be delivered through the working channel of a standard high-frequency, flexible bronchoscope where it delivers therapeutic RF energy to the airways.

The distal tip of the catheter has an electrode array consisting of four electrodes evenly spread circumferentially. Each electrode is made from insulated stainless steel wire with a 5mm exposed area in the centre of the wire. This is the active, or energy delivering region. Visual contrast between the insulation and the exposed active electrode provides feedback for the user during the procedure.

The RF controller is designed with a proprietary set of control parameters and algorithms so as to deliver the correct intensity

and duration of thermal energy which is sufficient to reduce the mass of airway smooth muscle tissue, while limiting long-term impact to surrounding tissue. The controller delivers low-power (18 watts maximum) RF energy at a treatment temperature setting of 65°C for 10 seconds. Energy delivered is automatically limited to a maximum activation of 120 joules.

FESS Sinus Procedures Without Hospitalisation

FinESS Sinus Treatment, manufactured by US company Entellus Medical, is a less invasive endoscopic procedure that can be performed under local anaesthetic to open and reshape the maxillary sinus cavity and the ethmoid infundibulum. This treatment allows patients with challenging nasal anatomy to be treated safely, simply and effectively in the office. The in-office procedure dilates the ethmoid infundibulum and maxillary ostium using a small balloon catheter and a specialised endoscope for visualisation. The simple-to-do procedure can easily be integrated into the office workflow.

An endoscope is inserted via a sterile access sheath through the canine fossa. It is intended to provide visualisation of the maxillary sinus cavity and to deliver the balloon dilation catheter using a trans-antral approach. The bony sinus outflow tract is remodelled by balloon displacement of adjacent bone and paranasal sinus structure. A trans-antral approach provides direct access and visualisation and eliminates the need to navigate through challenging nasal anatomy. There is a proven local anaesthetic protocol for patient comfort.

More on... YouTube
Keywords: FinESS Sinus

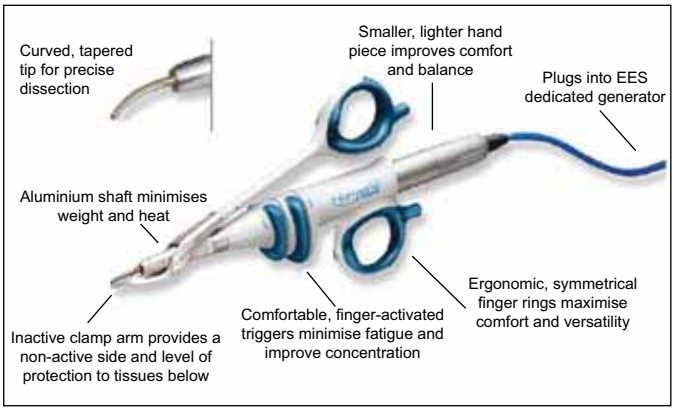
Recovery after the procedure takes one or two days compared to one or two weeks with other treatment procedures. Unlike medical therapy, this sinus

treatment remodels the anatomy by durably widening the drainage pathways to create lasting relief.

This sinus treatment improves sinusitis symptoms by an average of 70% for at least 24 months. Patients with maxillary and anterior ethmoid disease improved as much as those with only maxillary disease. The treatment is well tolerated. At least 88% of patients are able to return to normal activity within 48 hours of the procedure. Research indicates a 92% patient satisfaction rate with the procedure.

On the
Horizon

A Single Surgical Instrument Cuts, Coagulates and Dissects



There is a growing revolution in laparoscopic surgery as technology and technique meet the demand for less invasive surgery. The Harmonic Focus Curved shears by Ethicon Endo-Surgery, Ohio, makes use of ultrasonic energy to simultaneously cut and coagulate tissue during surgery.

The shears are sterile, single-patient use, consisting of an ergonomic grip housing assembly with two hand-controlled power settings. The grip housing includes an integrated audible/tactile mechanism for indicating full closure. The device is connected to a hand piece, the generator and an optional foot pedal. Electrical energy from the generator passes to the hand piece. This causes piezo-electric ceramics in the transducers to activate and convert the electrical energy into mechanical or longitudinal motion, resulting in an ultrasonic wave at the blade tip. This permits simultaneous coagulation and cutting without passing energy to or through the patient.

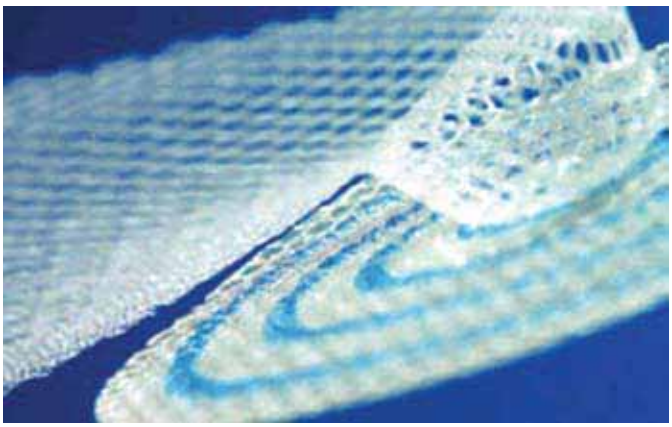
The cutting and coagulation makes use of two ultrasound wave effects:

- Coaptation, which involves the transfer of mechanical energy to tissue. The internal mechanical friction breaks the hydrogen bonds, resulting in protein denaturisation. During this process, a sticky coagulum forms and seals the vessels at temperatures less than 100°C.
- Cavitation which occurs with blade vibration. This produces a transient low-pressure area at the blade tip and causes fluids within the cells to vaporise and cells to subsequently rupture. Vapour between the tissue planes also expands and separates the planes. This helps the surgeon to locate the proper plane during dissection.

More on... YouTube
Keywords: Harmonic focus

The quick and localised effect minimises lateral thermal injury and avoids sticky tissue build up on the blade.

Lightweight Mesh Hernia Solution



The Ultrapro Hernia System (UHS) by Ethicon is a partially absorbable device used to reinforce or bridge abdominal wall hernia defects by providing permanent support of the abdominal wall during and after wound healing.

It is sterile, pre-shaped, and three dimensional, consisting of an undyed onlay patch connected by a mesh cylinder (connector) to an underlay patch. The polymer of the dyed and undyed fibre is identical to Prolene suture material. The device is manufactured from approximately equal parts of Monocryl (poliglecaprone 25) suture fibre and non-absorbable Prolene suture fibre. The underlay patch is strengthened with circular dyed Prolene (polypropylene) suture stitching and a flat undyed absorbable film of Monocryl.

The device is constructed as a lightweight, large porous mesh so as to produce an optimised foreign body reaction from the host tissue. This occurs due to reduced amounts of mesh material and a significantly decreased surface area in contact with the host tissue. All experimental evidence and first clinical data indicate the superiority of the lightweight large porous mesh concept with regard to a reduced number of long-term complications. It also increases comfort and quality of life after the hernia repair.

More on... YouTube
Keywords: Ultrapro hernia

The mesh burst strength is four times stronger than the maximum abdominal pressure. The lightweight support enables excellent tissue growth and wound healing, resulting in a flexible, compliant scar plate that conforms well to inguinal anatomy. The device provides tension-free repair for inguinal hernias. It has a combined benefit of both posterior and anterior repair.

Even Needle-shy Patients Can Comfortably Self-inject Methotrexate

The Vibex auto-injection system with Otrexup (methotrexate), patented by Antares Pharma, New Jersey, is a pressure-assisted, mini-needle jet-injector offering unsurpassed comfort and versatility. The growth in new biological and other injectable therapeutics has dramatically expanded the need for products that overcome patients' reluctance to self-inject.

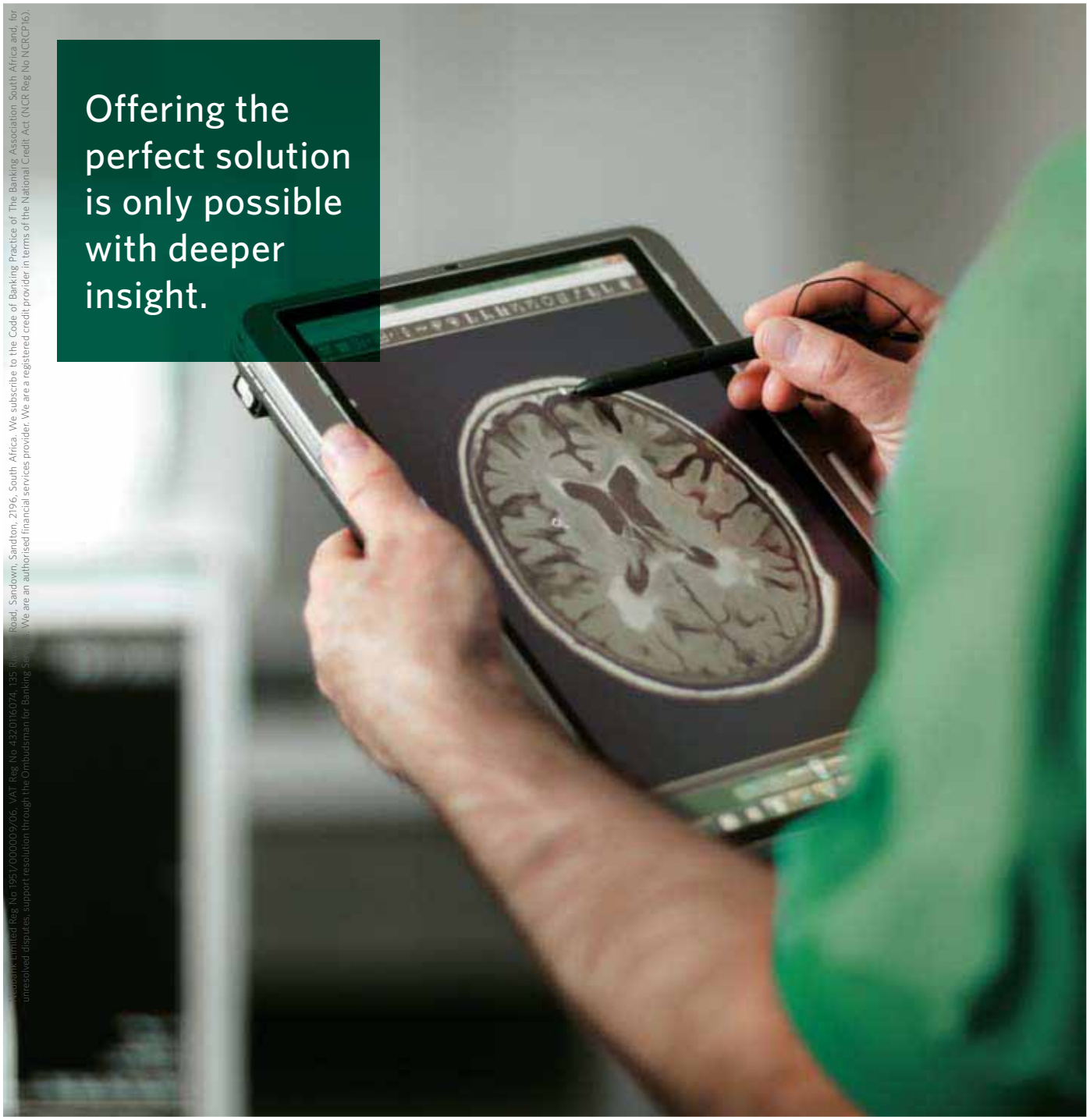
The auto-injection system with methotrexate (MTX) offers rapid subcutaneous self-administration of MTX. As a promising pre-biological treatment, the drug could play an important role in lowering healthcare costs in treating rheumatoid arthritis by delaying the use of biological agents and expanding the use of MTX. The drug's availability gives patients and doctors a new option before making the jump to expensive biologics which are associated with increased safety risks.

The auto-injection system has consistently achieved superior patient comfort and preference scores in comparison to pen injectors and conventional needles and syringes. Even at the relatively large

1ml dose, the device has been shown to deliver medicine quickly and comfortably. The fast-injection delivers 0.5ml in less than one second. The shallow 2.5mm needle penetration assures a subcutaneous injection. The needle is hidden to reduce patient apprehension. The retracting collar has a lock-out to prevent accidental needle-sticks.

The system has adjustable needle penetration for intradermal, subcutaneous or intramuscular injections. Pressure is adjustable so the user can alter injection speed to accommodate drug characteristics, such as high viscosity. It has a fluid volume range from 0.02ml–3.0ml and an adjustable needle gauge that can accommodate depot formulations.

801546B



At Nedbank Business Banking your skilled relationship manager, backed by a team of specialists, is committed to nurturing close and lasting partnerships with our clients in the medical fraternity. This allows us to delve below the surface to give you carefully nuanced solutions that truly meet the needs of your healthcare business. Email us at medical@nedbank.co.za.

Nedbank Business Banking – partnering for growth for a greater South Africa.

EUROMONEY 2012 Awards for excellence

A Member of the OLD MUTUAL Group

MAKE THINGS HAPPEN

NEDBANK

Quoth the Maven

Keith Bolton

Keith Bolton MBBCh, DCH (SA), FCP (Paeds)(SA), MSc Med (Bioethics & Health Law) is chief paediatrician at Rahima Moosa Mother & Child Hospital, Johannesburg and associate professor in the Department of Paediatrics & Child Health at University of the Witwatersrand. He has been an academic paediatrician in Johannesburg for about 30 years.
He worked in private paediatric practice between 1989 - 1998.

Maven - A trusted expert who seeks to pass knowledge on to others.

This month sees the introduction of a new feature in Modern Medicine. Dr Russell Raath is a Pretoria anaesthesiologist with a special interest and expertise in pain and pain management. He is to regularly submit a number of articles on pain and his first contribution deals with the pathophysiology of chronic pain. The experience of pain not only involves biological issues but reflects in the emotional, social and cultural aspects of our patient's lives. It is therefore appropriate that the journal focuses on pain and we are grateful to have input from Dr Raath – local is lekker!

Articles on diabetes find a regular spot and this month concerns the development of neurological symptoms in type 2 diabetics. The most important point for discussion is around TIAs in diabetics. There has been a blurring of the distinction between TIA and stroke of late. This is not only true in diabetics. There has been recognition that examination using diffusion-weighted imaging shows that ischaemia and infarction are common consequences of apparently transient events. The good news is that early intervention may prevent progression to stroke. Nearly 90% of strokes in adults are infarctions. This is very different to stroke in children where 50%-75% are haemorrhagic. Stroke is particularly common in Sub-Saharan Africa. Some of the risk factors for stroke cannot be modified. These include genetics, increasing age, male gender and race. However there are many avoidable factors such as smoking, hypertension, metabolic disorder, obesity, sedentary behaviour, etc.

Aging population brings challenges

Two further articles directly draw attention to the problems associated with older patients. By 2025 nearly 20% of our population is expected to be above 50 years of age and it is appropriate that we consider the medical consequences of this. The article on skin conditions is written from Australia with a strong bias towards photoageing in a predominantly white population. There are some serious disadvantages to having a pale complexion under the strong African sun as my dermatologist gleefully reminds me each time I cringe as he cauterizes another solar keratosis. The other article deals with the tricky clinical decisions around the use of contraception at the menopause. Risks of various methods increase with age but there are also serious consequences of a pregnancy at this time. A woman's choice and preference is also important to consider and makes this article a 'must read' for doctors who treat these patients.

It turns out that I am a soothsayer of note. Last month I was able to hint at impending winter and accompanying power cuts and blow me down if this isn't now evident all around. We South Africans have always been in denial regarding the severity of our winters; hoping that the cold snap won't last more than a week or two. Spare a thought for the homeless and those living in shacks. About half our country's children are living in poverty and the combination of cold and hunger is devastating.

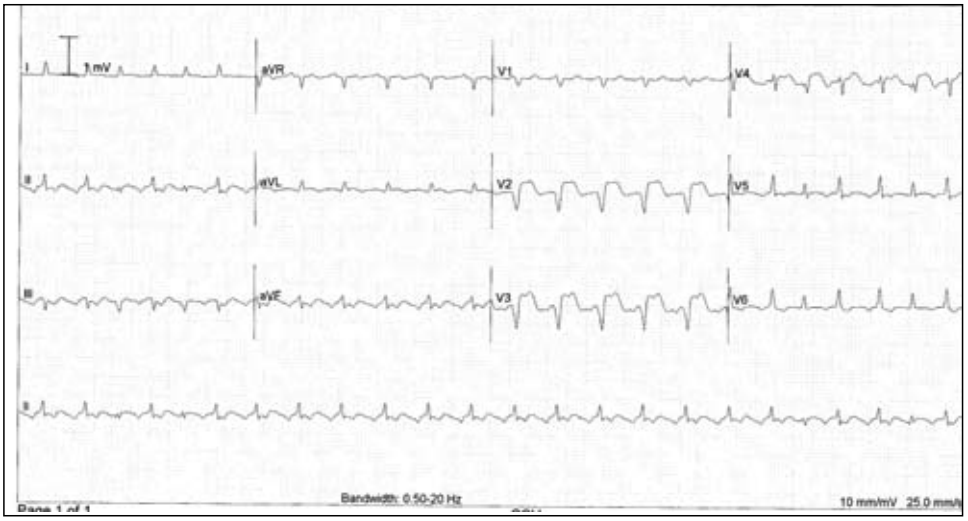
Perhaps in lighter vein, I am sure that you remember the role the gubernaculum testis played in providing the force to ensure that the testis landed in the correct place in the scrotum. You might even recall the origin of the word; Gubernacula (from Ancient Greek κυβερνάω = pilot). I couldn't help but wonder whether a Guptanaculum may be something that provides the force to pilot ectopic landings of another ilk?

Jawellnofine.

ECG Challenge: Test Your Interpretive Skills

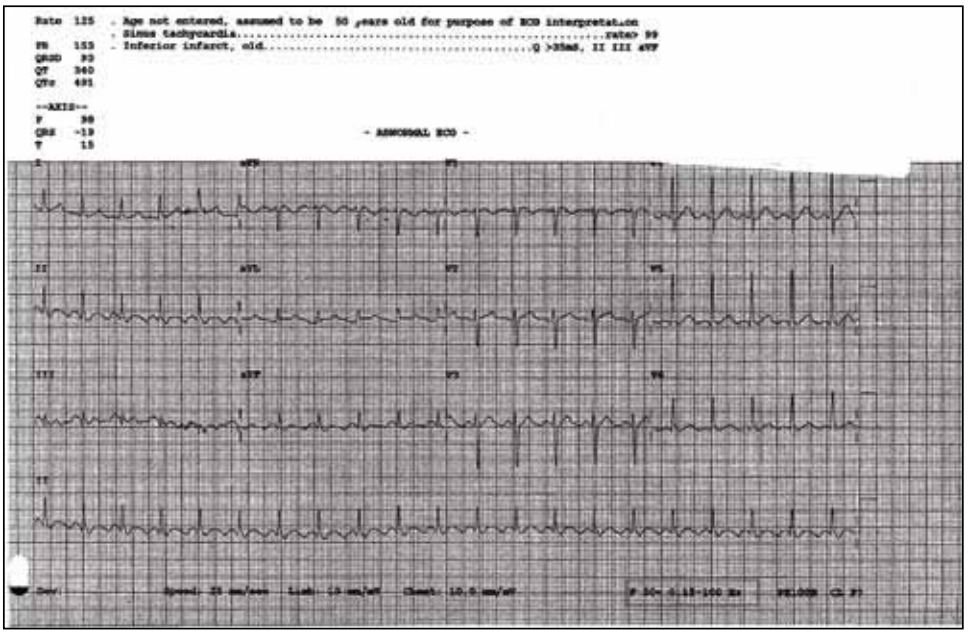
Dr Anthony Stanley – Electrophysiologist, Sunninghill Hospital

ECG 1
This is the ECG of a 65 year old male taken 20 minutes after the onset of chest pain. He is a diabetic hypertensive man with hypercholesterolaemia.



ECG 1: Statements for consideration (true or false):
1. The diagnosis is an acute inferior myocardial infarct.
2. The diagnosis is an acute anterior myocardial infarct with atrial flutter.
3. The diagnosis is sinus rhythm with an anterior infarct.

ECG 2
This ECG is from a 50 year old triathlete with a history of palpitations.



ECG 2: Statements for consideration (true or false):
1. The computer diagnosis (annotated above the ECG) is correct, because inferior pathological q waves are present.
2. The computer diagnosis is incorrect, because the q waves are dependent on the rhythm.

Earn a CPD point
When you have the answers, fill them in on the CPD answer sheet (page 46).

Discussion

ECG 1: Origin of myocardial infarct

An anterior infarct would show evidence of Q waves anteriorly and obvious ST segment elevation in the anterior leads. Interestingly V1 does not show ST segment elevation in all cases. Its absence suggests a large conal branch of the RCA protecting the septum whereas the presence of ST elevation in V1 suggests a small or absent conal branch.

Occlusion of a large LAD which wraps around the apex would cause ST elevation in SIII and upright T waves.

An inferior infarction would show ST elevation in SII, SIII and AVF with or without ST elevation in V5 and V6. Reciprocal ST segment depression may be present in the V2,V3 and SI. ST elevation in V1 may indicate an RV infarct. If ST segment depression is not present in V1 it may indicate RV infarction as well. ST depression in V1 may indicate reciprocal change or a posterior infarct.

If this were pericarditis, the ST segment elevation would be more widespread and associated PR segment depression noted.

ECG 1: Rhythm

The diagnosis of supraventricular or narrow complex arrhythmia is made by observation of the P waves and the relationship to the QRS. For example, each QRS should have one P wave associated. If more than one is present then the diagnosis would be an atrial ectopic tachycardia with 2:1 block or atrial flutter with 2:1 block.

The P wave axis is also important as it gives an idea of the position of the circuit, ie, it would be different for tachycardia originating from the left atrium to that originating from the right.

Atrial flutter in the setting of an acute anterior myocardial infarct may suggest atrial extension of the infarct or simply be due to raised atrial pressure secondary to the raised EDP resulting from the large infarct.

ECG 1: Treatment

The acute infarct should be managed routinely. Treatment of infaction includes management of pain, antiplatelet therapy, thrombolysis and acute intervention if available.

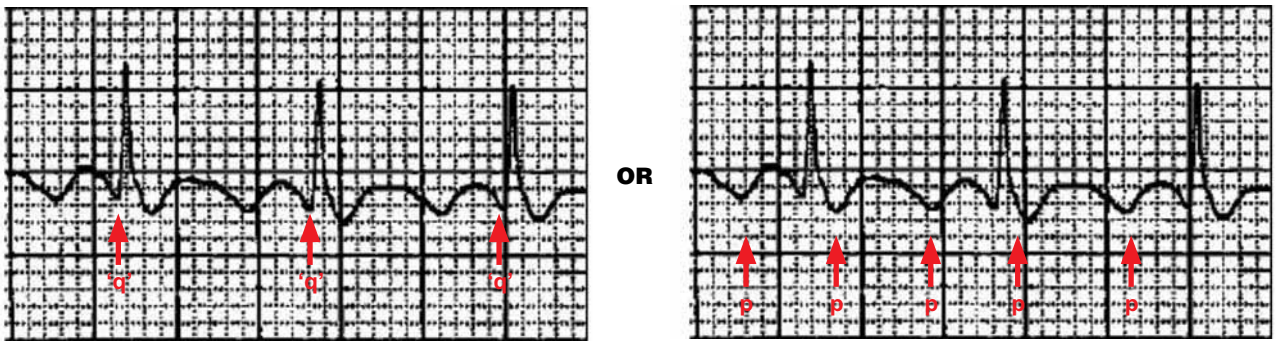
All patients with atrial flutter should be anticoagulated. Both rate and rhythm control are options for treatment. However, ablation has a very high success rate and should be the treatment of choice.

If rate control is chosen, it should be because of a strong contra-indication to ablation. Beta-blockade is the drug of choice. Cardioversion is also effective, but has a high recurrence rate.

ECG 2: Discussion

This ECG shows atrial flutter with fusion of the underlying P wave and QRS to result in a pseudo q wave in the inferior leads. The reason for the q being inferior is caused by the negative p waves in those leads.

The computer has correctly identified the q waves but made an incorrect deduction as to their aetiology. Not at all like Watson in Jeopardy! It failed to recognise the link between the underlying atrial flutter and the q waves.



Lifelong Learning

CPD ARTICLE NUMBER ONE

Transient Neurological Troubles in Patients with Type 2 Diabetes

Transient neurological attacks, early warning signs of cerebrovascular disease, are usually differentiated by their history. As type 2 diabetes is an important risk factor for a transient ischaemic attack (TIA) and subsequent stroke, this article focuses on the acute, usually urgent management of this focal transient neurological problem and its prevention.

Transient neurological attacks are warning signs that patients may have cerebrovascular disease. Although coronary heart disease is the most common cause of morbidity, disability and mortality in people with type 2 diabetes, transient ischaemic attacks (TIAs) and strokes are frequent cerebrovascular complications in such patients, particularly as they age. Type 2 diabetes is an important risk factor for TIA and/or stroke, especially in patients who have other components of the type 2 syndrome (hypertension, dyslipidaemia, prothrombosis).

Many of these patients have a great fear of having a stroke and see it as something that may strike them down without warning. They think that they cannot prevent it and worry about full functional recovery, fearing being left with a crippling disability, or dying. They may have good reason to fear a stroke more than a heart attack: 20% of those with a stroke die within a month and one-third of the survivors are disabled permanently.[1,2]

Measures can, however, be taken to reduce the frequency of TIAs and stroke, and to prevent a stroke closely following a TIA (about one in five people have a stroke within 90 days of a TIA).[3] It is also possible to intervene effectively in a developing stroke and to maximise functional recovery after a stroke.

This article focuses on the early warning sign of a stroke, the TIA, and provides practical guidance on the prompt recognition of this focal transient neurological attack and the interventions to reduce the likelihood of having a stroke within 90 days of a TIA.[3]

The case

Bill is 68 years old and has had type 2 diabetes and dyslipidaemia for six years and hypertension for more than 15 years. All these conditions have been moderately controlled in the past few years (glycosylated haemoglobin [A1c], 7.5% to 8.5%; blood pressure, 140 to 150/90 to 95mmHg; LDL-cholesterol, 3 to 4mmol/L). Earlier today he found he could not move his left leg and his left arm became clumsy. Strength gradually returned and now, four hours later, is almost normal. Bill is reassured by your examination and says as he leaves: 'Well, at least it wasn't a stroke'.

Diagnosis

Potential causes of Bill's transient neurological symptoms are:

- TIA
- Residual weakness after a seizure
- Complicated migraine
- Hypoglycaemia.

The history, however, strongly suggests that Bill has had a TIA. The onset is unlike the acute onset for a seizure (and there is no stated history of seizures). A migraine can cause a transient neurological attack but would usually be associated with a headache, an aura and a previous history of migraine. Hypoglycaemia can be associated with focal neurological symptoms but usually occurs acutely and is associated with hunger and the classic sympathetic symptoms of tremor, sweating, tachycardia and anxiety.

Severe hypoglycaemia is not common in patients with type 2 diabetes but there is a series of 'red flags' that can alert patients with diabetes who are at high risk of hypoglycaemia. These factors are significant since intervention can reduce the frequency and depth of severe hypoglycaemia. They are:[4]

- History of hypoglycaemic episode
- Hypoglycaemic unawareness (autonomic neuropathy)
- Type 1 diabetes, long-standing type 2 diabetes
- Erratic lifestyle
- Bolus insulin/tight glycaemic targets
- Sleeping alone.

As it happens, Bill has none of these 'red flags'. Anyway, the clinical setting and history are consistent with a TIA: Bill has several of the major risk factors for cerebrovascular disease (ie, age over 60, hypertension, dyslipidaemia and diabetes) and the focal nature, acute onset and gradual offset of his symptoms are typical of a TIA (see the box on next page).[5]

About the author

Pat Phillips *MB BS, MA(Oxon), FRACP, MRACMA, GradDipHealthEcon(UNE) is a Consultant Endocrinologist at the QE Specialist Centre, Woodville, Australia.*

Risk factors for cerebrovascular disease*

- Age 60 years and older
- Hypertension
- Smoking
- Dyslipidaemia
- Known cardiovascular disease†
- Atrial fibrillation†
- Diabetes

* In order of the approximate contribution to the incidence in the general population.

† An ECG, which is part of the recommended cycle of diabetes care, would identify undiagnosed coronary heart disease and/or atrial fibrillation.

The ABCD2 guide to stroke following a TIA[6]

The ABCD2 score, a seven-point scale that assesses five clinical measures, can be used to predict the risk of a patient having a stroke within two days of having a TIA.

Symbol	Feature	Criterion	Points
A	Age	60 years or older	1
B	Blood pressure	140/90mmHg or greater	1
C	Clinical picture of the TIA	Unilateral weakness	2
		Speech impairment only	1
D	Duration	60 minutes or longer	2
		10 to 59 minutes	1
D	Diabetes	Diagnosed with diabetes	1

Sum ABCD2 score predicts risk of having a subsequent stroke within two days:

- score 0 to 3 = 1.0% (low risk)
- score 4 and above = 8% (high risk)

TIAs and subsequent stroke

Bill is right to be pleased that he has had a TIA and not a stroke but might not be so happy if he realised that he is at high risk of having a stroke later and that approximately half of these strokes occur within the first 48 hours after the TIA. It is critically important to identify those at high risk of having a stroke, to investigate and to intervene promptly to prevent these early strokes.

The ABCD2 score is a validated model to predict the early risk of stroke after a TIA (see the box on this page).[6] In this scoring system, a cut point of 4 separates high risk (score of 4 and above, 8% two-day stroke risk) from low risk (score of 1 to 3, 1% two-day stroke risk).

Bill has all the indicators. With the maximum possible score of 7 points, he is in a very high risk category – at least 8% in the next 48 hours and a further 8% in the subsequent three months.

TIA: Causes and investigations

It is important to identify the cause of a TIA because that will define further investigation and intervention. In general, there are five main causes (see the box on page 16).

Carotid artery dissection is unlikely in Bill's case; however, if he were younger than 50 it would be a possibility, particularly if associated with neck pain. Bill has a relatively high exercise tolerance and is unlikely to have the severe cardiac dysfunction associated with ventricular thrombus and embolism (eg, ejection fraction less than 50%). Atrial fibrillation (paroxysmal or continuous) is a real possibility because he is very likely to have ischaemic heart disease given his age, type 2 diabetes, hypertension and dyslipidaemia.[7]

Similarly, he is likely to have significant atherosclerotic arterial disease – aortic arch, carotid and intracerebral – and may have had an arterial embolus. Finally, he is also at risk of an intracerebral haemorrhage, given his age, type 2 diabetes and hypertension.

Initial investigation should be targeted to identify the likely cause and potential interventions (see the flowchart on page 16).[8] The emphasis is on triaging those at high risk of an early stroke and identifying the appropriate intervention(s). Given the practical difficulties of arranging the recommended urgent investigations in the community setting, perhaps the safest option is to have the assessing clinician discuss the management of TIA patients with a stroke physician who can help triage the patient and facilitate access to prompt, appropriate investigation.[9] An ECG may identify ischaemic heart disease and atrial fibrillation (if persistent). Computed tomography imaging (CT) of the brain will show an intracerebral haemorrhage and a CT angiogram will identify carotid and intracerebral vascular pathology, but neither will show signs of early cerebral infarction. MRI or magnetic resonance angiography give better anatomical definition. A positive diffusion-weighted MRI is equivalent to a troponin spike in differentiating the cerebral 'angina' of a TIA from the cerebral infarction of a stroke. A carotid ultra-sound will identify any carotid plaque and stenosis and guide surgical intervention, if appropriate.

TIA: Management

Acute management (thrombolysis, surgical and medical therapy) is on specialist advice but ongoing prevention occurs in the community.

Reducing the risk of future cerebrovascular events

Having a healthy lifestyle (addressing the SNAP risk factors – smoking, nutrition, alcohol, physical activity) and keeping vascular risk factors under control reduce an individual's overall vascular risk (see the box on this page).

Recent clinical trials have assessed the pros and cons of the various antiplatelet agents currently available.[10-13] Aspirin is the 'gold standard' antiplatelet agent and has the advantage of being cheap. Both clopidogrel and the combination of aspirin and dipyridamole have marginally better therapeutic efficacy than aspirin (extra absolute risk reduction 0.5% and 1%, respectively), but they are considerably more expensive and are more commonly associated with side effects.

Causes of TIA

- Arterial embolus (aortic arch, carotid, intracerebral)
- Atrial fibrillation (ischaemic heart disease)
- Cardiac embolus (ejection fraction less than 50%)
- Carotid artery dissection (in patients younger than 50)
- Intracranial haemorrhage

Although the combination of aspirin and clopidogrel is recommended after coronary stenting, the combination is no more effective than aspirin alone after a TIA and is associated with increased haemorrhagic risk (as well as extra cost and side effects).[14,15] One practical approach is to start with aspirin plus dipyridamole and, if side-effects from dipyridamole occur, to continue with aspirin alone or switch to clopidogrel.

Patients who are prescribed antiplatelet agents should be advised of likely side effects and told that they should not stop the agent if the side effects occur but should seek immediate medical review so an alternative agent can be used. They should also be advised not to take any other medication without seeking advice from a doctor or pharmacist, in case the new medication, prescription or nonprescription (eg, fish oils, gingko biloba), increases haemorrhagic risk. [14]

'Resistance' to therapy with aspirin and other antiplatelet agents (when a stroke occurs despite therapy) may occur. However, it is important to remember that, when an antiplatelet agent is used to 'prevent' a stroke after a TIA, only some events will be prevented and most events will still occur despite appropriate and effective antiplatelet therapy (see the table on page 17). Such an event may prompt a switch to a more effective agent (from aspirin alone to aspirin plus dipyridamole or to clopidogrel), but even this more effective schedule can only prevent a further small number of events (1% and 0.5%, respectively).

Establishing an action plan for future cardiovascular events

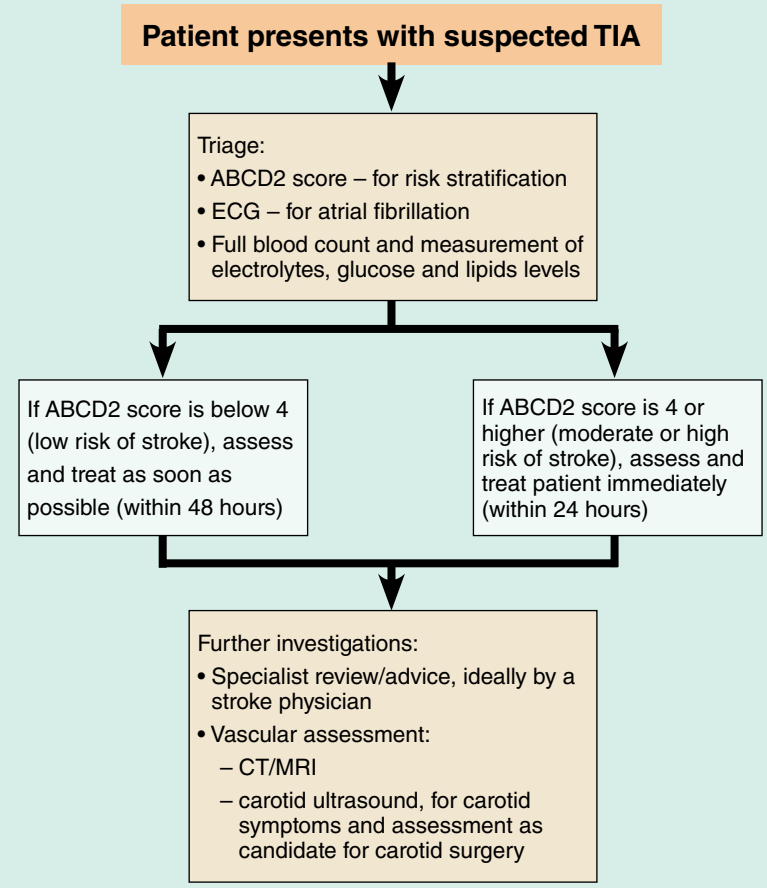
As noted, prompt recognition, assessment, investigation and intervention for a TIA can significantly reduce the risk of a future stroke in both the short (48 hours) and long term. The community and medical professionals have accepted the importance of heart attacks and the need to respond urgently to symptoms such as chest pain. Furthermore, it is widely recognised that modern heart attack treatments save lives and prevent further disability; most people go home functioning well after a short hospital stay. People at risk of a heart attack are therefore usually aware that they should seek help immediately if they have certain symptoms.

On the other hand, the idea of a 'brain attack' does not seem to have quite the same impact as the idea of a 'heart attack'. Therefore, an important part of the management of a TIA is to explain that the symptoms of a TIA may go away but the underlying problems remain, that preventive therapy is important and that any future warning symptoms should prompt urgent presentation for assessment and treatment.

Implications for other circulations

Most TIAs and subsequent strokes are caused by cerebrovascular disease and most cerebrovascular disease is associated with vascular disease in the other circulations: ophthalmic, coronary, aortic (including renal) and peripheral. After acute management and establishing measures to deal with future risk of cerebrovascular events, it is appropriate to review and monitor these circulations by history (eg, previous angina,

Transient ischaemic attack: triage and investigation[8]



ABBREVIATIONS: CT = computed tomography; ECG = electrocardiogram; MRI = magnetic resonance imaging

Recommendations for vascular health in patients with diabetes

SNAP lifestyle

All people will benefit from targeting the behavioural risk factors affecting health.

Lifestyle recommendations for improving cardiovascular health are to follow a SNAP lifestyle:

S quit Smoking

N better Nutrition – low fat (saturated and trans fats) and often lower total energy

A moderate Alcohol consumption – maximum of two standard drinks/day

P more Physical activity – at least 30 minutes of moderate activity daily.

ABCS control

People with diabetes also need to target specific clinical risk factors, specifically glycaemia and the ABCS of diabetes care:

A glycosylated haemoglobin (A1c) – ideal is below 7.0%

B Blood pressure – ideal is below 140/90 mmHg in general, and below 130/80 mmHg for individuals at high risk

C Cholesterol – ideal is a total cholesterol level of below 4mmol/L

S Salicylates – the taking of cardioprotective doses of aspirin (80 to 150mg) daily should be considered for people with diabetes who have a high cardiovascular risk.

claudication) and examination (ie, ophthalmoscopy, ECG, abdominal palpation and auscultation, and ankle brachial pressure index). Further investigations, including arterial imaging, and specialist advice may be indicated.

Summary

- Although people with type 2 diabetes are less commonly affected by cerebrovascular disease than by coronary heart disease, type 2 diabetes is an important risk factor for TIA and/or stroke, especially in those who have other components of the type 2 syndrome (hypertension, dyslipidaemia, prothrombosis). Moreover, these patients often fear a stroke more than a heart attack.
- Usually, the history identifies the cause of a transient neurological trouble. The association with other risk factors for cerebrovascular disease, and its acute onset and gradual offset, differentiate a TIA from a seizure, migraine or hypoglycaemic episode.
- Acute management is guided by the ABCD2 score (age, blood pressure, neurological clinical features, symptom duration and diabetes). Higher scores (4 and over) prompt urgent investigation and neurological review (within 24 hours). Lower scores prompt semi-urgent investigation and review within 48 hours. Investigations include biochemistry, lipids, ECG, brain CT or MRI and carotid artery imaging.
- Initial treatment (thrombolysis, surgical and medical therapy) is on specialist advice but on-going prevention occurs in the community. Prevention focuses on reducing the risk of cardiovascular disease in general by tackling lifestyle and medical cardiovascular risk factors, and reducing the risk of future cerebrovascular events in particular (antiplatelet therapy).
- Aspirin is a very commonly prescribed antiplatelet agent with a 2% absolute risk reduction but both clopidogrel and the combination of aspirin and dipyridamole are more effective, with further absolute risk reduction of 0.5% and 1.0% respectively. The combination of aspirin and clopidogrel is no more effective than aspirin alone and increases haemorrhagic risk.
- An important part of the management of a TIA patient is to stress that it is an early warning of a stroke, that lifestyle and medical management can reduce this risk and that patients, family or caregivers should be aware of the symptoms and signs of a TIA or stroke so that intervention can start as soon as possible.

References are available on request.

TABLE

Antiplatelet agents

Agent	Side effects*	Notes
Aspirin	Allergy	RRR, 22%; ARR, 2%; NNT, 5010
Clopidogrel	Diarrhoea, rash	Superior to aspirin alone (by 0.5%; NNT, 200)[11]
Dipyridamole	Headache and/or nausea in 20%	Plus aspirin superior to aspirin alone (by 1.0%; NNT, 10012 Equivalent to clopidogrel)[13]

ABBREVIATIONS: NNT = number needed to treat; RRR = relative risk reduction.

* All antiplatelet agents increase the risk of haemorrhage.

'Resistance' to antiplatelet agents

An ABCD2 score of 4 and above after a TIA suggests there is an 8% or greater risk of the patient having a stroke in the next 48 hours and a 16% or greater risk of stroke in the next 12 months. If aspirin relatively reduces stroke risk by 22%, (see Table), this will be an absolute reduction of three events per 100 in the first year (22% of 16 events); the other 13 will still occur.

Switching to clopidogrel or aspirin plus dipyridamole further reduces this absolute risk by 0.5% and 1%, respectively, to 3.5 or four events, respectively (see Table). The majority of stroke events will still occur despite the best antiplatelet therapy.

Lifelong Learning

CPD ARTICLE NUMBER TWO

Is Chronic Pain Simply Persisting Acute Pain?

The idea that 'pain is pain' and that chronic pain is simply acute pain continuing too long is archaic and wrong.

Traditionally the word pain was used as an all inclusive, blanket term. Pain was often described as being protective, serving as a warning that something else is wrong – a symptom of another underlying condition. This pain should, and usually does, resolve once the underlying condition has been dealt with and healed. In modern parlance we'd use the term 'acute pain' to describe this condition.

Sometimes this does not happen and the pain persists unusually long after healing or recovery. The pain is then called 'chronic' if, by definition, it persists more than three months. This time-based definition is totally arbitrary and unreasonable. Sometimes chronic pain is present before the three months have elapsed (eg, de-afferrentation pain – see below) and sometimes the mechanism for chronic pain is present from the outset without any time having elapsed.

This is because chronic pain is not simply a symptom of another underlying condition or pathology. Chronic pain is a medical entity; a clinical condition and a pathology in itself - not simply persisting acute pain. Chronic pain is **not** protective - it **does not** serve as a warning of an underlying condition because often there is **no underlying condition**. Chronic pain, like any other disease, should rather be considered as destructive, usually serving no purpose at all. It progressively damages first the body and then the psyche and lives of people afflicted with it.

Neuropathic pain is often used as a synonym for chronic pain, but neuropathic pain is only one type of chronic pain.

Pain processing

Chronic pain is a condition of *altered pain processing* due to physical changes mostly in the spinal cord, and more specifically the dorsal horn grey matter in the spinal cord. Altered processing can also take place in the brain, usually after brain injury or stroke.

Pain and other sensory stimuli enter the spinal cord via the dorsal nerve root and are processed in the dorsal or posterior spinal cord grey matter. This processing is quite complex. The pain stimuli are then transmitted up the cord to a number of pain centres in the brain.

In chronic pain, the changes that take place in the dorsal horn causing facilitated pain processing are termed 'central sensitisation' or, 'central wind-up'. This leads to increased perception of pain, facilitated transmission of pain signals to the brain or the origination of new pain impulses in the dorsal horn which are then transmitted to the brain.

If unresolved, central sensitisation becomes increasingly difficult to reverse and can eventually become permanent. Chronic pain and central sensitisation must, therefore, be diagnosed early and *appropriate* therapy initiated as soon as possible.

Central sensitisation origins

Central sensitisation is the reason chronic pain does not usually respond well, if at all, to normal analgesics and anti-inflammatory drugs (including epidural steroids) and sometime not even to opiates. Chronic pain requires treatment with a pharmacological arsenal different to that used for acute pain and often requires specific pain interventions to manage it or to reverse it. This will be the topic of a future article.

Central sensitisation can be either nociceptive or neuropathic in origin.

Nociceptive central sensitisation

Nociceptive pain is pain that arises due to stimulation of pain receptors (the nociceptors) in the tissues. Constant nociceptive input into the dorsal horn is termed 'afferent barrage'. It is a constant hammering on the dorsal horn system by incoming pain impulses from the periphery. Depending on its intensity and duration, this afferent barrage, causes central sensitisation of varying degrees.

Key points

- Chronic pain is not simply acute pain persisting for too long, but has a pathology of its own.
- Normal analgesics, NSAIDs, etc. have limited or no effect on chronic pain.
- A completely different group of pharmacological agents as well as interventions need to be applied to provide relief from chronic pain.

About the author

Dr Russell Raath *MbChB, M Med. (Anaes.), FIPP is an anaesthesiologist and chronic pain interventionalist in private practice at Jakaranda Hospital, Pretoria.*

3-WAY ACTION
FOR • PAIN • RELIEF

• ibuprofen 200 mg • codeine phosphate 10 mg • PARACETAMOL 350 mg •

MYBULEN® & MYBUCOD® TABLETS

- analgesic
- anti-pyretic
- anti-inflammatory

STILL • THE • STORMS • OF • PAIN

S3 Mybucod® Tablets. Reg. No.: 36/2.8/0379. Each tablet contains ibuprofen 200 mg, paracetamol 350 mg and codeine phosphate 10 mg. S3 Mybulen® Tablets. Reg. No.: 30/2.8/0138. Each tablet contains ibuprofen 200 mg, paracetamol 350 mg and codeine phosphate 10 mg. S3 Mybulen® Capsules. Reg. No.: A38/2.8/0527. Each capsule contains ibuprofen 200 mg, paracetamol 250 mg and codeine phosphate 10 mg. S3 Mybulen® Suspension. Reg. No.: A39/2.8/0237. Each 10 ml contains ibuprofen 200 mg, paracetamol 250 mg and codeine phosphate 10 mg. Preservative: Sodium benzoate 0,1 % m/v.
For full prescribing information please refer to the package inserts approved by the medicines regulatory authority.
Applicant: Pharmacare Limited Co. Reg. No. 1898/000252/06. Building 12, Healthcare Park, Woodlands Drive, Woodmead, 2191. A16056 03/13
124098MH

Healthcare. We Care.

aspen PHARMACARE

Marketed by Aspen Pharmacare
www.aspenpharma.com
Medical Hotline 0800 118 088

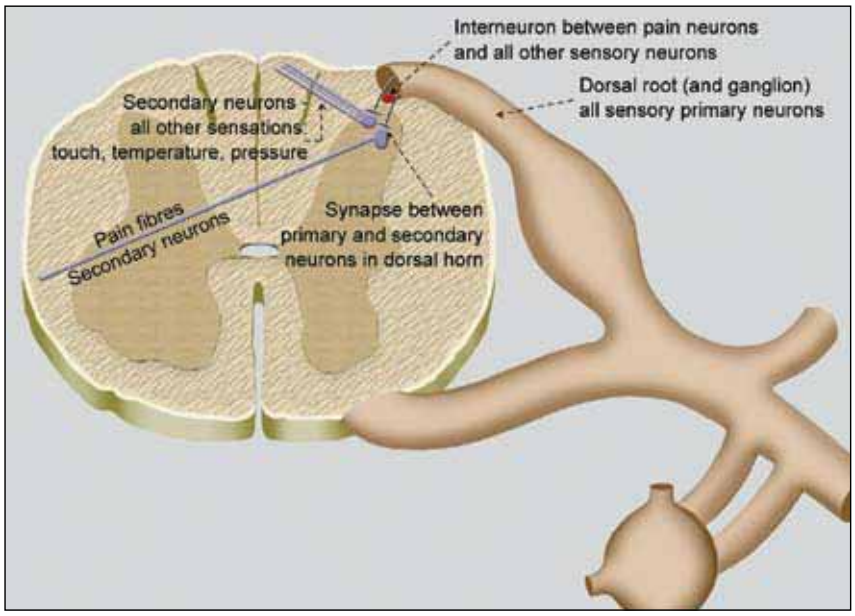


Figure. Schematic of anatomy of the dorsal root of the spinal cord.

Nociceptive pain causes central sensitisation in two main ways.

Chronic afferent barrage

A chronic condition eg, arthritis, can cause *chronic afferent barrage* resulting in central sensitisation. This means that chronic nociceptive conditions like arthritis have both a nociceptive element (destruction of the joint), and a central sensitisation component. This, for example, is why osteoarthritis pain in the knee responds so well to duloxetine, an antidepressant, due to its effect on the dorsal horn.

Acute afferent barrage

Acute pain that is not adequately treated also causes an afferent barrage, the intensity of which depends on the acute underlying problem. Intense untreated acute pain like post operative pain can cause central sensitisation in the dorsal horn very quickly – in a matter of hours to days.

Neuropathic central sensitisation

Neuropathic pain that may arise in sick or injured nerves may also cause central sensitisation.

Nerve injury

Nerve injury (from accidents as well as surgery) may cause central sensitisation. This type of chronic pain is called CRPS – Chronic Regional Pain Syndrome and has two subclassifications. In Type 1 CRPS a nerve injury is suspected but not immediately apparent whereas in Type 2 the nerve injury is apparent. Otherwise, clinically the types are identical.

Severed nerves (de-afferrentation pain - loss of all afferent input into the dorsal horn)

- **In phantom pain** the nerve to the area is cut through causing changes in the dorsal horn of the corresponding level. With loss of all afferent input, the small interneurons are never activated and so never inhibit pain impulses. This means that the 'pain gate' is constantly open (see below). Pain impulses then originate in the dorsal horn in the nerve that originally arose in the amputated area. These impulses are then transmitted to the brain which perceives the pain impulse as originating at the amputated body part.
- **Anaesthetica Dolorosa** occurs when nerves are severed for reasons other than amputation. This leads to an area of no feeling (anaesthetica) because all the afferents have been severed, but which is painful due to the central sensitisation as in phantom pain.

Nerve pathology (neuropathy)

There are many causes and types of neuropathy but most important is peripheral neuropathy. If the pain fibres are sick this may lead to afferent barrage and central sensitisation.

Central sensitisation in Chronic Pain

In chronic pain, treating a peripheral condition is not very effective without also addressing and treating the central sensitisation.

Mechanisms of sensatisation

Central sensitisation is mediated by two main mechanisms:

- Sensitisation and activation of NMDA receptors.
- Inhibition or death of the interneurons (Figure 1 - Opening the pain gate).

NMDA receptors

NMDA receptors are a group of ionotopic glutamate receptors that occur in both peripheral tissue and the central nervous system. They occur both pre- and post synaptically and are responsible for excitatory synaptic transmission. They play an important role in pain transmission and sensitisation. They also play a role in neuroplasticity and neuro-degeneration (apoptosis).

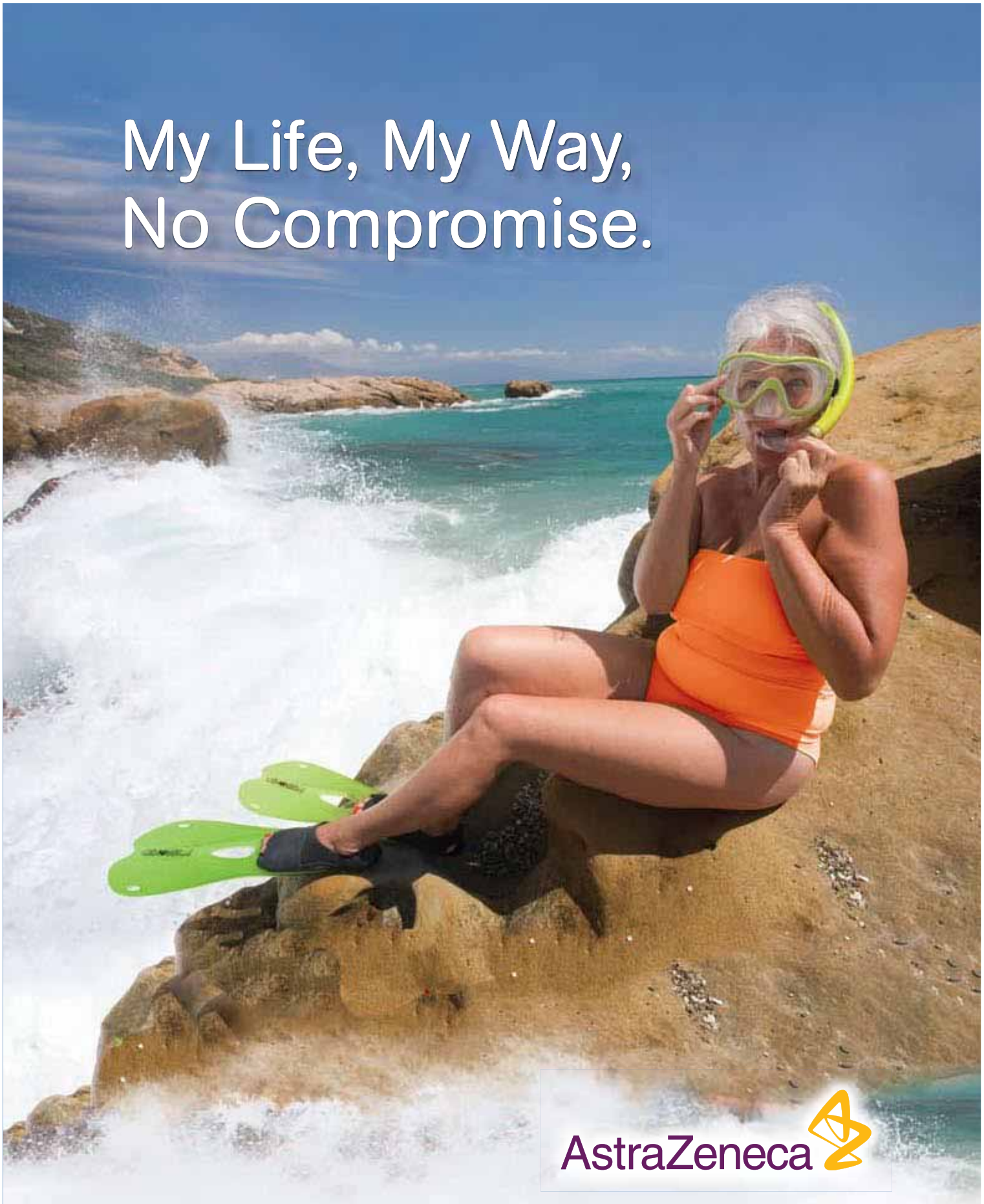
Activation of NMDA receptors after tissue injury and inflammation enables facilitated processing in the spinal cord or central sensitisation.

In inflammation, the number of NMDA receptors on peripheral nerve fibres increases as do those in the dorsal horn.

The nature of the NMDA receptors, their role in central sensitisation and drugs that can be used to block the NMDA receptors will be the subject of a future article.

Interneurons – the 'gates' (Figures 1 & 2)

The interneurons are in effect the 'gate' in the 'gate' theory of pain. They are small neurons connecting the neurons of all other sensations and the neurons of pain. Activity in the neurons of all the other sensations causes activity in the interneurons which in turn inhibit transmission in the pain neurons. This is why rubbing or stroking a hurt area reduces pain in the area.



AstraZeneca Pharmaceuticals (Pty) Limited. Reg. No. 1992/005854/07. Building 2, Northdowns Office Park, 17 Georgian Crescent West, Bryanston, 2191, South Africa. Private Bag X23, Bryanston, 2021. Tel: +27 11 797-6000. Fax: +27 11 797-6001. www.astrazeneca.com. Expiry date: March 2015. Log no: COR 04/13/007.

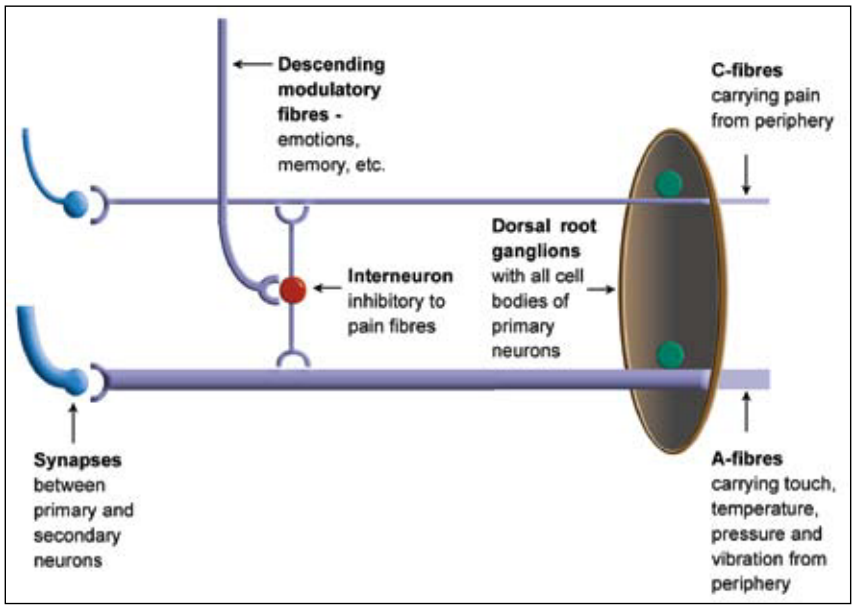


Figure 2. Schematic of the neural connections in the dorsal horn of the spinal cord.

Modulating fibres descending from the higher centres also have an effect on the interneurons. They can cause activity in the interneurons and so inhibit the pain neurons, or they can inhibit the interneurons and facilitate pain. This is why emotions, experience and memory have a inhibitory or facilitatory effect on pain by closing or opening the gate. This effect of emotions and the psyche on the pain gate is what makes successful treating of chronic pain often very difficult and why psychotherapy is an important part of chronic pain therapy.

If the interneurons are the gate, then if they are absent or non-functional, the gate to transmission of pain is open and pain flows freely from the periphery, through the open gate to the brain with increased perception of pain.

This is part of central sensitisation. Intense and prolonged afferent barrage causes the death of the interneurons leaving the gate to pain wide open. Should the barrage continue for a length of time, the inhibitory interneurons can even be replaced by facilitatory neurons, opening the gate even further.

This aspect of chronic pain condition is very difficult to treat as it is almost impossible to re-grow the interneurons.

Strategies for prevention of interneuron death and thus preventing chronic pain will be the subject of a future article.

Summary

From the above we see that chronic pain is **not** simply acute pain persisting for too long, but has a pathology of its own. It is then easily understood why normal analgesics, NSAIDs, etc. have limited or no effect on chronic pain. A whole different group of pharmacological agents as well as interventions need to be applied to provide relief for chronic pain.

For your patients with mild to moderate pain..

...we have an affordable treatment

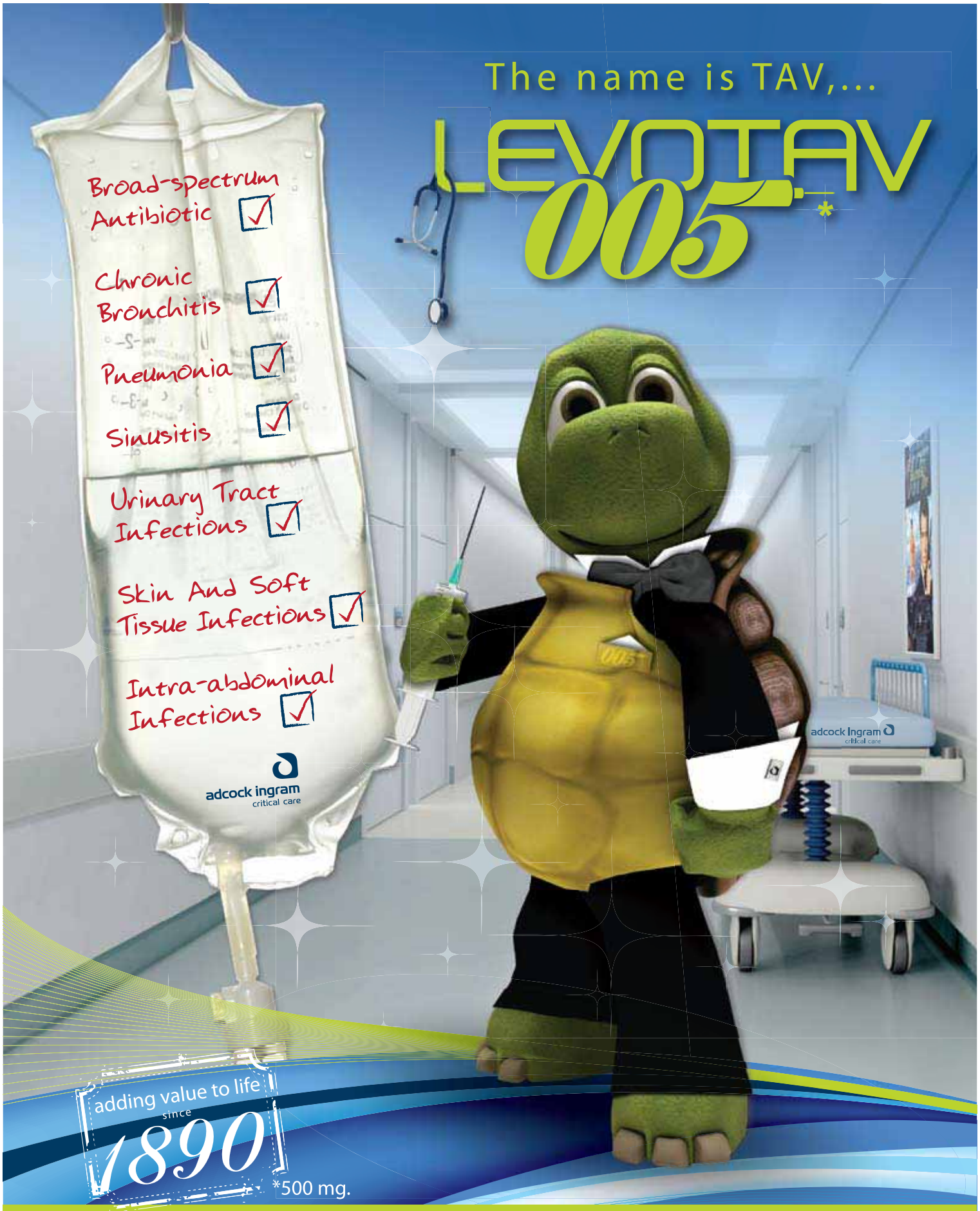
Level 3 BBBEE contributor

SANAS ACCREDITED

S3 **GEN-PAYNE® CAPSULES.** A2.8. Each capsule contains: Codeine phosphate 10 mg; Ibuprofen 200 mg; Paracetamol 250 mg. Reg. No. 35/2.8/0046.

ZA.12.PAI.046 For full prescribing information refer to the package insert approved by the medicines regulatory authority. Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel: +27 11 635 0000. www.adcock.com

adcock ingram generics



18 NOT FOR USE BY PERSONS UNDER THE AGE OF 18. PLEASE ENJOY RESPONSIBLY!

S4 **LevoTAV IV 500 Intravenous Infusion.** A: 20.1.1. Each 100 ml contains levofloxacin hemihydrate equivalent to 500 mg levofloxacin. Reg. No. 43/20.1.1/0784. *500 mg. **For full prescribing information refer to the package insert approved by the medicines regulatory authority. ZA.12.RES.027. Marketed by Adcock Ingram Critical Care (Pty) Ltd. Reg. No. 2000/004206/07.** Applicant: Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel: +27 11 635 0000. BBBEE Status Level: Level 4 Contributor. **www.adcock.com**

adcock ingram critical care

Lifelong Learning

Levofloxacin in the Treatment of Community-Acquired Pneumonia

Fluoroquinolones are an increasingly important class of drugs for treating a wide range of infections, with ofloxacin being one of the most commonly used of these compounds.

Levofloxacin, the *l*-isomer of ofloxacin, is twice as potent as its parent compound, and therefore possesses all of the advantages offered by ofloxacin, as well as providing additional benefits. Improved effectiveness without any increase in side effects makes levofloxacin a very useful and advantageous antibiotic.

Levofloxacin is a fluoroquinolone that has a broad spectrum of activity against several causative bacterial pathogens of community-acquired pneumonia (CAP). Levofloxacin can be used as a monotherapy in patients with CAP, however, levofloxacin combination therapy with anti-pseudomonal beta-lactam (or aminoglycoside) should be considered if *Pseudomonas aeruginosa* is the causative pathogen of the respiratory infection.

Furthermore, levofloxacin is generally well tolerated, has good tissue penetration and adequate concentrations can be maintained at the site of infections.

Levofloxacin IV safe, effective in hospitalised patients - A study

In 2006, Polish authors Karwat KJ and others published a study to determine the efficacy and safety of levofloxacin in the treatment of CAP in outpatients with ineffective antibiotic management, requiring hospitalisation.

The examined group included 25 patients (11 male, 14 female) of mean age 70+/-17.5 years with abnormalities in x-ray on admission to hospital. Risk factors for pneumonia and previous antibacterial therapy were analysed.

In the hospital they were treated for seven days with levofloxacin 500mg twice a day administred intravenously. Body temperature, blood cell count, ESR, CRP, AST, ALT, LDH, CPK, creatine, urea, potassium, sodium, ABG, and ECG were measured on admission and in the third and seventh day of therapy. Chest x-rays were performed and analysed on hospital discharge.

Eighteen patients were aged >65yrs, cardiovascular diseases co-existed in 14, COPD in nine, smoking habit in twelve, renal failure in three, diabetes in three and alcohol addiction in one cases. On admission four patients had respiratory failure, and ten hypoxaemia.

During therapy a decrease of body temperature ($p<0,001$), concentration of CRP ($p<0,004$) and LDH ($p<0,03$), CPK ($p<0,04$) and increase of PaO2 ($p<0,012$) were observed. The changes of other parameters were not statistically significant. Researchers did not observe any changes in ECG.

On discharge from the hospital in 16 patients complete regression and in six patients partial regression of lesions in chest x-ray examination were observed.

Levofloxacin effective and safe in patients where previous therapy failed

In three patients levofloxacin therapy was non-effective: in two because of persistent high body temperature after three days of treatment and in one patients because of recurrent of fever.

Adverse events were mild. Transient exacerbation of renal failure was observed in three patients.

The authors concluded that 2x500mg levofloxacine given intravenously for seven days is effective and safe in treatment of CAP in patients with previously ineffective antibacterial therapy.

High penetration, 100% bioavailable

In an interview with a US online journal, Dr Charles Fogarty, Medical Director; Respiratory Therapy, Spartanburg Regional Medical Center, South Carolina, said: Levofloxacin, which is the active *l*-isomer of ofloxacin, is twice as potent as its parent compound. Levofloxacin is 100% bioavailable and rapidly penetrates into tissues, where it achieves high levels. In fact the plasma levels themselves are bactericidal for the vast majority of community-acquired pathogens, specifically *Streptococcus pneumoniae*.

Other very favourable pharmacokinetic effects include an 80%-85% renal excretion with virtually no metabolites, a plasma half-life of six to seven hours and a two to three hour post antibiotic effect (Table 1).

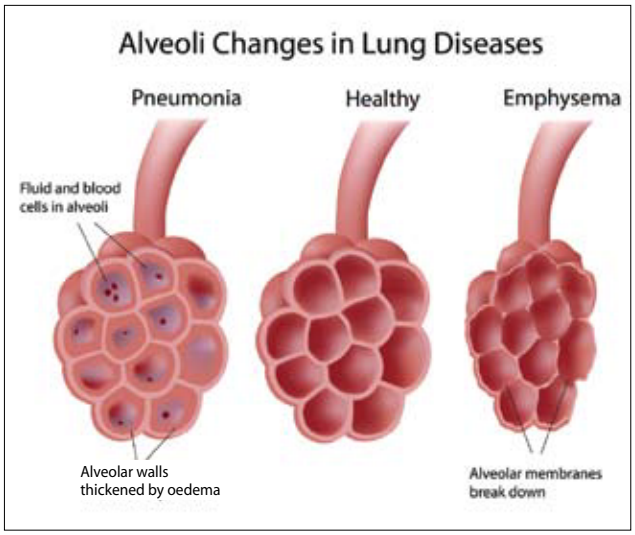


Figure 1

Table 1

Characteristics of levofloxacine

Metabolism	Minimal (<5%)
Excretion	Renal
Distribution	Widely distributed
	High tissue penetration
	Low plasma binding
Dose proportionality	Linear
Bioavailability	Rapid absorption
	Food effects rate not extent
	100% bioavailable

Dr Fogarty continued: *S. pneumoniae* accounts for 20% of the CAP pathogens in most studies. There is another 30% which is unspecified and probably half of that is *S. pneumoniae*. *Haemophilus* and *Moraxella* are also important pathogens. Levofloxacin has minimum inhibitory concentration values of 1.9 for *S. pneumoniae*, 0.2 for *Haemophilus influenzae*, and 0.09 for *Moraxella catarrhalis*.

Levofloxacin has a very broad spectrum of activity, excellent bioavailability, low toxicity, minimal risk of drug-drug interactions and very importantly, fewer problems with resistance. The frequency of one step mutations to resistant organisms appears to be lower with levofloxacin than for other fluoroquinolones. Like the quinolones in general, levofloxacin inhibits DNA gyrase but unlike many of the other quinolones, levofloxacin uses two separate mechanisms to avoid the development of resistance.

Another important levofloxacin advantage, is no interaction with drugs such as theophylline (in contrast to other fluoroquinolones, particularly ciprofloxacin). Levofloxacin has a very low side effect profile and although phototoxicity is a theoretical concern, it is definitely less of a problem than with other quinolones such as lomefloxacin and sparfloxacin.

Levofloxacin superior in hospitalised CAP patients: study

In 2002 Dr Pierre Veyssier of Compiègne Central Hospital; Compiègne, France, looked specifically at the treatment of severe infections in patients with risk factors for complications.

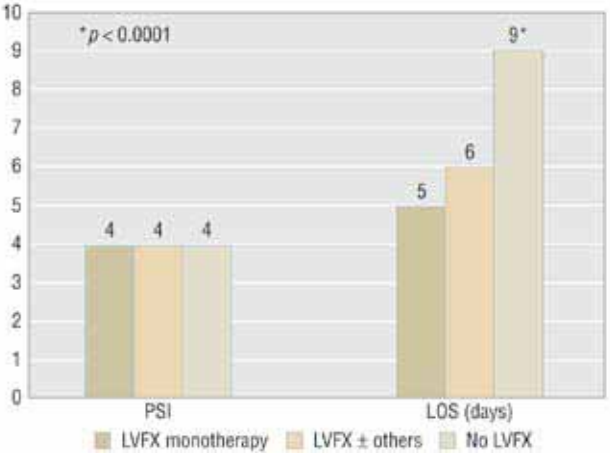
Dr Veyssier used guidelines from the Infectious Diseases Society of America (IDSA), to stratify patients into five risk groups based upon the Pneumonia Severity Scoring Index (PSSI) which was associated with changes in mortality, with classes III–V requiring hospitalisation.

Dr Veyssier reported results from an important study by Kahn et al. which investigated evofloxacin 500mg IV once daily versus ceftriaxone 1g-2g IV every 24 hours plus erythromycin 500mg-1000mg IV every 6 hours in CAP patients at high risk of mortality. Stringent criteria to identify the patients were used.

Levofloxacin was chosen due to earlier reports showing its efficacy in high risk patients. In addition, levofloxacin has maintained its efficacy despite being widely used for other infections, with the mean MICs of levofloxacin against both penicillin-susceptible and penicillin-resistant pneumonia not changing significantly and maintaining an excellent MIC ratio even against *S. pneumoniae* resistant to other fluoroquinolones.

Figure 2

Shorter hospital stay with levofloxacin empiric therapy



Abbreviations: PSI = Pneumonia severity-of-illness index class, LOS = length of hospital stay, LVFX monotherapy = levofloxacin monotherapy, LVFX ± others = levofloxacin plus or minus other antibiotics, such as a second-generation cephalosporin alone or a second-generation cephalosporin in combination with a macrolide, No LVXF = empiric antibiotic regimen not including levofloxacin, such as a second generation cephalosporin alone or a second-generation cephalosporin in combination with a macrolide.

In this trial 132 patients received levofloxacin and 137 were randomised to the comparator arm.

The clinical success rate for levofloxacin was 89.5% and only 83.1% for the comparator regimen. Levofloxacin was well tolerated with a 2.3% discontinuation compared to 8.8% for the comparators.

Chlamydia and *Legionella* too

In addition, the role of levofloxacin in managing atypical pathogens was emphasised by Dr Veyssier as regards agents needing to cover *Chlamydia* and *Legionella spp*.

A randomised trial of patients with severe CAP investigated a subgroup of patients with *Chlamydia pneumoniae* (9.4% of study population) - 83% of these patients were successfully treated with levofloxacin compared to only 67% in the comparator regimen (ceftriaxone plus erythromycin switching to clarithromycin plus amoxicillin/clavulanate).

This study also looked at a subgroup of *Legionella spp*. infected patients and demonstrated a greater than 90% clinical and microbiological success rate with levofloxacin. Results were also reported from assessing levofloxacin in immunocompromised patients with CAP.

Lower mortality; shorter hospital stay

A retrospective analysis showed that the patients with CAP treated with a fluoroquinolone demonstrated a lower mortality (7% vs 17%, p <0.05) and a shorter median length of stay in hospital (Figure 2).

In addition monotherapy with a fluoroquinolone was also associated with lower mortality rates and shortened hospital stay.

RELEASE THE STRANGLE HOLD OF ASTHMATIC ATTACKS WITH THE 4-WAY SOLUTION!

4 the relief of reversible airways obstruction from Adcock Ingram Critical Care

Adco-Fenoterol

FENOTEROL HYDROBROMIDE

When they need to
Breathe easy in asthma

Fenoterol acts to relax bronchial smooth muscle

- Indicated for:
  - Prophylaxis of exercise-induced asthma
  - Symptomatic treatment of acute asthmatic episodes of bronchospasm in COPD
- Can be administered using a range of commercially available nebulising devices

Adco-Nebrafen

NEBRAFEN
When they need to
Breathe even easier in asthma

- Duration of action is about 6 hours
- Combination of fenoterol hydrobromide 1,25 mg (selective β2-agonist) + ipratropium bromide 0,5 mg (anticholinergic)
- Treatment of reversible airways obstruction e.g. bronchial asthma and emphysema
- Isotonic and preservative free and is ready for use. No dilution needed

Adco-Ipratropium

IPRATROPIUM BROMIDE

When they need **Room to breathe in COPD**

- Maintenance treatment of bronchospasm associated with chronic obstructive pulmonary disease
- Anticholinergic properties - well tolerated and does not affect mucocilliary clearance
- Onset of effect from 5 – 15 minutes, however, long lasting effect for up to 6 – 8 hours in some patients
- Adco-Ipratropium can be used concomitantly with other medications such as sympathomimetic bronchodilators

Adco-Combineb

COMBINEB
When they need
More room to breathe in COPD

- Indicated for reversible bronchospasm associated with obstructive pulmonary disease
- Combining the benefits of ipratropium with salbutamol, a β2 selective agonist relaxing bronchial smooth muscle
- Salbutamol acts rapidly (within minutes). Action persists for 3-4 hours
- Activates pulmonary β2-receptors to relax bronchial smooth muscle and decrease airway resistance

S3 ADCO-FENOTEROL 0,5 mg/2 ml. Reg. No. 33/10.2.1/0194. Each 2 ml solution contains 0,5 mg fenoterol hydrobromide. S3 ADCO-FENOTEROL 1,25 mg/2 ml. Reg. No. 33/ 10.2.1/ 0195. Each 2 ml solution contains 1,25 mg fenoterol hydrobromide. S3 ADCO-NEBRAFEN. Reg. No. 35/10.2.1/0004. Each 4 ml ampoule contains fenoterol hydrobromide 1,25 mg and ipratropium bromide 0,5 mg. S2 ADCO-IPRATROPIUM 0,25 mg/2 ml. Reg. No. 33/10.2.1/0270. Each 2 ml solution contains 0,25 mg ipratropium bromide. S2 ADCO-IPRATROPIUM 0,5 mg/2 ml. Reg. No. 33/10.2.1/0271. Each 2 ml solution contains 0,5 mg ipratropium bromide. S3 ADCO-COMBINEB. Reg. No. A39/10.2.1/0373. Each 2,5 ml contains ipratropium bromide equivalent to 0,50 mg ipratropium bromide anhydrous and salbutamol sulphate equivalent to 2,50 mg salbutamol base.

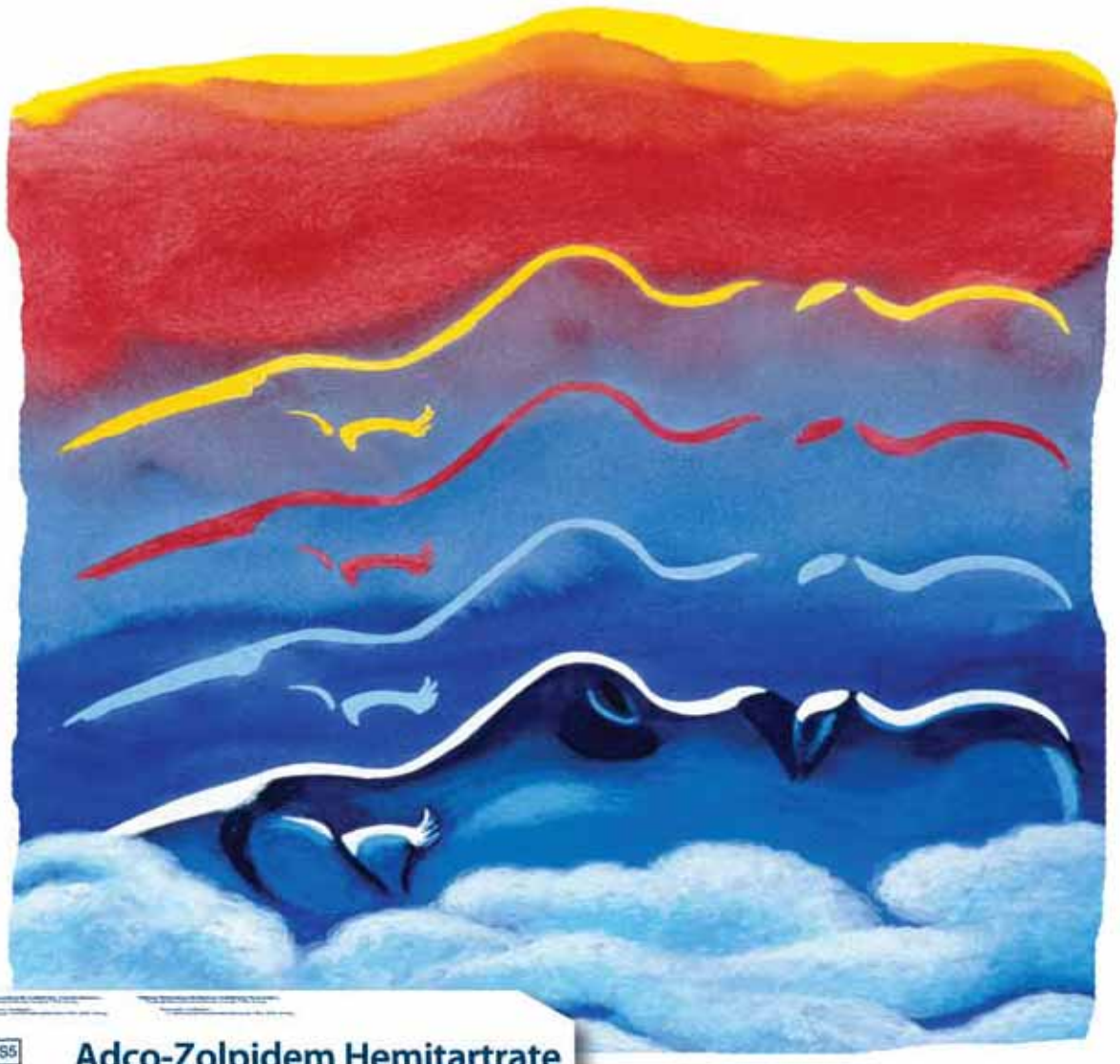
Applicant: Adcock Ingram Limited. For full prescribing information please refer to the package insert approved by the regulatory authorities. ZA.11.RES.016 05/2011

Marketed and distributed by
Adcock Ingram Critical Care (Pty) Ltd. Reg. No. 2000/004208/07.
1 Sabax Road, Aeroton, Johannesburg.
P.O. Box 6888, Johannesburg, 2000. South Africa.
Tel. +27 11 494-8000 Fax. +27 11 494-8757.

www.adcock.com

adcock ingram

Whatever pattern...
...your patient's sleep is in, we have an affordable treatment



Adco-Zolpidem Hemitartrate 10 mg x 30

Level 3
BBBEE
contributor
SANAS ACCREDITED

S5 **Adco-Zolpidem Hemitartrate.** Each tablet contains 10 mg zolpidem hemitartrate. Reg. No.: 36/2.2/0132.

ZA.12.CNS.003 03/2012 For full prescribing information refer to the package insert approved by the medicines regulatory authority. Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel: +27 11 635 0000. www.adcock.com

adcock ingram generics

A Guide to Skin Conditions in Older People

The dermatoses associated with ageing can, at times, be severely debilitating. It is important to be aware of the more common presentations so that early intervention can begin.

Ageing is accompanied by changes in all organs, including the skin. This naturally occurring atrophy and fragility of the skin is accelerated by chronic environmental insults, such as ultraviolet (UV) irradiation. An Australian survey conducted in nursing homes for the elderly found that more than half the patients (54.4%) had at least one skin disease, the most common problems being xerosis (29.5%), onychomycosis (22.5%), dermatitis (8.9%) and skin cancer (4.9%).[2] This article describes the more common skin conditions that occur in an ageing population and provides advice regarding management.

Skin ageing

Ageing of the skin occurs via two major pathways: intrinsic ageing and photoageing. Intrinsic ageing is an inevitable change over the passage of time, whereas photoageing is the result of chronic sun exposure and is superimposed on intrinsic ageing.

Intrinsic skin ageing

Major age-related changes in the skin's appearance include dryness, wrinkling, laxity and a variety of benign neoplasms. Aged skin is relatively inelastic and has a slower recovery time after injury. Examples of the functions of human skin that decline with age include barrier function, cell replacement, DNA repair, epidermal hydration, mechanical protection and wound healing.[3]

There are several theories about the mechanism of intrinsic skin ageing. One is that intrinsic skin ageing is secondary to cumulative damage to biomolecules by free radicals, which results in increased cellular weakness and eventually senescence or apoptosis of skin cells.[5]

Photoageing

Photoageing is related to the effects of chronic UV-induced damage, and is superimposed on intrinsic ageing. It accounts for most age-associated changes in skin appearance.[6] Features of photoaged skin include dryness, (senile) purpura, telangiectasia, solar keratoses, wrinkling, coarseness and irregular pigmentation (lentigines).

Senile xerosis and asteatotic dermatitis

Xerosis is a dry, rough quality of the skin that is present in most elderly patients (Figure 1). Although water loss is not increased in aged skin, the water content of the epidermis, particularly the stratum corneum, appears to be reduced.[6] There is no explanation for the pruritus that often accompanies xerosis. Hypotheses include frequent penetration of irritants through an abnormal stratum corneum and an altered sensory threshold due to subtle neuropathy.[7]

Asteatotic eczema/dermatitis is superimposed on dry skin and is frequently found in the elderly, especially during winter. It is often caused by low humidity in a heated environment and presents as dry, fissured skin with fine scale, mostly over the lower legs. This condition may be extremely itchy. It usually responds to the liberal application of moisturisers, which create an inert barrier over the skin surface, trapping moisture underneath, and/or to medium potency topical corticosteroids (ointments

Key points

- Skin ageing occurs via two pathways: intrinsic ageing and photoageing.
- The skin conditions most commonly seen in the elderly are xerosis, onychomycosis, dermatitis and skin cancer.
- Regular skin checks are recommended in elderly patients who have had excessive cumulative sun exposure, whether or not they have a history of skin cancer.
- Scabies spreads rapidly within nursing homes. However, it is relatively underdiagnosed because the lesions may be atypical. Burrows should be looked for in the web spaces between fingers, in the creases of the wrists and elbows, and on the palms and soles.
- Adverse drug reactions are common in older patients, and are due in part to polypharmacy and comorbidities. Prompt identification and withdrawal of the drug can limit toxic effects.

About the authors

Shreya Dixit *BMedSci, MB BS(Hons) is a Dermatology Research Fellow, and Associate*
Prof Stephen Shumack *MB BS, FACD is a Dermatology Visiting Medical Officer at the Royal North Shore Hospital, Sydney, Australia.*

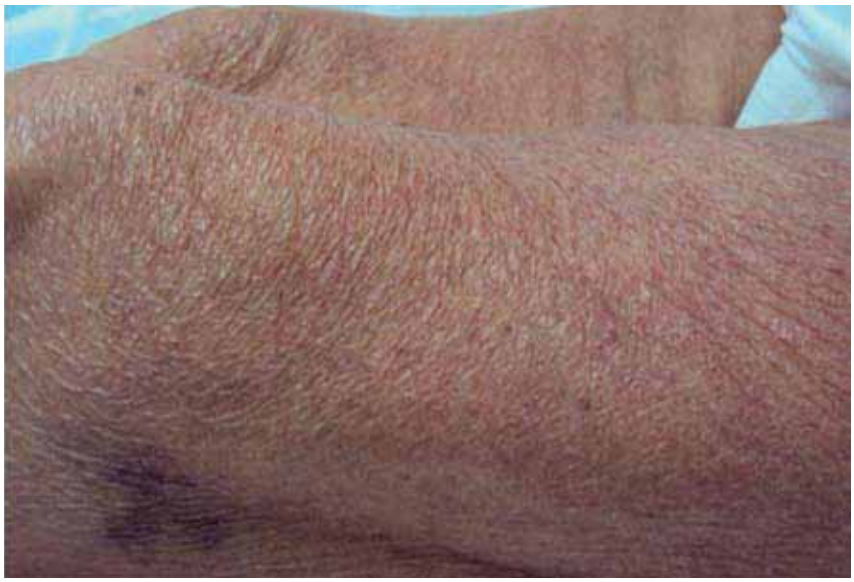


Figure 1: Xerotic skin on the legs of an elderly patient.

or creams) to settle inflammation.[8] Weak topical corticosteroid ointments may be used for application to face or flexures. Conservative measures, such as reducing the frequency and duration of showering or bathing, and lowering water temperature, will also help.

Pruritus

Pruritus is thought to be the most common skin-related complaint of the elderly. In most cases, xerosis is the only cause. Pruritus is often exacerbated by low humidity, frequent bathing or application of irritants to the skin; however, in as many as half of patients, pruritus may have other aetiologies, including metabolic or endocrine disorders such as diabetes mellitus, renal failure, thyroid disease and liver disease. Pruritus can also be a manifestation of a malignant neoplasm, such as lymphoma or leukaemia, or the result of a haematological disease such as polycythaemia rubra vera. Adverse drug reactions can manifest predominantly or exclusively as pruritus, and thus should always be excluded in older patients.[7]

In some cases, the diagnosis is apparent from the history and/or physical examination. When the diagnosis is not apparent, laboratory studies may be indicated. The appropriate initial laboratory investigations for generalised pruritus are:[9]

- Full blood count with differential
- Electrolytes, urea, creatinine
- Liver function tests
- Hepatitis C antibodies
- Thyroid-stimulating hormone
- Chest x-ray.

Identification and treatment of the causes of pruritus usually help to resolve the condition. In those individuals with no obvious cause treatment can be difficult and often unsatisfactory. The use of emollients, soothing preparations such as menthol in calamine, and topical corticosteroids may be helpful, as may ultraviolet B phototherapy. However, most patients with intolerable pruritus are unable to manage topical therapy themselves, and it is often necessary to resort to mildly sedating systemic drugs such as phenothiazine-type antihistamines (promethazine, trimeprazine). There is anecdotal evidence that low dose oral corticosteroids may be effective in the treatment of some patients with pruritus, but this should be considered a last resort as prolonged treatment may be needed.[10]

Skin cancers

The age-specific incidence of skin cancer, including melanoma, increases exponentially with age.[11] This is presumably due in part to cumulative exposure to carcinogens over a lifetime causing cell damage and the associated risk of mutation when these damaged cells divide.

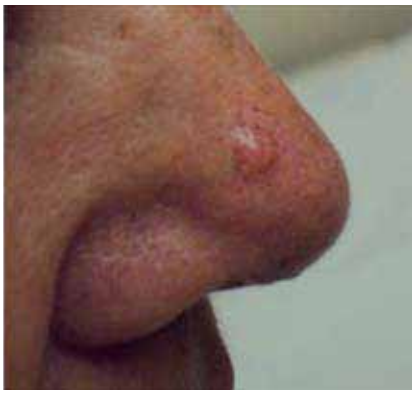


Figure 2: Nodular basal cell carcinoma on the right nasal bridge.

Basal cell carcinoma

Basal cell carcinoma (BCC) is a skin cancer commonly found in all age groups, including the elderly. They are slow-growing, locally invasive skin tumours that have a diverse range of clinical appearances and morphology. Examples include nodular, cystic, superficial, morphoeic and pigmented variants, with a higher risk of recurrence associated with infiltrative, micronodular, morphoeic and giant tumour subtypes (Figure 2). Although metastasis is very rare, morbidity results from local tissue invasion and destruction.

Diagnostic accuracy is increased with good lighting and magnification, and a dermatoscope may be helpful in some cases, especially with pigmented BCC. Surgical excision is an effective treatment for primary BCC, with a recurrence rate of less than 2% in the five years following complete excision. In difficult areas (eg, central face, around the eyes, nose, lips and ears) or with large or recurrent lesions, referral for more extensive surgery may often be indicated. In appropriate cases (low-risk small nodular and superficial BCCs), curettage and cautery and/or cryotherapy can be good treatment options. Topical therapy with imiquimod or photodynamic therapy can also be considered in the treatment of superficial BCCs.[13]

Solar keratosis and squamous cell carcinoma

UV irradiation is the major aetiological factor for skin cancer. Habitual sun exposure in fair-skinned individuals induces both solar keratosis (SK) and squamous cell carcinoma (SCC).

Solar keratoses are hyperkeratotic lesions and the majority of these occur in fair-skinned people who have had excessive exposure to solar UV radiation. There is a low risk of SK transforming into SCC (around 0.1%); however, the presence of SK is an important biomarker of excessive UV exposure and non-melanoma skin cancer (NMSC) risk.[14] If lesions are symptomatic, or there is concern regarding the risk of malignant transformation (large size, multiple lesions, tenderness), treatment may be required. Treatment options for SK include cryotherapy, curettage and cautery, shave biopsy and topical preparations such as 5-fluorouracil, imiquimod and diclofenac gel.[3]

The aim of therapy for confirmed cutaneous SCC is complete removal to prevent recurrence, extension or metastasis. The favoured method of removal is excision with a 3mm to 4mm clinical margin. This can be difficult, depending on the location of the tumour, and referral to a dermatologic or plastic surgeon may be required.

Melanoma

The elderly, especially men, present with melanomas that are thicker than those of young adults, probably due in part to delayed diagnosis because of failure to examine their skin properly, poor vision and other medical problems, and the fact that these melanomas often occur on a background of multiple benign skin lesions. This delayed diagnosis is the reason that men over 50 have an increased mortality risk from melanoma compared with women or younger men.[15]

Melanomas are described according to their appearance and behaviour. Those that start off as flat patches (ie, have a horizontal growth phase) include:

- Superficial spreading melanoma
- Lentigo maligna melanoma
- Acral lentiginous melanoma (on soles of feet, palms of hands or under nails).

These superficial forms of melanoma tend to grow slowly but, at any time, may progress to a more rapid vertical growth phase.

Melanomas that quickly involve deeper tissues include:

- Nodular melanoma (presenting as a rapidly enlarging lump)
- Mucosal melanoma (arising on lips, eyelids, vulva, penis, anus)
- Neurotropic and desmoplastic melanoma (fibrous tumour with a tendency to infiltrate nerves).

Lentigo maligna (Hutchinson's melanotic freckle) is an early form of melanoma (melanoma in situ) in which the malignant cells are confined to the tissue of origin, the epidermis of sun-damaged skin. Lentigo maligna melanoma is diagnosed when the malignant melanoma cells have invaded the dermis and deeper layers of the skin. Although all types of melanoma have increased age-specific incidences, lentigo maligna melanoma overwhelmingly develops in people aged over 60, in areas of habitually sun-exposed skin.

Patient education is imperative when it comes to skin cancer, and older patients should be advised to cover up with a hat and protective clothing, as well as wear an SPF30+ sunblock. Patients who have a history of excessive sun exposure, with or without a past history of melanoma or non-melanoma skin cancer, may benefit from having regular skin checks. Taking baseline photographs helps in monitoring any suspicious lesions.

The American Cancer Society's 'ABCDE criteria' provide a useful clinical prediction rule for malignant melanoma with a sensitivity and specificity of 93% and 37%, respectively. The test is considered positive if a lesion exhibits one or more of the five criteria:[16]

- Asymmetry – one half of the lesion is not identical to the other
- Border irregularity – lesion has an uneven or ragged border
- Colour variegation – lesion has more than one colour (ie, black, blue, pink, red or white)
- Diameter – lesion has a diameter greater than 6mm
- Elevation or Enlargement – elevation of lesion above skin surface or enlargement, by patient report.

Another potentially useful diagnostic test is the revised seven-point checklist developed in the United Kingdom. This, too, has a high sensitivity (90%) and low specificity (34%).[16,17] In this test, melanoma should be suspected if there are one or more of the major signs:

- Change in size
- Change in shape
- Change in colour.

In this test too the presence of three or four minor signs without a major sign can also indicate a need to biopsy suspicious lesions:

- Inflammation
- Crusting or bleeding
- Sensory change
- Diameter (7mm or more).

Suspected melanomas should be surgically excised with a narrow margin. If the initial excision is positive then a wider excision (10mm) is usually undertaken. Again, referral to a plastic or dermatologic surgeon may be required. If the melanoma is thicker than 1mm, sentinel node biopsy may be recommended to assist in staging, however, it does not offer any survival advantage.

Infectious processes

Bacterial infections

The elderly are often predisposed to cellulitis and erysipelas because of dry skin, oedema, diabetes and poor circulation. Gram-positive bacteria cause most cases (group A streptococci for both and also *Staphylococcus aureus* for cellulitis).

Cellulitis should be clinically distinguished from erysipelas, to guide antibiotic choice. Erysipelas involves the dermis, occurs mainly on the legs and tends to be sharply demarcated, as opposed to cellulitis, which involves the skin and subcutaneous fat and is less well demarcated.[18]

Areas of cellulitis and erysipelas need to be swabbed for culture and treated aggressively with appropriate antibiotics in elderly patients as their comorbidities can increase the already high risk of complications associated with these conditions. These complications include septicaemia, thrombophlebitis, septic arthritis, osteomyelitis and endocarditis.

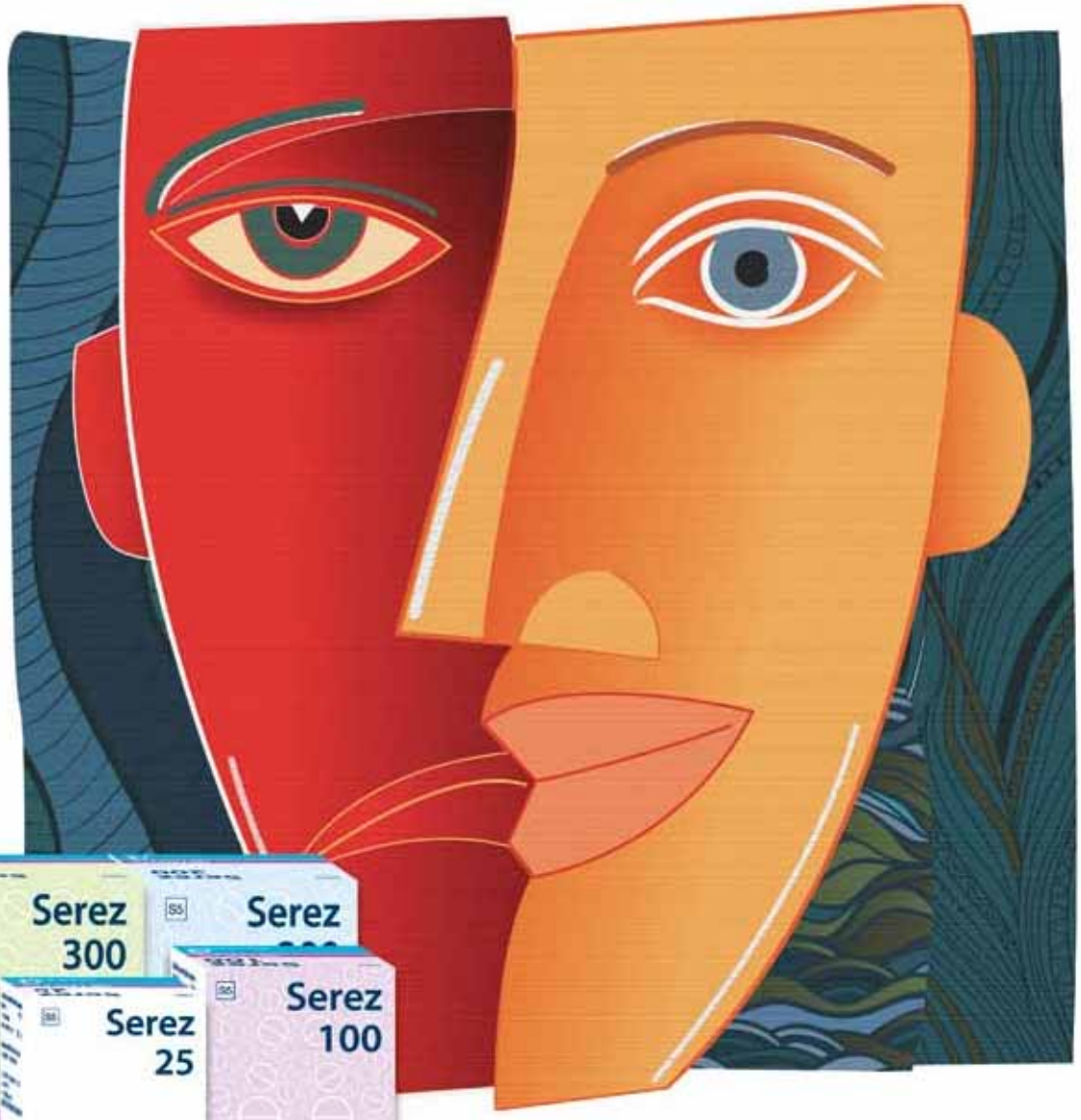
Methicillin-resistant *S. aureus* (MRSA) has become an increasingly important pathogen in hospital and community acquired infections, and age over 80 years is significantly associated with MRSA carriage.[19]

Parasitic infections (including scabies)

Scabies, a skin infestation with the mite *Sarcoptes scabiei*, can occur in people of any age. However, nursing homes provide a fertile ground for rapid spread

Whatever shape...

...your patient's head is in, we have an affordable treatment that fits



Serez 25 mg (Quetiapine 25 mg) x 100
Serez 100 mg (Quetiapine 100 mg) x 100
Serez 200 mg (Quetiapine 200 mg) x 100
Serez 300 mg (Quetiapine 300 mg) x 100

Level 3 BBBEE contributor
SANAS ACCREDITED

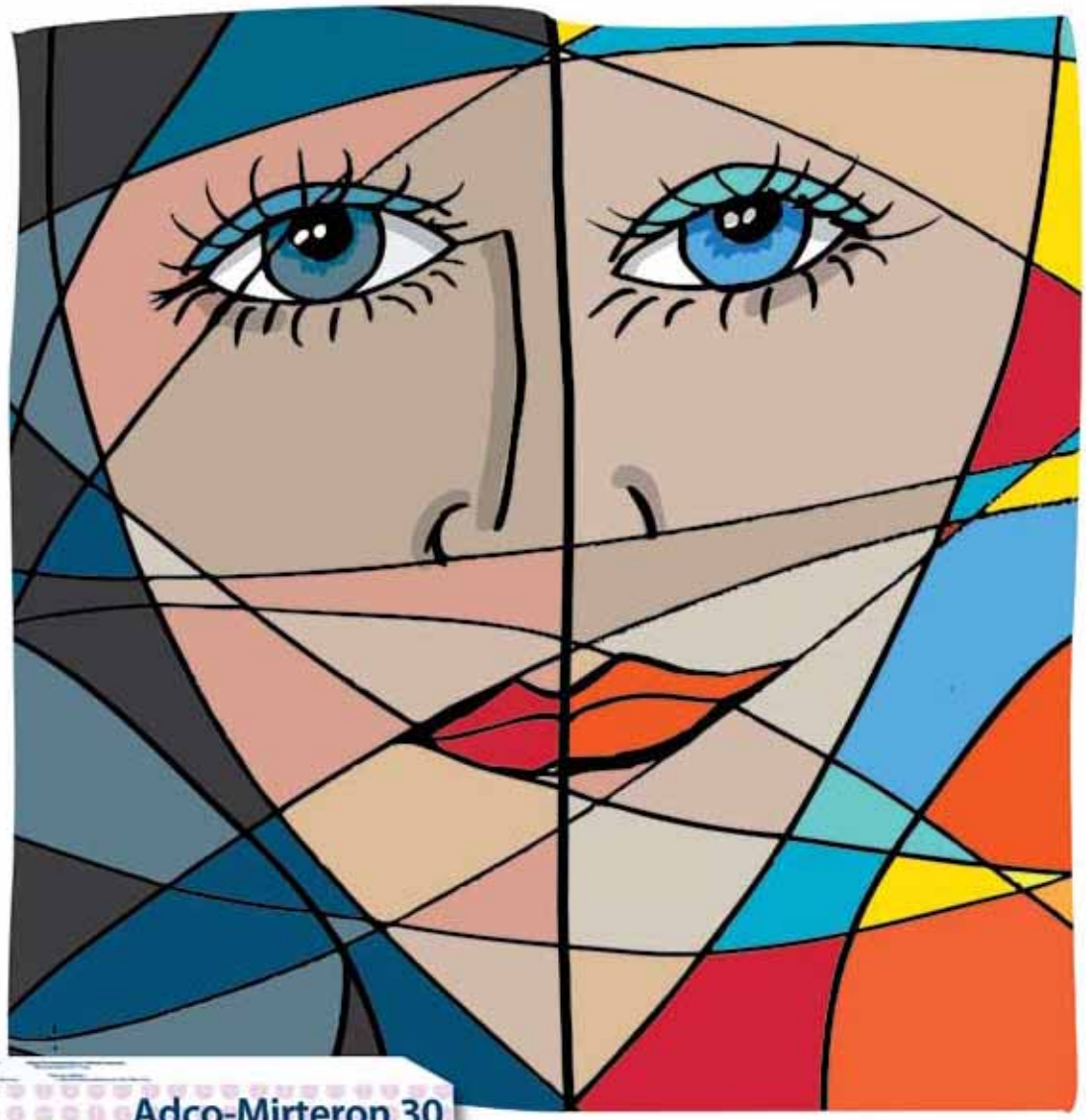
S5 **Serez 25, 100, 200, 300 Tablets.** Each film-coated tablet contains 25, 100, 200, 300 mg quetiapine respectively. Reg. No. 43/2.6.5/0796, 43/2.6.5/0797, 43/2.6.5/0798, 43/2.6.5/0799.

ZA.12.CNS.001 03/2012

For full prescribing information refer to the package insert approved by the medicines regulatory authority. Marketed by Adcock Ingram Healthcare (Pty) Ltd. Reg. No. 2007/019928/07. Private Bag X69, Bryanston, 2021. Tel. +27 11 635 0000. www.adcock.com. Applicant: Lasara Traders (Pty) Ltd.

adcock ingram generics

Put the pieces back together...
...with an affordable quality treatment



Adco-Mirteron 15 mg x 30
Adco-Mirteron 30 mg x 30

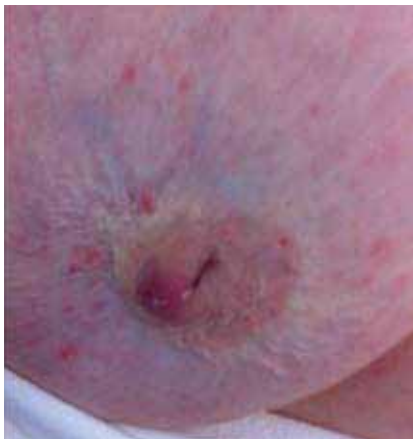
Level 3 BBBEE contributor
SANAS ACCREDITED

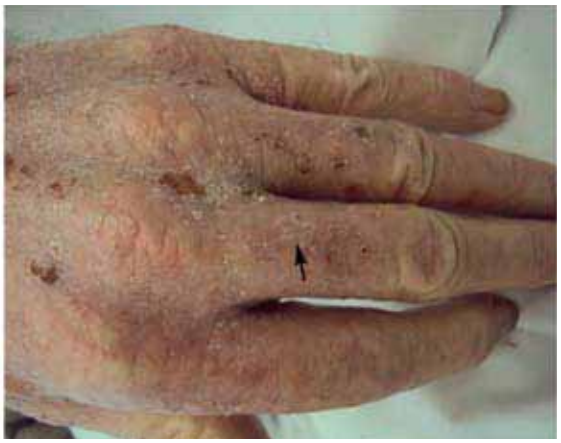
Adco-Mirteron® 15. Each film-coated tablet contains mirtazapine 15 mg. Reg. No. 39/1.2/0217 **Adco-Mirteron® 30.** Each film-coated tablet contains mirtazapine 30 mg. Reg. No. 39/1.2/0218

ZA.12.CNS.005 06/2012

For full prescribing information refer to the package insert approved by the medicines regulatory authority.
Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel. +27 11 635 0000 www.adcock.com

adcock ingram generics





Figures 3a and b. Scabies. a (far left) Scaetic nodule on the right nipple of a nursing home patient. b (left) Crusted (Norwegian) scabies. Note the burrow on the middle finger (arrow).

of the infestation. In the elderly, partly because of their decreased immunity, lesions may be atypical and, for this reason, scabies is relatively underdiagnosed. In addition, older people often have xerosis, and their pruritus at times may be attributed to this aetiology.

Scabies mites burrow into the skin, where they live and reproduce. Eggs laid in the burrows hatch, and the larvae crawl out onto the skin, make new burrows and mature into adult mites. The skin infestation commonly involves the genital areas, buttocks, lower abdomen, wrists, forearms and webs between the fingers. Burrows can be difficult to see but are most often seen on the webs between the fingers, around the waist, in the creases of the wrists and elbows, and on the palms and soles of the feet.[20] The itchy rash on the limbs and trunk is due to an allergy to the mites and their products. Itchy nodules are often seen on the penis in men, on the nipples in women and around major flexures in children (Figure 3a).[21] Diagnosis may be confirmed by microscopy of a skin scraping.

The topical treatment of choice for scabies is permethrin 5% cream, which should be applied topically to dry skin from the neck down, paying particular attention to the hands and genitalia, and under the nails (using a nailbrush). The cream should be left on the skin for a minimum of eight hours (usually overnight) and reapplied to hands if they are washed. The time may be increased to 24 hours if there has been a treatment failure. There is a better success rate if permethrin is used on two occasions, one week apart. Benzyl benzoate and crotamiton are other treatments used.

Crusted (Norwegian) scabies is a very contagious but less itchy form of scabies in which the mite population on the patient is very high due to poor host response (Figure 3b). It is often confused with eczema. The patient should be quarantined and bedding, clothes and towels should be laundered. If the patient lives in a nursing home, all patients, medical and nursing staff and their families should be treated; if staff from the affected ward have worked elsewhere then that area too should be treated.

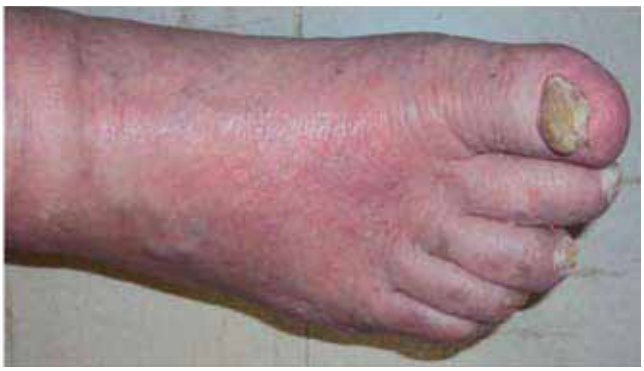


Figure 4: Onychomycosis

Dermatophyte and yeast infections

Onychomycosis (tinea unguium) is present in approximately 35% of people over the age of 60, and tinea pedis is also present in approximately 25% of this patient population (Figure 4).[22] Onchomycosis is most commonly caused by the dermatophytes *Trichophyton rubrum* and *Trichophyton mentagrophytes* var. *interdigitale*. Although tinea pedis (most commonly caused by *T. rubrum, T. mentagrophytes* and *Epidermophyton floccosum*) will usually have been present for decades, it may worsen with age. In elderly people with diabetes, interdigital tinea pedis may ulcerate and predispose to bacterial cellulitis. Culture-proven dermatophyte infection of the nails may not respond as well to oral terbinafine in the elderly as it does in younger patients.

Cutaneous infections due to *Candida albicans* are also common in the elderly, especially those with diabetes and other forms of immunosuppression. Intertrigo is a mechanical, frictional problem in the flexures, with frequent secondary infection by *Candida*. Inflammation should be treated with topical corticosteroids, and the use of moisture-absorbing powders can reduce maceration. The *Candida* component should be treated with topical azoles or nystatin.

Viral infections

Viral infections of note in the elderly include herpes zoster, which is the most common, and also herpes simplex and molluscum contagiosum. Elderly immune-compromised patients are

most at risk of such infections.

Herpes zoster (shingles), a reactivation of the chickenpox or varicella–zoster virus, is primarily seen in older patients, with an incidence of approximately 1500 cases per 100 000 persons annually at age 75.[23] The initial symptom is pain and burning, which is followed by the appearance of grouped vesicles on an erythematous base and in a dermatomal distribution (Figure 5). Herpes zoster can be complicated by eye involvement, which can result in

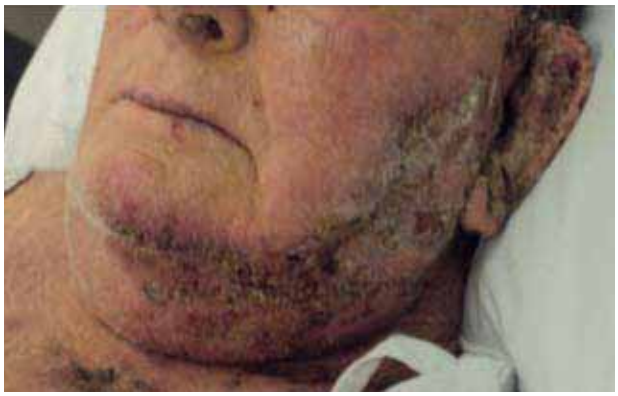


Figure 5. Herpes zoster involving the left mandibular branch of the facial nerve, with dissemination.

Medications associated with drug-induced skin reactions*[27]

Common causes of exanthematous reactions
- Allopurinol
- Antimicrobials
- Barbiturates
- Captopril
- Carbamazepine
- Frusemide
- Lithium
- Phenytoin
- Thiazides

Common causes of fixed drug eruptions
- ACE inhibitors
- Allopurinol
- Antimicrobials
- Barbiturates
- Benzodiazepines
- Calcium channel blockers
- Carbamazepine
- Diltiazem
- Fluconazole
- NSAIDs, including aspirin
- Paracetamol

Drugs often associated with photosensitivity reactions
- Amiodarone
- NSAIDs
- Phenothiazines
- Retinoids
- Sulfonamides
- Tetracyclines
- Thiazines

Possible causes of cutaneous vasculitic reactions
- Allopurinol
- Aspirin
- Beta-lactam antibiotics
- Carbamazepine
- Carbimazole
- Diltiazem
- Erythromycin
- Frusemide
- Hydralazine
- Interferons
- Methotrexate
- Minocycline
- NSAIDs
- Retinoids
- Sulfamethoxazole–trimethoprim
- Sulfasalazine
- Sulfonamides
- Thiazides
- Thrombolytic agents

Possible causes of erythema multiforme or Stevens–Johnson syndrome
- Barbiturates
- Beta-lactam antibiotics
- Carbamazepine
- Chlorpropamide
- Gold
- Histamine H2-antagonists
- Lamotrigine
- Leflunomide
- Macrolides
- Mefloquine
- NSAIDs
- Phenothiazines
- Phenytoin
- Rifampicin
- Sulfamethoxazole–trimethoprim
- Sulfonamides
- Tetracyclines
- Thiazides

Possible causes of toxic epidermal necrolysis
- Allopurinol
- Antituberculous drugs
- Barbiturates
- Carbamazepine
- Gold
- Griseofulvin
- Lamotrigine
- Leflunomide
- Nitrofurantoin
- NSAIDs
- Penicillins
- Phenytoin
- Salicylates
- Sulfonamides
- Tetracyclines

*Not a comprehensive list.

Adapted from: Lee A, Thomson J. Drug-induced skin reactions. In: Lee A, editor. Adverse drug reactions, 2nd ed. London: Pharmaceutical Press; 2006. p. 125-156.[27]

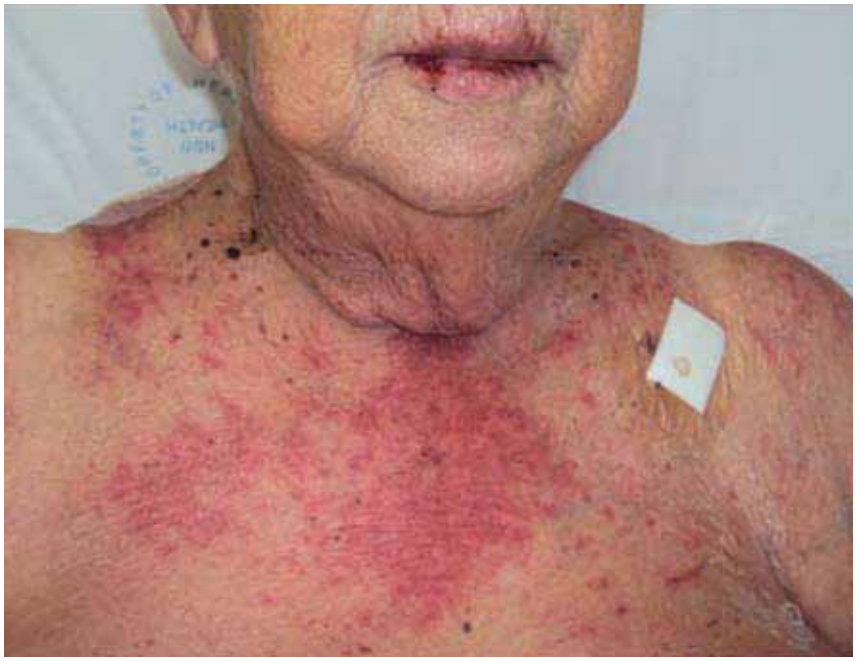


Figure 6: Cutaneous drug eruption with mucosal involvement.

serious conjunctivitis, iritis or uveitis. Post-herpetic neuralgia is often debilitating in the elderly.

Systemic therapy with oral famciclovir, valaciclovir or acyclovir can shorten the course of herpes zoster and potentially prevent post-herpetic neuralgia. This treatment is particularly effective if administered within 72 hours of the onset of vesicles. Amitriptyline and pregabalin are commonly used for the treatment of post-herpetic neuralgia.[21]

Herpes zoster can be effectively prevented with appropriate vaccination of individuals over the age of 60. The Shingles Prevention Study demonstrated vaccine efficiency in trial participants with a significant reduction in the incidence of herpes zoster, post-herpetic neuralgia and the burden of illness associated with the infection.[24] Overall, compared with placebo, vaccination reduced the incidence of herpes zoster by 51.3% and the incidence of post-herpetic neuralgia by 66.5% over a median of more than three years of follow up.

Ulcers

Chronic ulcers of all aetiologies are more common in the elderly than in younger people, most likely because of a combination of impaired wound healing and higher prevalence of underlying diseases. The most common are leg ulcers, usually in the setting of chronic venous insufficiency leading to venous hypertension. Treatment of ulcers depends on the cause, as indicated:

- Venous ulcers are caused by venous reflux through valves, obstruction of veins and/or impaired calf-pumping action. They are usually relatively painless and associated with aching, swollen lower legs that feel more comfortable when elevated. Treatment of these ulcers requires compression, elevation and exercise, which help reduce oedema.
- Arterial ulcers are most often due to atherosclerosis, are often painful and have 'punched out' borders. Re-establishment of adequate arterial supply is required.
- Diabetic foot ulcers are caused by the combination of arterial blockage and nerve damage resulting in repetitive trauma. They are notably located over pressure points, such as heels and the tips of toes. Education and prevention are the keys to management.

Decubitus ulcers, or pressure sores, are far more common in elderly hospitalised patients than in younger patients, as the former tend to be less mobile, needing help turning in bed, and have additional aggravating disorders such as dry skin over bony prominences, incontinence and/or poor nutritional state. Regular turning and use of pressure-relieving support surfaces aid in prevention. Pressure ulcers are often infected, so any associated infection must be treated.[25]

It is important to consider a diagnosis of skin cancer, most commonly basal cell carcinoma, in the case of non-healing bleeding ulcers.

Miliaria

Miliaria (sweat rash) arises from obstruction of the sweat ducts. Miliaria rubra (prickly heat) is the most common form of miliaria in the elderly, and results when obstructed sweat migrates into the epidermis as well as the upper dermis, causing itchy inflamed papules around the sweat pores. In contrast to acne and other forms of folliculitis, miliaria lesions do not arise around hair follicles. Miliaria typically occurs on the backs of people who lie in bed for prolonged periods, but also commonly occurs during humid summer weather or in winter when people wear multiple layers of clothing.

Conservative management of miliaria focuses on avoiding further sweating and irritants (eg by avoiding excessive clothing, friction from clothing and excessive use of soap, and by wearing breathable fabrics). A useful topical therapy is the combination of 2% salicylic acid and 1% chlorhexidine (in 70% ethanol) used sparingly over the affected areas until resolution.

Grover disease is a skin condition affecting the chest and back that is also seen frequently in overheated, bed-bound people. The cause is unknown, and most cases last six to twelve months. It often starts suddenly and is more common in winter than in summer in the elderly population. Erythematous blistered, crusted or eroded papules are seen on the central back, mid-chest and occasionally elsewhere. The condition is often itchy but can be asymptomatic. It may occasionally be complicated by the development of dermatitis, usually in a nummular pattern.

There is no curative treatment but possibly helpful options include keeping cool and applying emollients, anti-pruritic lotions or mild corticosteroid creams. Calcipotriol cream has been

reported to be of benefit for some patients, as has a course of tetracycline or an oral antifungal agent (eg, itraconazole).

Bullous pemphigoid

Bullous pemphigoid is more common in people older than 60 and is the most often seen of the autoantibody-mediated blistering disorders in the elderly. The blisters are large and tense and most commonly seen in the flexures, trunk and limbs. They may arise from urticarial papules or plaques. Although it is a self-limited condition that frequently resolves within six to 12 months, elderly patients may experience increased morbidity and mortality because of debilitated general health or as a side effect of treatment.[26]

Occasionally, potent topical corticosteroids can control localised forms of bullous pemphigoid but most cases require oral prednisolone, with doses varying depending on severity of disease. Less extensive disease may require only 0.3 to 0.5mg/kg of prednisolone, whereas more extensive and severe forms may require up to 1mg/kg. If high-dose oral corticosteroids are contraindicated, doxycycline may be used, either alone or as a corticosteroid sparing agent.[21] Healing with scarring is rare but there may be hyper- or hypopigmentation.

Drug eruptions

Adverse drug reactions of all kinds are much more common in older patients, partly because the elderly consume more medications than younger people and partly because of medical conditions (eg, impaired renal, hepatic or cardiac function) that affect drug metabolism or excretion. The most frequently observed adverse cutaneous drug reactions are pruritus, exanthems and urticaria, but the most severe are Stevens–Johnson syndrome and toxic epidermal necrolysis (Figure 6).

Diagnosis of a drug eruption requires taking a careful history of all prescription medications as well as those purchased over the counter. Drugs that are well known for causing cutaneous reactions include antimicrobial agents, NSAIDs, chemotherapeutic agents, anticonvulsants and psychotropic agents (see the box on page).[27] Prompt identification and withdrawal of the offending agent can help to limit its toxic effects.

Conclusion

Ageing of skin and cumulative UV damage make older patients more susceptible to a wide variety of skin conditions, many of which can be severely debilitating. It is important to be aware of the more common presentations of these dermatoses so that early intervention and treatment can commence.

References are available on request.

Lifelong Learning

CPD ARTICLE NUMBER FOUR

Contraception for Women Aged Over 40: An Important But Neglected Area

Older women need to be provided with evidence-based advice to guide their decision on whether to use contraception, and the method to use. Regular review of contraceptive options is important because a woman's preferred method at the time of the perimenopause may be very different from what she chooses in her early 40s.

Although the chance of pregnancy after the age of 40 is reduced compared with the peak reproductive years,[1] a small number of women continue to be fertile even into their early 50s. Women over 40 have a higher risk than younger women of having fetal abnormalities[2] as well as pregnancy-related complications. At least one in four pregnancies in women older than 40 ends in abortion.[5] Anecdotally, women may underestimate their fertility and subsequent risk of pregnancy in their later reproductive years. Women in their 40s and early 50s require evidence-based information about contraception to reduce the risk of an unintended pregnancy.

Contraceptive options for women over 40

The principles of contraceptive choice are the same regardless of age. Medical contraindications to the use of a particular method are considered with social, cultural and economic factors, as well as a woman's experiences with past methods. As increasing age itself is an independent risk factor for conditions such as venous and arterial vascular disease, osteoporosis and gynaecological problems, it is essential to take a thorough history of women over 40 to determine eligibility for a particular contraceptive method.

The medical eligibility criteria (MEC) system for contraceptive use provides an internationally recognised framework for matching a woman's medical and personal history with her chosen method of contraception. Although upper age limits are not specified in MEC guidance, oestrogen-containing methods and depot medroxyprogesterone acetate (DMPA) injections are not advised in women over 50 because the risks of these methods outweigh the befits for women in this age group. Women can be advised to switch to an alternative progesterone-only or non-hormonal method at age 50 until contraception is no longer required or desired (Table).[8]

At what age should women stop contraception?

Contraception is advised for sexually active women until there is no longer a chance of ovulation. The probability of menstruation and possible ovulation after 12 months of amenorrhoea in women over 45 is estimated at between 2% and 10%.[9]

Women over 50 who are using a non-hormonal method such as condoms or a copper-bearing intrauterine device (IUD) and those not currently using any contraceptive method can be advised that contraception is no longer required after 12 months of amenorrhoea. Women below the age of 50 are advised to wait for two years of amenorrhea[8]

Key points

- Women over 40 require evidence-based information about their need and options for contraception, to reduce the risk of an unintended pregnancy.
- Oestrogen-containing contraceptives and depot medroxyprogesterone acetate injections can be used by women up to the age of 50; after this, women should switch to an alternative progestogen-only or non-hormonal method until contraception is no longer required.
- Women over 50 who are using a non-hormonal contraceptive can be advised that contraception is no longer required after 12 months of amenorrhoea; those younger than 50 should wait for two years of amenorrhoea.
- Women over 50 who are amenorrhoeic while using progestogen-only contraception can be advised to continue using the method for only another 12 months if they have two follicular stimulating hormone levels of 30IU/L or above taken six weeks apart.

About the authors

Deborah Bateson *MA (Oxon) MSc, MB BS is Medical Director of Family Planning NSW, Sydney;*
Dr Kathy Macnamee *MB, BS, FRACGP, DipVen, GradDipEpiBio, MEpi is Senior Medical Officer of Family Planning Victoria, Melbourne;*
Dr Caroline Harvey *MB BS(Hons) FRACGP, DRANZCOG is Medical Director of Family Planning, Brisbane, and*
Dr Mary Stewart *MB BS DFFP is Medical Education Co-ordinator of Family Planning NSW, Sydney, Australia.*

Definition of medical eligibility criteria (MEC) categories[6,7]

MEC 1

A condition for which there is no restriction for the use of the contraceptive method.

MEC 2

A condition for which the advantages of using the method generally outweigh the theoretical or proven risks.

MEC 3

A condition for which the theoretical or proven risks generally outweigh the advantages of using the method. The provision of a method requires expert clinical judgment and/or referral to a specialist contraceptive provider, since use of the method is not usually recommended unless other more appropriate methods are available or acceptable.

MEC 4

A condition that represents an unacceptable risk if the contraceptive is used.

Advice for women on stopping contraception[6]

Method	Advice on stoppping contraception	
	Age younger than 50	**Age 50 and older**
Non-hormonal	Stop contraception after two years of amenorrhoea	Stop contraception after one year of amenorrhoea
CHC	Can be continued to age of 50	Stop CHC at age 50 and switch to a non-hormonal or progestogen-only method, then follow appropriate advice
DMPA	Can be continued to age of 50 or longer*	Stop DMPA at 50 years old and chose from: • switching to a non-hormonal method and stop after two years of amenorrhoea, or • switching to the POP, implant or LNG-IUD and follow advice below
Implant POP LNG-IUD	Can be continued to age of 50 or longer*	Continue method • If amenorrhoea either: - check FSH levels and stop method after one year if serum FSH level is 30 IUL/L or above on two occasions six weeks apart, or - stop at 55 years old when natural loss of fertility can be assumed for most women • If not amenorrhoeic, consider investigating any abnormal bleeding or changes in bleeding pattern, and continue contraception beyond 55 years old until amenorrhoeic for one year.

*If a woman wishes to stop hormonal contraception before age 50, she should be advised to switch to a non-hormonal method and to stop once she has been amenorrhoeic for two years (or three years if switched from DMPA due to the potential delay in ovulation).

ABBREVIATIONS: CHC = combined hormonal contraception; DMPA = depot medroxyprogesterone acetate; FSH = follicle stimulating hormone; IU = international unit; LNG-IUD = levonorgestrel-releasing intrauterine device; POP = progesterone-only pill.

Reproduced with permission from Faculty of Sexual and Reproductive Health Care clinical guidance. Contraception for women aged over 40 years. London: Faculty of Sexual and Reproductive Healthcare; 2010 (available from http://www.fsh.org).[6]

because of the possibility that ovulation and menstruation will resume. It is not uncommon for a perimenopausal woman's menses to cease for several months, only to resume again in a regular pattern.

Advice on ceasing contraception is more challenging for women using a hormonal method. Hormonal methods may mask the signs and symptoms of menopause, which makes it difficult, if not impossible, to determine when contraception is no longer required. Progestogen-only methods may result in amenorrhoea due to the hormonal effect on the endometrium, and oestrogen-containing methods will generally result in a regular withdrawal bleed for as long as the method is used. Oestrogen-containing methods will also control vasomotor symptoms.[12]

Practical, method-specific guidance is therefore required (Table). Follicle-stimulating hormone (FSH) levels are not diagnostic of infertility and cannot generally be used to guide advice on whether to stop contraception. They may be useful, however, to plan the future timing of stopping contraception in women over 50 who are amenorrhoeic while using a progestogen-only pill (POP), or a levonorgestrel intrauterine device (LNG-IUD). If two FSH levels taken six weeks apart are both over 30 IU/L, the woman can be advised that she need only continue the method for another 12 months.[8] It should also be remembered that the hormone doses in hormone replacement therapy (HRT) regimens are not contraceptive.

Women switching from DMPA to non-hormonal methods need to wait for two years of amenorrhoea if over 50, or three years if younger than that, before stopping contraception.

Although it is essential to provide evidence-based information to support women making in an informed choice about when to stop contraception, it is also important to acknowledge that it is a personal and individual choice. Some women will be prepared to accept the small risk of an unintended pregnancy at the perimenopause, whereas others prefer to continue contraception until there is no chance of pregnancy. The natural loss of fertility can be assumed for most women at the age of 55 and they can be advised that contraception is no longer required after this age.

Case studies: Contraceptive advice for older women

Case 1 – Sara

Sara, aged 53, had a levonorgestrel intrauterine device (LNG-IUD) inserted when she was 48 for heavy menstrual bleeding and contraception. After an initial four months of persistent, unscheduled bleeding, she developed a pattern of light, regular menstruation. About three years ago, menstruation became less frequent and she has been amenorrhoeic for the past 18 months. She presents for removal of her IUD. Sara described some mild symptoms of menopause, including occasional hot flushes and some vaginal dryness.

Discussion

Because Sara is using hormonal contraception, the usual criteria to determine menopause in women 50 or older with12 months of amenorrhoea do not apply. Although she was initially menstruating, it is common for women using an LNG-IUD to become amenorrhoeic as a result of the progestogen effect on the endometrium. Removal of the LNG-IUD may result in the return of her previously heavy menses.

Sara can be given the option of retaining the IUD until she is 55. At this age the loss of natural fertility can be assumed for most women and the chance of menses returning is extremely low. Alternatively, since she is over 50 and amenorrhoeic, she could have her follicle-stimulating hormone (FSH) levels checked on two occasions six weeks apart and if both are over 30 IU/L she can be advised to have the IUD removed after a further 12 months.

Case 2 – Heidi

Heidi is a 46-year-old mother of two who presents you with a letter from the local abortion clinic requesting a post-abortion check. She had not been using contraception as she believed she was too old to fall pregnant and she and her husband have sex infrequently. She asks for contraceptive advice as she is determined not to get pregnant again.

Heidi's medical history is unremarkable except for a history of a postpartum deep vein thrombosis (DVT) after her second child. She is a non-smoker, has a BMI of 22kg/m^2 and is normotensive. She has a regular menstrual cycle and is up to date with Pap testing.

Discussion

As Heidi has a personal history of a DVT, any oestrogen-containing contraception is contraindicated (MEC 4 – she has a condition that represents an unacceptable risk if the contraceptive method is used). Heidi's options include progestogen-only methods, non-hormonal methods and sterilisation (either herself or her partner). Suitable progestogen-only methods include the contraceptive implant, the LNG-IUD and the progestogen-only pill. The DMPA injection is not considered as a first-line option for women over 45 because of its effect on bone density.

Heidi is keen to use a method that she need not remember daily and decides to have an implant inserted. Since she has not yet had intercourse since the abortion she can have an implant inserted at any time, but will have to wait for seven days after insertion for it to become effective if it is inserted at any time other than the first five days of a menstruation.

Combined hormonal contraceptive methods

Combined oral contraceptive pills (COCPs) and vaginal rings can be used by women up to the age of 50 who have no contraindications to oestrogen (risk factors for or history of venous or arterial disease, breast cancer or liver disease).[8] They can be helpful in regard to reducing menstrual bleeding[13,14] and dysmenorrhoea,[15] maintenance of bone density[16] and reducing menopausal symptoms at the time of the perimenopause.[12]

Factors influencing the choice of COCP for women between 40 and 50 are the same as for younger women. Monophasic pills containing levonorgestrel or norethisterone combined with 30µg or 35µg of ethinyloestradiol (EE) are generally a good first choice. Other pills can be used when there is a specific potential benefit for the woman or there are side effects with the first-line pills. Theoretically, COCPs with 20µg EE are a good choice for older women with a higher baseline venous thromboembolism (VTE) risk as a result of age. However, it is unknown whether lower dose pills with 20µg EE offer a safety benefit over pills with 30µg or 35µg EE.[17,18] COCPs with 20µg EE may also be associated with a higher chance of unscheduled bleeding, which may lead to early discontinuation.

Recent developments in COCPs have substituted EE with oestradiol valerate and oestradiol. These oestrogens are structurally identical to those produced by the ovary and have a lesser impact on clotting factors than EE.[20-22] It is not yet known whether these COCPs will demonstrate any real safety benefit in relation to VTE risk, compared with the EE-containing COCPs, and the contraindications to their use are no different from those of other COCPs.

It is important to provide information about VTE risk in a way that patients understand. The VTE risk for women not using a hormonal method of contraception appears to be about two per 10 000 women years. This increases approximately twofold to fourfold in women using a combined hormonal method of contraception. The absolute risk of a VTE for users of combined hormonal contraceptives is far lower than the risk of VTE associated with pregnancy and the postpartum period, which is between 21.5 and 84-fold over baseline.[23] As age is an independent risk factor for VTE, the background risk for women in their 40s is higher than that for younger women. Beyond the age of 50, the risk profile outweighs the benefits and switching to a non-oestrogen based method is advised.

COCPs and vaginal rings can also be used in the management of appropriately investigated heavy menstrual bleeding. Heavy menstrual bleeding, defined as blood loss of more than 80mL per cycle, is more common among women in their 40s than in younger women. Since older women are also at increased risk of endometrial pathology, it is essential to rule out serious causes of bleeding,

including endometrial cancer, before initiating treatment. The quadriphasic oestradiol valerate/dienogest pill has been shown to be very effective at reducing blood loss compared with placebo[14] and has an indication for the management of idiopathic heavy menstrual bleeding in women requiring contraception. However, it is not known whether this COCP is superior to others in this regard.

Women can also reduce or eliminate withdrawal bleeding in the pill-free or ring-free break by running monophasic active pill packs together or by replacing their vaginal rings every three to four weeks without a break. Eliminating the pill-free or ring-free break has traditionally been advised for three months at a time, followed by a withdrawal bleed, but there are now good safety data to support the continuous use of combined pills or vaginal rings for up to 12 months.[24-27]

Women may experience heightened premenstrual symptoms in the perimenopause as a result of fluctuating hormonal levels.[28] All contraceptive methods that inhibit ovulation may potentially benefit women with the symptoms of premenstrual syndrome (PMS), although the aetiology of this condition remains elusive. A 20µg EE / 3g drospirenone pill has been shown to be more effective that placebo in the treatment of the more severe premenstrual dysphoric disorder (PMDD) over three months,[29] but it is unknown whether this effect is similar in women with the milder symptoms of PMS.

Progestogen-only pills

POPs offer an oral alternative to the COCP without oestrogen, where the primary mechanism of action is to thicken the cervical mucus so it is impenetrable to sperm, and may have a variable and inconsistent effect on preventing ovulation. Although POPs need to be taken within a narrow three-hour time frame each day, they have a relatively low failure rate in woman over 40 (quoted as 0.3%[30]) as a result of reduced fertility in this age group.

The POP produces minimal, if any, metabolic effects and is not associated with increased VTE risk; however, unscheduled bleeding can be a troublesome side effect. It is important to exclude pathological causes of bleeding in women in their 40s and early 50s. POPs can be continued, if required and desired, until the age of 55 (Table).

Depot medroxyprogesterone acetate injections

DMPA injections given as an intramuscular injection every 12 weeks (plus or minus two weeks) provide effective contraception by inhibiting ovulation and thickening the cervical mucus. In women without cardiovascular risk factors, DMPA is MEC 2 (ie the advantages outweigh the theoretical or proven risks) from the age of 45 but it is not recommended beyond 50 due to concern about the effects on lipids and increased cardiovascular risk resulting from its hypo-oestrogenic impact.

The hypo-oestrogenic effect of DMPA has been shown to reduce high-density lipoprotein (HDL) cholesterol levels,[33] and the risks of this method outweigh the benefits (MEC 3) for women with multiple risk factors for cardiovascular disease, including a family history of cardiovascular disease, smoking, hypertension and diabetes.

DMPA users experience mean reduction in bone density of 5.8% and 5.7% in the hip and spine respectively, compared with a mean reduction of 0.9% in both sites for non-users over a two-year period.[34] However, it appears that DMPA users regain bone density after discontinuing the method.[35,39] In women over 45 there is a theoretical but unproven concern that there may be insufficient time to regain any losses before onset of the hypo-oestrogenic effects of menopause. There is no recommendation to perform bone densitometry routinely before or during DMPA use, but a detailed assessment of risk factors for osteoporosis should occur every two years in any user.

Women in their early 40s who desire another child need to be aware that DMPA is not immediately reversible. The median time for the return to the woman's own level of fertility is about 10 months.[40]

Intrauterine devices

IUDs offer highly effective contraception for women aged 40 and older, either in the form of the levonorgestrel-releasing device (LNG-IUD) or the copper-bearing devices.

LNG-IUD

The LNG-IUD has a potential added benefit for women aged 40 and over due to its effect on reducing menstrual blood loss.[41] Perimenopausal women may experience heavy menstrual bleeding, often associated with anovulatory cycles. As mentioned above, it is essential to exclude pathological causes of heavy menstrual bleeding in women of this age because they are at greater risk of endometrial pathology, including endometrial cancer, than are younger women. Women presenting with new heavy menstrual bleeding should be investigated appropriately before LNG-IUD insertion. Investigations may include measurements of haemoglobin levels, iron status and thyroid-stimulating hormone levels; a transvaginal ultrasound; and possible hysteroscopy.[42,43] The LNG-IUD is relatively contraindicated in women who have significant intrauterine abnormalities, such as submucosal fibroids, which may prevent appropriate placement of the device.

The LNG-IUD may be associated with irregular vaginal bleeding for the first three to five months but after this the pattern of bleeding is likely to be either light bleeding reflecting the woman's own menstrual cycle or absent bleeding. Amenorrhoea may result either from the progestogen hormone's effect on the endometrium or from the menopause itself. Guidance on stopping the LNG-IUD at the menopause is provided in the Table.

The LNG-IUD should be replaced after five years' use in women younger than 45. For women of 45 and older at the time of insertion, the device can be left in place seven years at most if they are still menstruating (off-label use). In amenorrhoeic women 50 or older, FSH measurements can be used to determine the timing of the removal (Table) or the device can be retained until 55 years when a loss of natural fertility can be assumed for most women (see case study).

The LNG-IUD can also be used to protect the endometrium as part of an

HRT regimen for women who are using oestrogen to control menopausal symptoms. It is recommended the device be used for a maximum of five years in this context (see the box).

Copper-IUDs

Copper IUDs are a suitable choice for many women older than 40 who require or desire an effective hormone-free contraception method. The copper IUD is not, however, a first-line choice for women with heavy menstrual bleeding or severe dysmenorrhoea because it can be associated, in some women, with an increase in blood loss and worsening pelvic pain. The method is relatively contraindicated in women who have significant uterine abnormalities due to the risk of incorrect placement of the device.

Copper IUDs are licensed for up to 10 years or five years use, depending on the brand. However, either type can be considered for extended use (off-label) and retained until the menopause if inserted in women older than 40 (Table).[6,8] In such cases, the woman should be informed that, although the device may be slightly less effective beyond its product licence date, any loss of efficacy should be offset by the decline in her own fertility at this age.

Male and female sterilisation

Sterilisation must be regarded as a permanent method of contraception. It has been a relatively common method in women over 40, but this is likely to change with the increasing awareness and use of long-acting reversible contraceptives.

Barrier methods

Barrier methods of contraception, including male and female condoms and the diaphragm, have relatively low efficacies when used 'typically'. For example, although the male condom is 98% effective with 'perfect use', it is only 82% effective with 'typical use'.[44] This disadvantage may be offset by the reduction in fertility and increasing user-experience in older women, and, therefore, barrier methods may be an appropriate contraceptive method for some women in this age group.

Use of the LNG-IUD at the perimenopause

LNG-IUD inserted when 45 years or younger

- Replace after five years if on-going use required.

LNG-IUD inserted when over 45 years

- Menstruating women
  - Replace after seven years (off-label use) if on-going contraception is required.
- Amenorrhoeic women older than 50
  - Consider taking two FSH level measurements six weeks apart; if levels are greater than 30 IU/L contraception is not required after one further year (provided the woman remains amenorrhoeic)
  - Alternatively, leave the IUD in place until the woman turns 55.

LNG-IUD being used as progestogen component of HR

- Replace after five years if on-going use required

Abbreviations: FSH = follicle –stimulating hormone; HRT = hormone replacement therapy; IU = international unit; LNG-IUD = levonorgestrel-releasing intrauterine device.

Male condoms are readily available and women at risk of sexually transmissible infections (STIs) can be advised to use condoms. Condoms can be used alone to provide dual protection against unintended pregnancy and STIs, or combined with other more effective methods of contraception. Additional water-based lubricant may be useful for perimenopausal women experiencing vaginal dryness as a result of reduced oestrogen levels. Anecdotally, polyurethane condoms, either male or female types, may be associated with reduced vaginal irritation in older women.

Silicone diaphragms fitted to cover the cervix may be an appropriate method of contraception for women over 40. The woman must be comfortable inserting the device each time she has intercourse and keeping it in place for at least six hours afterwards so that the vaginal acidity 'kills off' the sperm in the vagina.

Emergency contraception

Women aged 40 and over, like women of any reproductive age who wish to avoid an unintended pregnancy, need to be aware of the availability of the S2 emergency contraceptive pill (ECP). The most common form of ECP is a single 1.5mg dose of LNG, which is suitable for use in women up to 55. It has no contraindications except for known allergy. The LNG-ECP can be used up to 120 hours after unprotected intercourse or in the case of contraceptive failure. It may be more effective the earlier it is taken[45] and has limited efficacy from 96 to 120 hours.[46]

The copper IUD is also an extremely effective method of emergency contraception,[47] and can be retained for on-going use.

Conclusion

Contraception for women from the age of 40 who are at risk of an unintended pregnancy is an important but often neglected area, with most research and health promotion activity focusing on younger women. Older women need to be given evidence-based advice to guide an informed choice about using contraception and which method to choose. Since a woman's preferred contraception method at the time of menopause may be very different from the method she chooses in her early 40s, it is also important to review the range of contraceptive options regularly and switch methods if appropriate. Using the MEC system for medical eligibility provides a useful framework for advice.

References are available on request.

Doctors Can Access Patients Medical Info in Record Time

View medical records of consenting Discovery Health members instantly to save time, money, and lives.

Imagine a scenario playing out in the offices of Dr Iqbal Moosa (pictured), a family physician from Pietermaritzburg:

He's seeing a new female patient for a minor surgical procedure that requires a local anaesthetic. Before going ahead with the surgery, Dr Moosa asks about her medical history and about any medication she uses. "It's an important question which will establish your possible drug-on-drug interactions, contraindications, or existing conditions or allergies that you might not have mentioned," he explains.

"I take a red pill, a blue pill and a pink pill," she replies. "I can't remember what they're called."

"Don't worry," says the doctor, "Here it is."

In a couple of clicks Dr Moola has called up the patient's medical history, claims history and chronic benefits with SA's first electronic health record.

Dr Moola is one of many doctors around the country making use of the free iPad application called Discovery HealthID, an online database of members' medical records for registered healthcare professionals. (The app is currently being developed for other tablets.)

Cost savings

"Having access to a patient's data instantly helps us to provide a better more cost effective service by informing our care choices," says Dr Moola. "I can see a patient's basic plan and cover type, so I know immediately which procedures I can do and which I can't. This influences diagnostic tools and treatment options, and whether I choose ethical or generic medications," he says.

If they've had x-rays or lab pathology tests recently with another doctor (provided the doctor is registered with the labs), one wouldn't need to have them done again, because the results will be available to the next physician. Doctors need not order a whole battery of blood tests when they have been done previously; if we need one test, it can be isolated. "The cost of special investigation is extremely high, and this ensures we don't waste money," says Dr Moola.

Health tracking

Having a patient's historical information at hand is also useful for tracking the progress of conditions, and allows doctors to make comparisons based on past results, making it easier to get a picture of a patient's overall health.

If patients have had a Vitality Wellness Check or checked their vitals at a Virgin Active, their doctor can see that information and be able to more quickly pick up warning signs and spot trends. The patient's virtual history goes with them wherever they go. This could all lead to an important and timely diagnosis.

Fraud prevention

"One of the problems in private practice is one person fraudulently using another's medical aid. With this app we can match the information with the patient sitting in front of us," says Dr Moola.

The timeline on the HealthID app tells healthcare professionals about the frequency of a patient's medical consults; for example someone who is visiting a different doctor every few weeks to get a script for sleeping tablets could very well be abusing the system and developing an addiction.

Simpler scripting

It's much quicker for doctors to search an online formulary than to page through a tome. The costs of medicines and alternative options are also listed online.

"Doctors are not trained in admin, yet half of our time is spent on it," says Dr Moola. The app reduces time spent on paperwork and on the phone so healthcare professionals can focus on providing the best care to their patients.

"I don't know how I lived without Discovery HealthID," concluded Dr Moola. "It has revolutionised my practice and saved my patients and myself hundreds of hours and thousands of rands. It's the way of the future."

Local Young Carnegie Fellows Show Their Worth at Wits Symposium

Speakers and faculty: Dr Nirthi Maharaj, Dr Martin Brand, Prof Helen Laburn (vice- chancellor: research), Prof John Pettifor, Dr Susan Williams, Prof Beverley Kramer and Dr Nimmisha Govind

Recently the Faculty of Health Sciences at the University of the Witwatersrand (Wits) hosted the Carnegie Clinician Scientist Symposium, showcasing their first cohort of Carnegie clinician scientists. Scientific clinical research is vital and these fellowships have enabled young clinicians with an interest in research to obtain a PhD.

Presentations by four fellows focused on some of the most topical health issues facing SA, such as the research done by Dr Nimmisha Govind of Wits' Division of Rheumatology who discussed 'Genotyping of risk loci in black South Africans with rheumatoid arthritis using the Immunochip'. With rheumatoid arthritis being a common autoimmune disease with a strong genetic risk, Dr Govind confirmed the known association of the human leukocyte antigen class II genes and rheumatoid arthritis in black South Africans.

Dr Martin Brand of the Department of Surgery presented his research entitled 'Potential novel approaches to risk identification in advanced peripheral arterial disease'. It focused on identifying cardiovascular factors in patients with peripheral arterial disease that may increase their risk of developing critical lower limb ischaemia with poor outcomes.

Dr Nirti Maharaj, of the Division of Cardiology, Chris Hani Baragwanath Academic Hospital discussed 'Speckle tracking echocardiography in an African population', a technique to assess myocardial mechanics.

The final presentation was by Dr Susan Williams, a fellow from Wits' Ophthalmology Division who's paper 'The genetics of primary open-angle glaucoma (POAG) in black South Africans' drew attention to this major cause of irreversible visual loss and the fact that early detection and treatment can prevent visual loss. Dr Williams study showed that screening for mutations in the MYOC gene has important implications for the management and counselling of patients with POAG and their families.

Calcium and Vitamin K - Bricks and Mortar for Bone Health

Studies of vitamin K, known for its role in supporting blood and cardiovascular health, have shown it can improve bone health too.

Vitamin K is best known for its blood clotting abilities, deriving its label from the German word 'koagulation'. Now, recent studies indicate this vitamin has a positive effect on the bone-building process, working systematically with vitamin D and calcium. This new combination of nutrients has proven to be more effective in relieving osteoporosis than the historical combination of calcium and Vitamin D or calcium alone.

Vitamin K is found in OTC Pharma's widely available super multi-nutrient Marcus Rohrer Spirulina.

Fat-soluble vitamin K is available in two forms: K1 and K2.

- Vitamin K1 is synthesised by plants and known as phylloquinone
- Vitamin K2 is a range of synthesised bacteria called menaquinone-n.

Studies show that Vitamin K2 increases bone mineral density thereby reducing the risk of fractures. Vitamin K is related to osteocalcin, which is a calcium-binding protein synthesised by osteoblasts or bone-building cells. It also works synergistically with vitamin D providing a complementary mechanism for increasing calcium absorption by regulating the production of osteoclasts (cells that remove old bone so that new bone can be deposited in its place).

"Synthetic bisphoshonate drugs attempt to perform a similar function, but fail miserably at matching the performance of vitamin K because they damage and distort osteoclasts. By contrast, vitamin K facilitates the appropriate balance between osteoclasts and bone cells," said a spokesperson for OTC Pharma.

The richest dietary sources of vitamin K1 are leafy vegetables. There is no documented toxicity with high doses of vitamin K, however based on independent analytical results, a 3g daily serving of Spirulina provides 60 micrograms of vitamin K1 and 15 micrograms of vitamin K2.

Weight Loss Surgery Fails to Reduce Costs, Study Finds

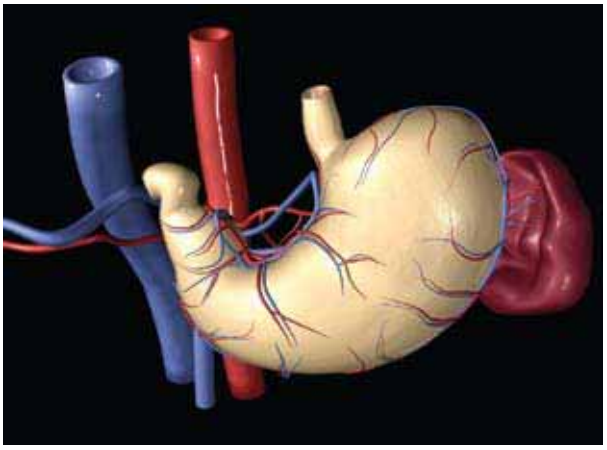
People who undergo weight loss surgery don't reduce their costs as they take off kilos, a study found. This is because hospital stays for complications from the procedure exceed savings from obesity-related illnesses.

Researchers tracked medical claims of 29 820 patients for as many as six years after bariatric surgery (BS), comparing their costs with a group of people with obesity-related conditions who didn't have the procedures. While pharmacy expenses and doctor visits were lower for surgical patients, repeat procedures were higher, according to the study in the journal JAMA Surgery.

Lowers weight but doesn't add years

BS is one of the most effective weight loss methods, with studies showing the procedure yields health benefits such as reduced diabetes risk and lower cholesterol for at least six years. There's no evidence, though, that it prolongs life. The study released in February, the largest and longest of its kind, shows the improvements that stem from avoiding diabetes and heart disease don't necessarily bolster health across the board.

"This suggests that rampant BS isn't going to be an answer to healthcare costs," as some have suggested, said Prof Jonathan Weiner, head of health policy and management at Johns Hopkins School of Public Health, and the study's lead author. "That doesn't mean that some people, some of the time won't benefit from surgery."



Readmissions to hospital

The study found people undergoing BS did not experience a reduction in their medical expenses to help recoup the high cost of the initial surgery. They spent less on medicines and doctor visits, but were readmitted to hospital more often. Overall, postoperative BS costs roughly equated the costs those patients experienced before surgery.

BS has gained in popularity in first world countries as obesity has rocketed. In the US 220 000 BS procedures were performed in 2009, according to the American Society for Metabolic & Bariatric Surgery. The procedures achieve weight loss by restricting the size of the stomach. Variants include gastric banding that is adjustable and reversible, and gastric bypass, in which part of the stomach is closed and the other is connected to the small intestine.

500 million obese

More than 500 million people worldwide are obese, according to the World Health Organization. Projections suggest 44% of US adults may be obese by 2030.

While weight loss surgery can dramatically help a single person, the benefits are markedly less when the risks and costs are considered for everyone getting the procedure, said Edward Livingston, JAMA's deputy managing editor, in an editorial accompanying the study. Swedish research found surgery reduced prescription drug use while boosting hospital costs over time.

Little benefit overall

"Coupled with findings that BS confers little to no long-term survival benefit, these observations show that BS does not provide an overall societal benefit," Livingston wrote. The surgery should only be offered to those who have clear health problems tied to obesity, such as diabetes or arthritis, and can comply with the dietary restrictions that follow surgery, he said. It shouldn't be done simply to help people lose weight.

New at Adcock Ingram Healthcare

Ashley Pearce: Commercial Executive, Southern Africa

Ashley Pearce has been appointed as Commercial Executive: Southern Africa for Adcock Ingram Healthcare. Ashley has 30 years' experience in the pharmaceutical industry, having started his career at Glaxo, holding positions of increasing responsibility across technical, R&D, business development, sales and marketing. Ashley worked internationally in Europe and the USA for the merged GlaxoSmithKline. Before joining Adcock Ingram in October 2012, he spent the previous 10 years as CEO of the local subsidiaries of Schering Plough and MSD.

Vicki St Quintin: Corporate Affairs and Investor Relations Manager

Vicki St Quintin has been appointed as the Group Corporate Affairs and Investor Relations Manager at Adcock Ingram Healthcare. Before joining Adcock Ingram, Vicki was the Chief Operating Officer of the Pharmaceutical Industry Association of South Africa (PIASA). As head of the association she was also responsible for external communications and was extensively involved in government affairs, policy and intellectual property, as well as transformation and skills development.

MODERN MEDICINE'S CPD JOURNAL PROGRAMME

ANSWER FORM

Accredited by the SAMA Health Care/Policy and CPD Unit.

SURNAME	INITIALS	YOUR HPCSA REG. NO. MP

Postal Address:

Postcode:

Tel: Fax:

E-mail:

INSTRUCTIONS

1. Use a blue or black pen only.
2. Fill in the appropriate circle completely, ie ● – do not use X or ✓ or any other mark.
3. Erase or white out mistakes fully.
4. Answer all the questions.
5. Each group earns 1 CPD point.

Month of issue
MAY 2013

Please return by August 31 2013

Fill in the answers from the question page to the block below.

ECG OF THE MONTH	TYPE 2 DIABETES	CHRONIC PAIN	SKIN CONDITIONS IN OLDER PEOPLE	CONTRACEPTION FOR WOMEN OVER 40
1 T F	1 T F	1 T F	1 T F	1 T F
2 T F	2 T F	2 T F	2 T F	2 T F
3 T F	3 T F	3 T F	3 T F	3 T F
4 T F	4 T F	4 T F	4 T F	4 T F
5 T F	5 T F	5 T F	5 T F	5 T F

Once completed . . .

- Make an accurate and clear photocopy of this answer form for your records.
- Cut this CPD answer form out of the journal carefully, place in a stamped, addressed envelope, and post it to MODERN MEDICINE, PO Box 84622, Greenside 2034, South Africa (Do not register the letter) - OR Scan the completed answer form and email it to CPD@modernmedia.co.za
- The publisher cannot be held responsible for answer forms not received by post.
- Credit for these CPD modules needs to be maintained in doctors' personal records.

I declare that these are my own answers, and I would like to continue receiving Modern Medicine.

Signature: _____

Date: _____

CUT ALONG DOTTED LINE

QUESTIONS FOR CPD ARTICLES: MAY 2013

CPD allocation: 5 points

The first entry received that scores full-marks will receive a hamper of goods sponsored by OTC PHARMA SA.

Instructions

1. *The answer form is bound into this journal opposite.*
2. *Read the instructions on the answer form and answer the questions carefully.*
3. *Your answers for the May 2013 issue must reach Modern Medicine, PO Box 84622, Greenside 2034 by August 31, 2013.*
4. *You must score at least 80% in a section to be awarded the assigned CPD point for it.*
5. *Modern Medicine will keep track of all CPD points earned and will issue a single, comprehensive certificate to all participants at year-end.*

Answer the following questions as either true or false. All the answers are to be found in the CPD articles in this issue.

ECG CHALLENGE (Pg 12)

1. In ECG 1: The diagnosis is an Acute Inferior Myocardial Infarct.
2. In ECG 1: The diagnosis is an Acute Anterior Myocardial Infarct with Atrial Flutter.
3. In ECG 1: The diagnosis is Sinus Rhythm with an Anterior Infarct.
4. In ECG 2: The computer diagnosis is correct, because inferior pathological q waves are present.
5. In ECG 2: The computer diagnosis incorrect, because the q waves are dependent on the rhythm.

TRANSIENT NEUROLOGICAL TROUBLES IN PATIENTS WITH TYPE 2 DIABETES (Pg 14)

1. Speech impairment is less important than unilateral weakness in predicting early stroke following TIA.
2. Treatment of TIAs with clopidogrel offers no advantage over aspirin alone.
3. Hypoglycaemia causing neurological signs is common in type 2 diabetes.
4. Headache is an important feature of a TIA.
5. Glycosylated haemoglobin levels should ideally be kept between 7-10% in type 2 diabetes.

IS CHRONIC PAIN SIMPLY PERSISTING ACUTE PAIN (Pg 18)

1. Severing sensory nerves and pain fibres is a useful therapy for chronic pain.
2. Neuropathic pain is only one type of chronic pain (and is not synonymous with the term 'chronic pain').
3. Central sensitisation or windup changes in the spinal cord dorsal horn can become permanent and irreversible.
4. Interneurons between sensory fibres and pain fibres in the dorsal horn are essentially the 'pain gate'.
5. Activation of NMDA receptors in the dorsal horn decreases central sensitisation.

A GUIDE TO SKIN CONDITIONS IN OLDER PEOPLE (Pg 28)

1. Pruritus in the elderly is usually the consequence of xerosis.
2. There is a high risk of solar keratosis transforming into squamous carcinoma.
3. Molluscum contagiosum is best treated with topical permethrin.
4. Venous ulcers are usually very painful.
5. Stevens-Johnson Syndrome is commonly associated with antihypertensives.

CONTRACEPTION FOR WOMEN OVER 40 (Pg 38)

1. MEC 2 category implies that the proven risks outweigh the benefits.
2. Hormonal contraception increases the risk for venous thromboembolism by two -to fourfold.
3. Inhibition of ovulation has the potential to reduce PMS symptoms.
4. Two FSH levels, six weeks apart, greater than 30 IU/L indicate that contraception is not necessary.
5. With typical use the efficacy of condom use is about 98%.

See answer form opposite

FEBRUARY WINNER: CONGRATULATIONS TO DR MB PARSHOTAM OF QUALBERT WHO WINS THE OTC PHARMA HAMPER!

2013 Medical Conference Planner

Your Reminder

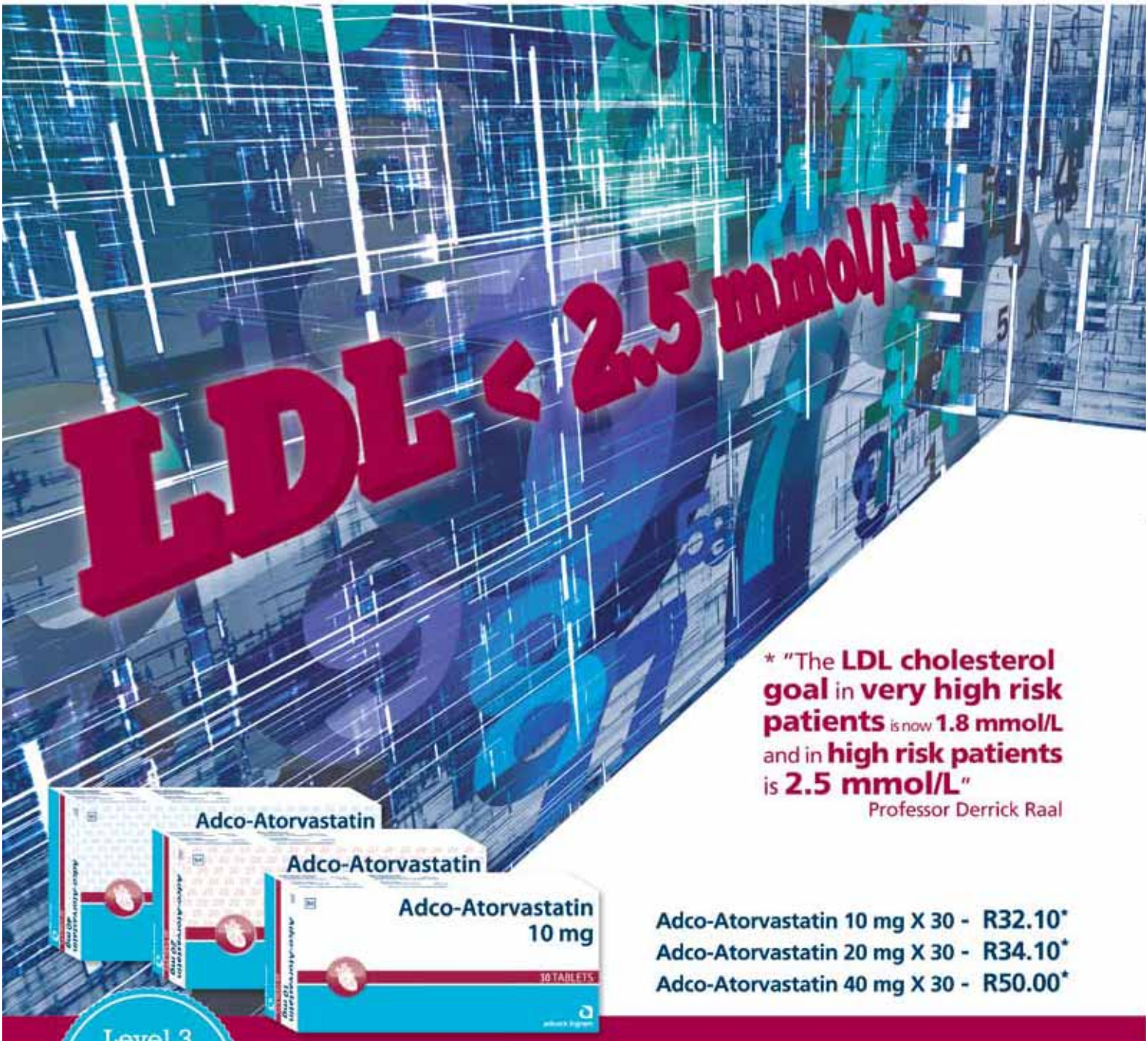
2013		
3 - 7 Jun	**CDE - Centre for Diabetes and Endocrinology: 5-Day Advanced Course in Diabetes Care** WHERE: 81 Central Street, Houghton, JOHANNESBURG CONTACT: Centre for Diabetes and Edocrinology • 011-712-6000 john@cdecentre.co.za or michael@cdecentre.co.za	**CPD (30), EXHIBITION, 50-100 Speakers** www.cdecentr.co.za
5 - 9 Jun	**THEMBA LE AFRIKA CONGRESS 2013 - ALLSA/ASID/SATS - combined meeting of Allergy Society, 3rd African Society for Immunodeficiencies Congress and Thoracic Society Congress** WHERE: Sun City Resort, SUN CITY CONTACT: Londocor Event Management • 011-768-4355 yvonne@londocor.co.za	**CPD, EXHIBITION, 50-100 Speakers** www.ithembaleafrika.com
6 - 8 Jun	**SASS - 13th Spine Society Congress** WHERE: Boardwalk Convention Centre, PORT ELIZABETH CONTACT: Hendrika van der Merwe • 021-910-3322 • spinecon@iafrica.com	**CPD, EXHIBITION, 10-50 Speakers** www.saspine.org
18 - 21 Jun	**SA AIDS - 6th Conference** WHERE: Durban ICC, DURBAN CONTACT: SA AIDS 012-816-9070 • info@saaids.co.za	**CPD, EXHIBITION, 10-50 Speakers** www.saaids.co.za
23 - 26 Jun	**1st National Pharmacy Conference** WHERE: Sun City Resort, SUN CITY CONTACT: Carolyn Ackermann • 011-463-5085 • caro@soafrica.com	**CPD, EXHIBITION, 10-50 Speakers** www.sapcconference.za.org
22 - 26 Jul	**CDE - Centre for Diabetes and Endocrinology: 5-Day Advanced Course in Diabetes Care** WHERE: 81 Central Street, Houghton, JOHANNESBURG CONTACT: Centre for Diabetes and Edocrinology • 011-712-6000 john@cdecentre.co.za or michael@cdecentre.co.za	**CPD (30), EXHIBITION, 50-100 Speakers** www.cdecentr.co.za
26 - 28 Jul	**2nd Update in the Management of Patients with Vestibular Disorders** WHERE: Indaba Hotel, JOHANNESBURG CONTACT: Tessa Booysen • 012-420-5015 • tessa.ce@up.ac.za	**CPD (22), EXHIBITION, 10-50 Speakers** www.audiologysa.co.za
28 - 31 Jul	**2nd Annual Johannesburg Peri-Operative Cardiothoracic Congress** WHERE: Olives & Plates Club and Conference Venue, Parktown, JOHANNESBURG CONTACT: Londocor Event Management • 011-768-4355 yvonne@londocor.co.za	**CPD, EXHIBITION, 10-50 Speakers** www.londocor.co.za
28 - 31 Jul	**Laboratory Medicine Congress 2013** WHERE: Cape Town ICC, CAPE TOWN CONTACT: LMC2013 Committee • 021-762-6688 • register@lmcongress.com	**CPD, EXHIBITION, 10-50 Speakers** www.lmcongress.com
29 Jul - 2 Aug	**25th SA Transplantation Congress** WHERE: Southern Sun Elangeni, DURBAN CONTACT: Estie Schoombee • 011-463-5085 • estie@soafrica.com	**CPD, EXHIBITION, 50-100 Speakers** www.satscongress2013.co.za

BUILDING A BETTER SOCIETY
THROUGH EDUCATION AND DEVELOPMENT

Registered with the Department

LEARNING OPPORTUNITIES
EARN YOUR CPD POINTS

The SA Lipid Guideline goal[1]...
...can now be achieved with our affordable treatment



* "The **LDL cholesterol goal** in **very high risk patients** is now **1.8 mmol/L** and in **high risk patients** is **2.5 mmol/L**"
Professor Derrick Raal

Adco-Atorvastatin 10 mg X 30 - R32.10*
Adco-Atorvastatin 20 mg X 30 - R34.10*
Adco-Atorvastatin 40 mg X 30 - R50.00*

Level 3 **BBBEE** contributor
SANAS ACCREDITED

*Prices as per DOH website and include VAT. www.doh.gov.za

Reference: 1. A joint statement from the South African Heart Association (SA Heart) and the Lipid and Atherosclerosis Society of Southern Africa (LASSA). South African Dyslipidaemia Guideline Consensus Statement. *S Afr Med J* 2012; **102**: 177-188.

Adco-Atorvastatin 10 mg, 20 mg, 40 mg. Each tablet contains 10 mg, 20 mg, 40 mg atorvastatin respectively. Reg. No. 43/7.5/1116, 43/7.5/1117, /43/7.5//1118 respectively. ZA.12.CV5.004 06/2012. For full prescribing information refer to the package insert approved by the medicines regulatory authority. Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel: +27 11 635 0000 www.adcock.com

adcock ingram generics