

MODERN MEDICINE

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Atolip
Atorvastatin
10 mg, 20 mg, 40 mg, 80 mg



REG No. 427/50552, 0553, 0554, 0555
REFERENCES:
1. South African Dyslipidaemia Guideline Consensus Statement, March 2012, Vol. 102, No. 3 SAMJ
2. Department of Health website <http://www.doh.gov.za> - accessed 06/2013
3. IMS data March 2013
4. Data on file

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Get Your CPD Points Inside!



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whatever the season,*


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fluticasone furoate



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Lifelong Learning

CARDIOLOGY **ECG Challenge: Sick Sinus Syndrome** 13



MBUYU BUSHIDI

This woman is 73 years old with a history of shortness of breath and dizziness. She reports having pre-syncope. She has a history of hypertension. She is on diuretics and an angiotensin converting enzyme inhibitor. She has no history of coronary disease.

GASTRO-ENTEROLOGY **Herbal Drug Rivals PPIs in Breakthrough Clinical Trial** 16

Results from a breakthrough clinical trial investigating the efficacy and tolerability of treatments for functional dyspepsia (FD) have revealed that the natural medicine Iberogast worked as well as a proton pump inhibitor (esomeprazole), with less chance of symptoms recurring after stopping treatment.

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Managing Cough in Adults: Is there a Serious Underlying Cause? 18

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PULMONOLOGY **Levofloxacin Still Effective in Treating Respiratory Tract Infections** 26

Community-acquired respiratory tract infections (RTIs) are among the most prevalent infectious diseases in the developed world and constitute a substantial economic burden. The current therapy for RTIs is often empiric, usually involving administration of a betalactam or macrolide.

PAIN **Who Should Administer Conscious Sedation? Part Two: Classes of Sedation Providers and the Importance of Training** 28



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The role of anaesthetists and non-anaesthetists as sedation providers for this expanding need appears to be increasing.

DERMATOLOGY **Dermatology Clinic: Emerging Therapies in Psoriasis** 30



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There is no cure for psoriasis, but recent research has led to improved understanding of the disease. Several new biological therapies target specific steps in the pathogenesis of psoriasis, and enhancements in topical therapy and phototherapy have improved the armamentarium of effective suppressive treatments.



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WOMENS HEALTH



Assessing Urinary Incontinence in Women

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Urinary incontinence is a condition that is often not reported by patients but may affect almost half of all women.

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- BP Monitoring and Lifestyle Change Essential to Reduce CVD Risk
- New Appointments at Adcock Ingram
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On the **Horizon**

Better Dose Sensitive Digital Radiography with Small Format Detectors

Healthcare providers have expressed a need for smaller detectors that would deliver important imaging advantages in paediatric and orthopaedic settings. The new Carestream DRX 2530C has a smaller detector measuring only 25cm x 30cm. The cesium iodide detector is designed to offer greater efficiency for dose sensitive paediatric, orthopaedic and general radiology exams.

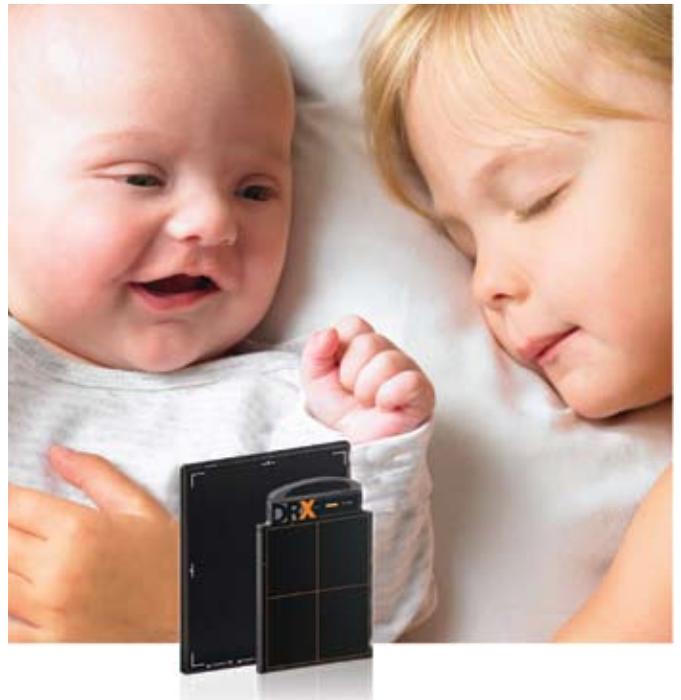
The smaller detector is designed to fit into paediatric incubator trays and offers higher detective quantum efficiency. This leads to lower dose requirements than computed radiography (CR) cassettes or gadolinium scintillator detectors. The new detector is intended for use with Carestream DRX-Revolution, Carestream DRX-Mobile Retrofit kits for mobile imaging of neonatal or paediatric patients, and the DRX-Evolution suite.

Easier positioning

In orthopaedic and general radiology, the smaller detector enables easier positioning for tabletop exams such as knee, skull or elbow, and other exams that require a patient to hold the detector or where a smaller field of view is required.

The DRX software optimises image quality with default processing parameters that suppress noise and enhance detail based on patient size. The software expands and integrates a range of seven patient sizes, as specified by FDA guidelines for paediatric exams.

At the heart of the DRX family is the wireless, cassette sized detector that works across all DRX-imaging equipment. The DRX-1 system enables healthcare facilities to quickly and cost-effectively



upgrade existing analogue x-ray rooms from film or CR systems to digital radiography technology in less than a day.

Available from:
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www.carestream.com



Triangular Prostatic Stent Enhances Comfort and Flow



Over the last two decades, the use of prostatic stents has become an alternative to indwelling catheters or even to surgery. Existing vascular stents have been adapted for non-vascular conditions highlighting the need for site- and disease-specific stents that are designed precisely for the anatomy of the organ being treated.

Allium's (Israel) prostatic stents have a large calibre, site-specific, triangular shape which is easily removable. In prostatic enlargement the prostatic urethra almost never has a round cross section. The endoscopic view is usually triangular. A stent with a triangular cross-section means the obstructing lateral lobes can be gently pushed aside, providing a large prostatic



lumen calibre with improved patient comfort.

The stent has the ability to exert varying degrees of radial force depending on the anatomy. It is capable of extending a higher radial force in the main body and a lower radial force in the area near the external sphincter to prevent sphincteric dysfunction. These characteristics enable these prostatic stents to conform to the prostatic urethra, allowing excellent flow.

Advantages include:

- Indications for all prostatic obstructions
- Easy insertion under topical anaesthesia
- Ambulatory procedure
- Easy stent positioning
- Long dwelling time
- Excellent patient comfort
- Superior for prostatic urethral lumen conformation
- Excellent voiding control
- Sexual function preservation
- No tissue in-growth
- Easy stent removal.

These stents come in expanded sizes of 24 to 30 French (8mm to 10mm). By having a thin wall which opposes the urethral wall, they allow a very large lumen for intraluminal urine flow for long periods of time without being changed, making them more acceptable to patients and more cost-effective.

Vision Correction Without Cutting

For patients reluctant to undergo laser eye surgery the Avedro's Keraflex procedure performed with the Vedera KXS vision correction device offers a breakthrough in vision correction without cutting.

It offers a non-invasive, non-incisional procedure for the correction of myopia and the treatment of keratoconus.

Unlike other laser correction procedures, no flap is cut into the cornea nor is any corneal tissue removed. This maintains the all important bio-mechanical integrity of the cornea.

The procedure is done on an outpatient basis. During the procedure, energy is applied to the cornea using a dielectrically shielded microwave emitter which contracts the epithelial surface. Through capacitive coupling, the single pulse raises the temperature of the selected region of corneal

stroma to approximately 65°C. This shrinks the collagen to form a toroidal lesion in the upper 150 microns of the stroma.

Wide range versatility

Applicators have been developed with varying diameter emitters to provide the capability of creating a range of lesion diameters when performing the procedure. Depending on the amount of energy delivered and the choice of applicator, tissue lesions of differing dimensions and geometries can be achieved.

A touch screen interface enables ease of use. The possibility of treating the wrong eye has been reduced by linking the correct eye to onscreen



graphics on the interface that represent the patient's face. The device can be used on either side of the patient depending on the surgeon's personal preference, the configuration of the surgical suite and the placement of other equipment. The height of the arm has been designed to accommodate the surgeon in a seated position, while operational control of the device is given to a technician acting as support person for the surgeon.



X-ray Safety With a Single Detector Tool

The **TNT 12000 X-Ray Test Tool**, by Fluke Biomedical, Washington, is a one-shot x-ray maintenance, calibration and quality assurance tool. This compact, totally wireless device features simultaneous all-in-one exposure measurement, including half-value layer transmitted to the custom readout device or a standard laptop. It makes use of Zigbee interface for fast and secure results display and archiving. The system allows professionals to carry out their tasks with flexibility, maximised productivity and the industry-standard accuracy of results.

No interference

The system is the newest and most comprehensive family of instruments available for assuring quality and safety of diagnostic x-ray systems. The detector sets up in seconds and measures kVp, radiation dose rate, time and half-value layer in a single exposure. The companion DoseMate dosimeter and ion chambers provide precision dose and dose-rate measurement of radiographic, dental, fluoroscopic, and CT imaging systems. A wireless interface allows for quick testing and reporting. At less than 1mW power, it is preferred over Bluetooth in medical settings where interference with delicate patient monitoring and treatment equipment may be a concern.

The test tools' compact design enhances portability and the wireless operation ensures setup in seconds. As all parameters are measured



with every exposure, there is no need for complicated menu selection. It always defaults to the last use when powered on, so when used often for repetitive procedures, it is a one-button solution. Users can identify and select custom measurement protocols and save them for future use. Full test automation and documentation software is available, creating the advantage of accurate, repetitive testing procedures. Wireless communication and intelligent device interface allows users to perform multiple exposures without leaving the radiation-shielded area.

MRI Transformed Into a Powerful Breast Imaging and Biopsy Tool

The **Hologic Sentinelle Breast MRI coil** is helping to redefine breast MRI and its future potential. Technical improvements such as dedicated coils transform a MRI scanner into a powerful breast imaging and interventional tool. The dedicated coils consistently achieve high resolution imaging to aid radiologists in the detection and characterisation of breast cancer under MRI. Unique Variable Coil Geometry enables the movement and adjustment of the coils for each breast on each patient.

Fits all popular systems

The portfolio of breast MRI coils includes solutions for Siemens, Toshiba and GE MRI systems. The modular design provides a flexible platform that can be tailored to individual breast MRI programme needs, allowing the coil technology to grow with the expansion of the breast MRI programme.

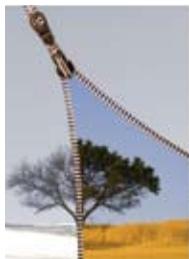
The coils deliver extremely high resolution images independent of breast size. The open access for positioning the breast helps to ensure appropriate coverage of breast tissue. The four quadrant access for biopsy allows for a minimally invasive path to the lesion. A broad spectrum of high-risk patients can be treated, including thin-

breasted, those with implants, women with lesions near the medial wall, and those with multiple lesions.

During a tissue biopsy, tissue acquisition occurs every 4.5 seconds, typically lasting less than 30 seconds in total. Local anaesthetic is easily delivered with-

out interruption. A combination of saline lavage and constant aspiration helps to ensure a core every cycle. The MRI conditional biopsy device is compatible with up to a 3T magnet. The fully enclosed system reduces contamination risk. The fully disposable biopsy device and tubing minimises staff and patient exposure to biohazard. The biopsy supports both grid and post/pillar targeting methods. There is one user-friendly console for every modality. No software is necessary for programming or operating the console.





Handheld 'Rainbow' Blood Constituent Monitoring



Traditional invasive lab testing takes time and requires painful needle sticks and time-consuming blood draws. Masimo's Pronto 7 is a non-invasive monitoring platform that assesses multiple blood constituents and physiologic parameters that previously required invasive or complicated procedures.

The innovative non-invasive sensor technology, dubbed 'Rainbow', uses seven wavelengths of light to acquire blood constituent data based on light absorption. Advanced signal processing algorithms and unique adaptive filters work together to isolate, identify and quantify various haemoglobin species. The blood measurement results are displayed numerically.

Measurements include:

- Total haemoglobin (SpHb) - allows doctors to non-invasively and

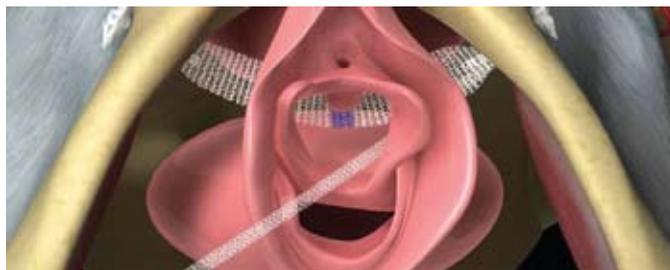
continuously monitor haemoglobin, thereby facilitating earlier and better clinical decisions, improved patient safety and reduced cost.

- Methemoglobin (SpMet) - enables doctors to immediately detect elevated blood levels, thereby facilitating earlier diagnosis and treatment. Methemoglobinemia is more common than generally believed and is linked to increased morbidity and mortality. Many procedures and drugs commonly used in clinical practice have been documented as contributing to induced methemoglobinemia.
- Pleth variability index (PVI) - assesses fluid status of patients. Fluid administration is critical to optimising patient care. Traditional methods that guide fluid administration often fail to predict fluid responsiveness. PVI helps doctors predict fluid responsiveness in mechanically ventilated patients under general anaesthesia during surgery or in ICU. PVI helps improve fluid management and decrease lactate levels compared to standard care.



- Carboxyhaemoglobin (SpCO) - immediately detects patients who have been poisoned by carbon monoxide. It is often misdiagnosed as symptoms resemble those of flu.
- Oxygen content (SpOC)
- Oxygen saturation
- Pulse rate
- Perfusion index.

Treating Urinary Incontinence with an Adjustable Single-incision Sling



Urinary incontinence is a common problem, affecting more than 13m Americans, mostly women, and may have a serious impact on quality of life. The Ajust adjustable single-incision sling, manufactured by CR Bard (Covington, GA), is designed to treat stress urinary incontinence.

The sling system comprises:

- A fully adjustable sling with self-fixating polypropylene anchors
- An introducer designed to place the sling in the obturator membrane consistently in a safe and secure manner
- A flexible style that locks the sling after adjustment.

Easy tightening or loosening after insertion

The sling is designed to offer all the benefits of a trans-obturator sling procedure through just one incision. Traditional single-incision slings require further insertion and tightening the sling only during placement.

With the Ajust-sling, surgeons can tighten or loosen the sling after insertion of the anchors enabling them to achieve optimal sling settings without visual obstruction from introducers in the surgical space.

Once the optimal setting is achieved, the sling lock is advanced up to the adjustable anchor using the flexible style that locks the sling in place.



The sling assembly features two anchors: one fixed, the other adjustable. It is constructed with a sub-urethral section and unique adjustable mesh that slides in either direction through the anchor offering reliable placement and creating bi-directional adjustability without further insertion of the anchors.



Laparoscopic Cleaning Station Saves Time, Combats Infection

Safe and effective laparoscopic surgery depends on clear vision of the operative field and on the uninterrupted progress of the procedure. The EndoClear Endocavity laparoscopic cleaning station, manufactured by Virtual Ports (Israel), has been approved by the FDA as a laparoscopic cleaning method that enables surgeons to maintain a clear image of the target tissue without leaving the intra-abdominal cavity to clean the camera lens. The cleaning station simplifies the laparoscopic procedure workflow by eliminating interruptions.

Simple cleaning procedure

With conventional cleaning methods, the surgeon must orient his or her focus to the surgical field each time the laparoscope is removed and reintroduced into the body. Using proprietary micro-anchoring technology, the cleaning station is attached to the intra-abdominal wall and remains in place throughout the procedure. It is deployed quickly and safely through an existing 5mm or larger port and as the camera lens becomes foggy or cluttered with debris, the surgeon simply moves the laparoscope a few centimetres to the cleaning station to clear the lens before returning to the target tissue.



The cleaning station decreases the risk of contamination and infection caused by repeated removal and reinsertion of the laparoscope and streamlines procedures by creating easy and efficient endocavity cleaning of the laparoscope for use in general, bariatric, single-port and robot assisted procedures.



Intelligent Ventilator Moves Between ICU and MRI

Critical care is expensive and so is ventilation. Each extra day on a ventilator costs money. The risk of ventilator associated pneumonia can compound these costs. Hamilton Medical (Switzerland) has developed a ventilation system that delivers clinical excellence as well as value and efficiency. Best of all, it can be used inside the MRI room.

The Hamilton MR1 ventilator has a compact design that increases the availability of appropriate modes for therapy for ventilated hospital patients requiring MR imaging. With the effectively shielded, MRI compatible ventilator, ventilator performance and MR image quality is guaranteed throughout the procedure. The integrated gauss meter, TeslaSpy, makes the invisible magnetic field visible to the operator so that the device can be safely positioned. The gauss meter continuously monitors the magnetic field and gives audible and visual signals if the ventilator gets too close to the magnet.

Versatile

The ventilator combines reliability and high performance with advanced lung protective strategies and patient-adaptive modes. It is an ideal choice for ICU special care areas, cardiac surgery recovery rooms, step-down or sub-acute care units and transportation of patients to the MRI department on a regular basis. The ventilator guarantees uncompromised continuous ventilation care from the ICU to the MRI and back.



These ventilators come with a ventilator cockpit that visualises the patient's respiratory mechanics and ventilator support in an intuitive way. The unique closed-loop ventilation system (adaptive support ventilation) automatically promotes free breathing in all ventilator modes and phases.



Catheter System Solves Post-surgical Drainage Issues



PleuraFlow Active Clearance Technology (ACT) systems enable caregivers to keep chest tubes clear of clots to maximise evacuation potential and decrease the incidence of Retained Blood Complex (RBC), a common problem after thoracic surgery.

After such surgery, air, liquid and blood accumulation in the post-surgical spaces around the heart and lungs can lead to complications

and even death, if not properly evacuated. Chest tube clogging occurs in about 36% of cardiac surgery patients and options to clear obstructions are often limited to squeezing, 'stripping' or 'milking' tubes, or using open suction, techniques not proven to be effective and perhaps even dangerous to patients.

Sterile integrity maintained

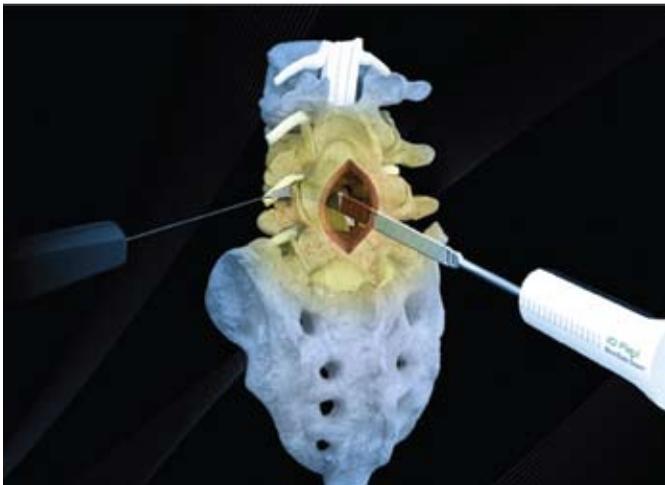
The ACT system, inserted between the chest tube and the drainage canister tubing, uses a clearance loop that rests at the end of the chest tube inside the patient. When indicated, the clearance loop is manipulated with a proprietary magnetically coupled handle that allows doctors to break up and clear obstructive clots without compromising the sterile environment inside the tube.



More on...
YouTube
Keywords:
PleuraFlow
ACT

The ACT system is packaged with silicon chest tubes, specifically calibrated for use with the system, that are inserted during surgery and attached to the system to enable active clearance of clot obstructions post operatively. The system has been found to be intuitive and easy to use.

Precision Spinal Decompression from the Inside Out



Lumbar spine stenosis, the narrowing of the spinal canal where the spinal cord and nerves are compressed at the level of lumbar vertebra, is among the most common reasons for spinal surgery in aging patients. Despite the prevalence of the condition, lumbar decompression surgery and the rigid instruments used have changed little in recent years and may even compromise the integrity of

surrounding joints. Frustrated by the limitations of this approach, Baxance Inc. (San Jose, CA), launched the iO-Flex system, a suite of instruments designed to achieve decompression while preserving bone and tissue.

Maintaining facet joint integrity

The flexibility of this system was developed to achieve complete lumbar decompression of the central, lateral-recess and foraminal tissues for spinal stenosis patients, without compromising the integrity of the facet joint.

Its three-step, flexible, 'over-the-wire' system provides access, confirmation and decompression. The surgeon gains access to the area by placing and deploying a proprietary probe midline into the back and out of the foramen. He then deploys a guide wire through the probe and back up through the patient's skin. Once the probe is removed, the surgeon attaches the neuro-check device to the guide wire and inserts it to confirm that the wire is positioned dorsal to the nerve root. Finally, he removes the neuro-check device and, using the wire, brings a micro-blade shaver into the foramen for precise removal of impinging bone and tissue.



More on...
YouTube
Keywords:
iOFlex
animation



Wrist-Articulated Robotic Instrument Captures Real-Time Ultrasound Images

The Aloka Robotically-controlled Ultrasound Transducer, manufactured by Hitachi, promises to bring greater accuracy to current laparoscopic procedures. It obviates the need for a surgical assistant to hold an ultrasound probe in the incision, while the surgeon manipulates the robotic tools at the robotic console, and to move it manually as the surgeon directs.

The transducer uses the full benefit of the wrist-articulation function of the robotic instruments to capture real-time ultrasound imaging even at complex angles or in difficult-to-reach areas. It seamlessly integrates with the robotic graspers for greater control, accuracy and precision during robot assisted partial nephrectomy (RAPN). The real-time ultrasound imaging facilitates localisation of tumour margins for proper resection. The probe has been successfully used at the Henry Ford West Bloomfield Hospital for robotic myomectomy cases and is currently being evaluated for other types of surgery.

Benefits of RAPN

Evaluation of clinical procedures has shown that the robotic platform may bridge the gap between open and laparoscopic approaches, achieving warm ischaemia times that consistently average 20 minutes. It provides similar oncological and functional results via



a shorter learning curve. It offers cosmesis and convalescence equivalent to that from laparoscopic partial nephrectomy, but with fewer post-operative complications. Robotic ultrasound probes for tumour identification during RAPN had comparative perioperative outcomes and surgical margin rates as a laparoscopic ultrasound probe, but with the advantage of surgeon autonomy.

3D Printing is Already Saving Lives

Resourceful doctors at the University of Michigan have used 3D printing technology to give a baby boy a stent for his weakened trachea. Suffering from a rare condition called tracheobroncho malacia (in which the cartilage in the trachea is soft, causing it to collapse and making breathing difficult or impossible), the infant's prognosis at best was never to leave the hospital. A 3D implant was printed that kept his airway open, allowing him to breathe again.

The design was guided by a high-resolution CT scan of his trachea and bronchus. With computer-aided design, a splint was tailored specifically to his collapsed airway. The splint was sewn to the airways, giving them the support they needed to expand. Over time the splint will act as a scaffold along which the airways will grow. After about three years the biodegradable splint will be reabsorbed by the body.

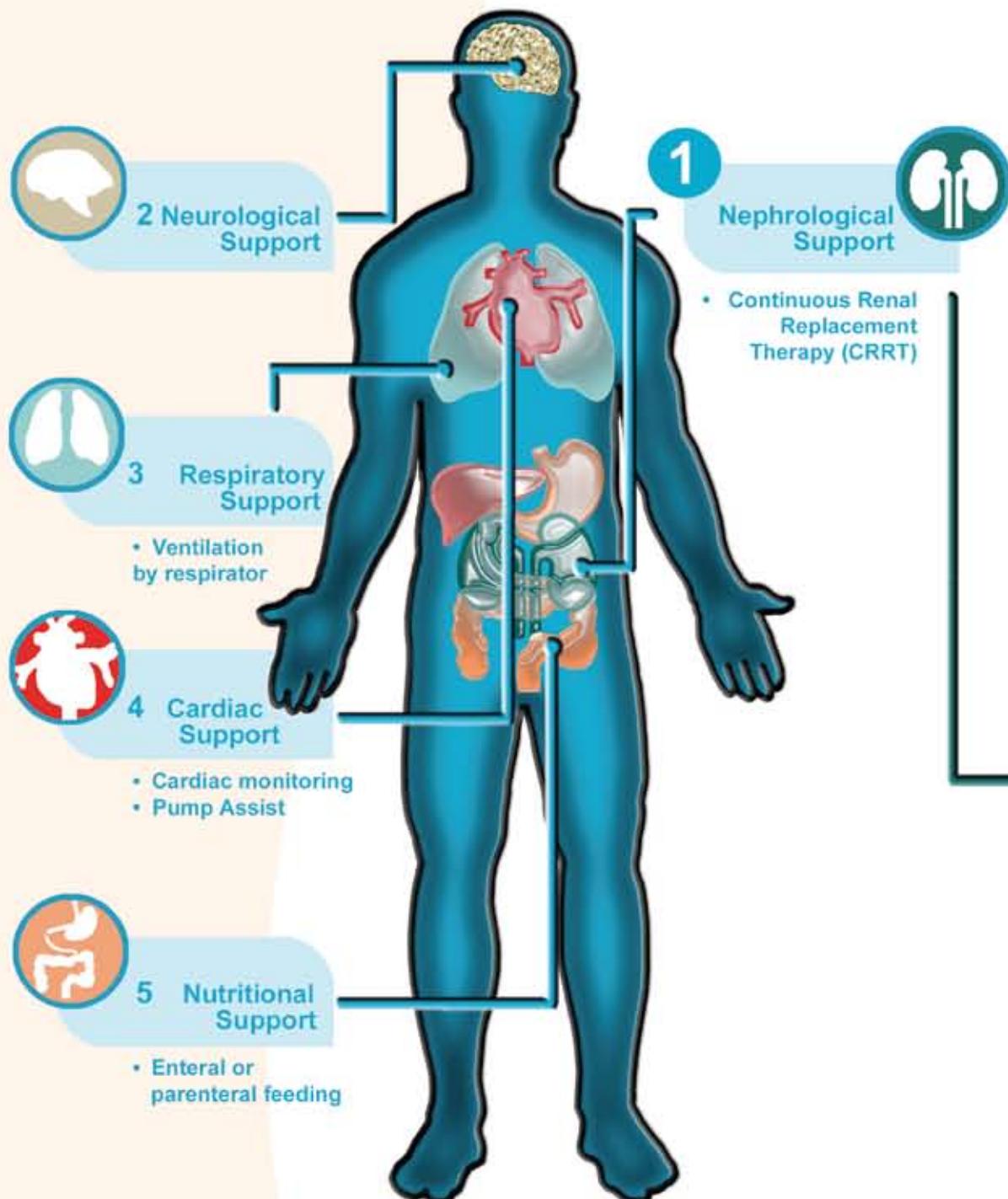
Bioengineering flexible natural ears

Doctors at the Weill Cornell Medical College and biomedical engineers at Cornell University have succeeded in building a facsimile of a human ear. They have demonstrated how 3D printing and new



injectable gels made of living cells can be used to fashion ears which, during a three month study, steadily grew cartilage to replace the collagen used to fashion them. The process of making the ear takes a week at most.

The Critically Ill Patient Requires Continuous Support in These Five Areas



"The kidneys are so beautifully organized; they do their work of regulation with such a miraculous - it's hard to find another word - such a positively divine precision, such knowledge and wisdom, that there is no reason why our archetypal man, whoever he is, or anyone else, for that matter, should be ashamed to own a pair."

Aldous Huxley in Antic Hay, 1923

Ref 1 KDIGO AKI guideline, 2012

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The Randomized Evaluation of Normal versus Augmented Level (RENAL) Replacement Therapy Study Will Appear in the August Edition of Modern Medicine

RIFLE Criteria¹

The Acute Dialysis Quality Initiative (ADQI) recommends a new classification of AKI based on the RIFLE criteria.*

	GFR criteria	Urine output criteria	
Risk	Increased creatinine x 1.5 or GFR decrease > 25 %	UO < 0.5 ml/kg/h x 6 hours	High sensitivity
Injury	Increased creatinine x 2 or GFR decrease > 50 %	UO < 0.5 ml/kg/h x 12 hours	
Failure	Increased creatinine x 3 or GFR decrease > 75 % or creatinine \geq 4 mg/100 ml (acute rise of \geq 0.5 mg/100 ml)	UO < 0.3 ml/kg/h x 24 hours or anuria x 12 hours	High specificity
Loss	Persistent ARF = complete loss of renal function > 4 weeks		
ESRD	End-stage renal disease		

* Adapted from KDIGO AKI guideline, 2012

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.

This month sees the second in the series on conscious sedation by Prof James Roelofse. It is a thought provoking article as it deals with the sometimes contentious issue of the scope of practice of various practitioners, in this case doctors who administer conscious sedation. He sets out the position in the 'first world' UK and looks to providing a way forward for South African practice. It makes compelling reading.

In our increasingly litigious environment it is apparent that when things go wrong, it is more and more likely that litigation will follow. I have noted a number of cases recently where anaesthesia and or sedation have been the centre of a case. Especially vulnerable is the patient in a recovery room where, after a procedure, the patient is considered to be sufficiently conscious to be left in the care of nursing staff. Inevitably, the courts are concerned with the competency of the doctor in handling the case. There are two obvious scenarios that come to mind; first, the under-trained practitioner acting outside his or her scope of practice and second, the slick and often arrogant specialist where familiarity has bred contempt. We should spare a thought for improving the skills and competencies of those doctors working outside academic and resourced private-sector facilities especially the Community Service medical officer battling to cope in a rural environment. Safe administration of conscious sedation and anaesthesia are crucial skills that are needed in their 'stock-in-trade'.

The other articles presented this month make, I think, interesting reading.

Incontinence and cough

Incontinence in women is not a 'wee' problem. Preservation of dignity and independency is essential for well-being in an ever aging population. The unnecessary shame induced by urinary incontinence is well recognised; often inversely proportional to the volume! This article contains a wealth of useful information and tips to assist.

The final article that I wish to draw attention to is on cough as a presenting symptom. This is obviously so common a problem that none of us escape it. There are well designed algorithms to assist the doctor in separating the common benign causes from the more serious aetiologies. Every physician has surely missed the clues apparent and consequently delayed the diagnosis of a more ominous problem. The way we approach a diagnosis is a combination of intuitive and analytical thought processes. While analytical processes are less prone to error it would be impractical to deal with all cases of cough in this rather cumbersome manner. There is a great editorial perspective in this week's NEJM which covers cognitive bias and clinical decision making.¹

Gimme a break

South Africa is not the only place where crime is a normal daily occurrence. What about this urban legend from Chicago.....

One night a young male was brought in after being shot by an off-duty police officer during an attempted robbery. The man did suffer from multiple gunshot wounds, but would eventually make a complete recovery. His sister came in about an hour after the patient arrived, and when informed that her brother was shot during the commission of the robbery, remarked that "They shot him for that? He's robbed people before and they never shot him. Why did they shoot him this time?"

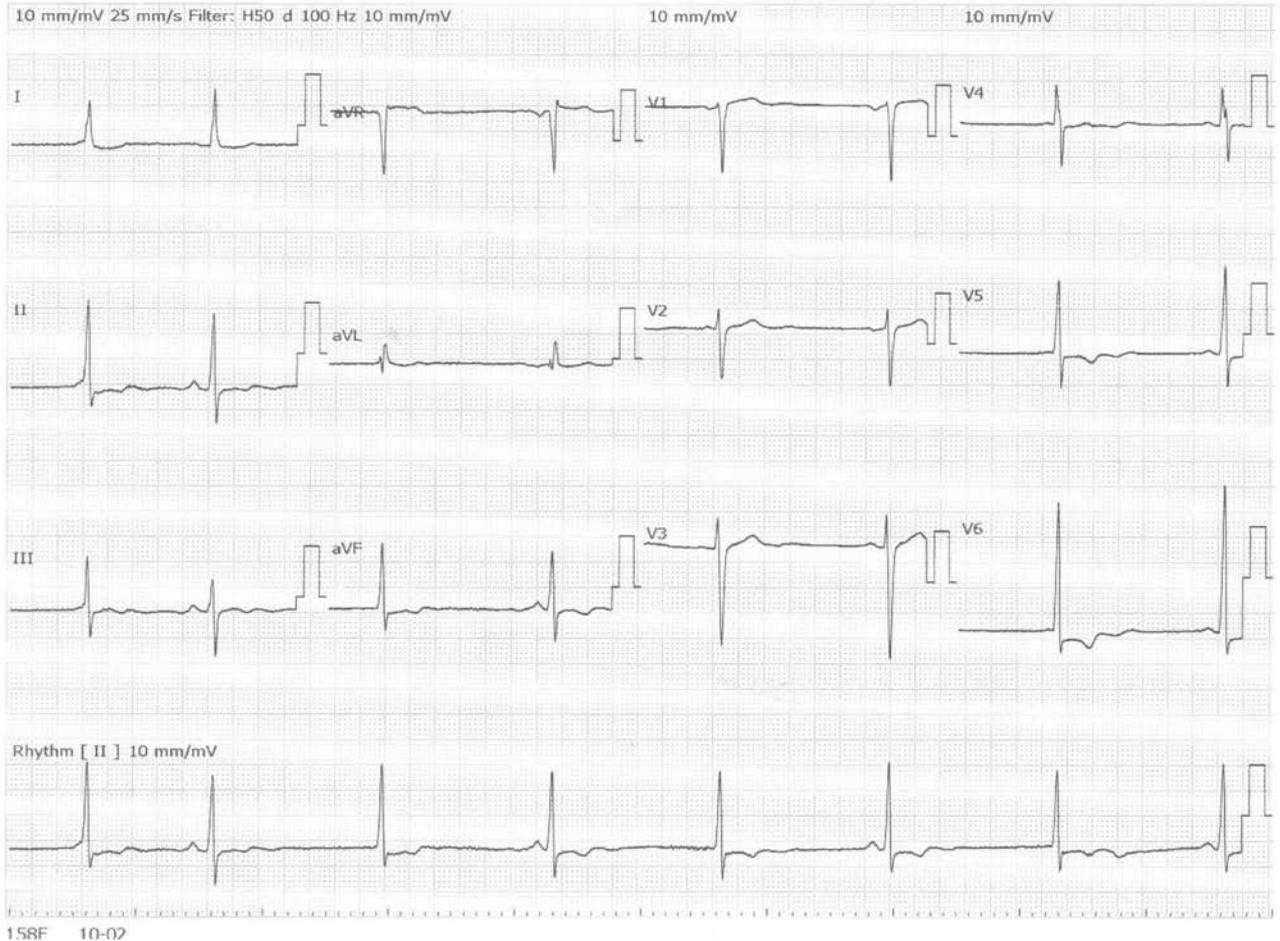
What next?

Reference: Croskerry P. From mindless to mindful practice – Cognitive bias and clinical decision making. NEJM 2013; 368 (26): 2445-48



ECG Challenge: Test Your Skills

Dr M Bushidi – Cardiologist, Mediclinic Heart Hospital, Pretoria



Case

This woman is 73 years old with a history of shortness of breath and dizziness. She reports having pre-syncope. She has a history of hypertension. She is on diuretics and an angiotensin converting enzyme inhibitor. She was referred to a cardiologist because of the pre-syncope. She has no history of coronary disease. On examination, the patient was stable and alert with a blood pressure of 160/100, not in heart failure with normal heart sounds. The rest of the examination is unremarkable.

Statements for consideration (true or false):

1. This patient has a pulse rate of 48 beats/minute
2. This patient has atrial fibrillation
3. This patient has complete heart block
4. This patient should be given atropine as initial treatment
5. This patient should be referred for permanent pacemaker implantation.

Earn a CPD point

Fill in the answers on the CPD answer sheet at the back of this issue.

Have you looked
beyond the obvious?



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Discussion

This patient has pre-syncope with bradycardia with a heart rate of 48 beats/minute. The rhythm strip of the ECG (Fig 2) has a recording duration of 10 seconds. To find the heart rate, one has to count the number of the QRS complex and multiply them by 6. In this case, it is $8 \times 6 = 48 \text{ bpm}$.

Fig 2



Differential diagnosis

What is the differential diagnosis of bradycardia in this case?

The first possibility to consider is **Sinus bradycardia**. In this case, one should expect a P wave in front of each QRS complex. Close inspection reveals there is no P wave in front of the third, fifth and seventh QRS complex. This excludes the possibility of sinus bradycardia.

The second possibility to consider is an **Atrio-ventricular heart block**. However, there is no evidence of first degree heart block as the PR interval is not prolonged. Further, there is no evidence of progressive PR interval prolongation to suggest type I second-degree heart block. Nor is there any evidence of intermittent P wave conduction failure to suggest type II second-degree heart block. In the case of complete heart block, one would expect the presence of atrio-ventricular dissociation where there is no relation between P wave and QRS complex. In this case, every detectable P wave is associated with a QRS complex but the opposite is not true, especially for the third, fifth and seventh QRS complexes.

Sick sinus syndrome resulting from dysfunctional SA-node is the most likely diagnosis in this case. The second, fourth, sixth and eighth QRS complexes are preceded by a P wave; however the third, fifth and seventh QRS complexes are not preceded by a P wave. This means the SA-node failed to activate with subsequent occurrence of a junctional escape. The first QRS complex is a junctional escape as well, with atrial extrasystole or P wave just before it, giving it a configuration different from the other QRS complexes. After the seventh T wave one can observe an atrial ectopic.

As with bradycardia, **medications used** (digoxin, calcium channel blocker, betablocker, amiodarone, ivabradine) and **electrolyte abnormality** (hyperkalemia) should be excluded as possible causes.

Conclusion and management strategy

This woman has sick sinus syndrome. She is symptomatic if one considers the complaints of pre-syncope, dizziness and shortness of breath. An initial treatment with atropine to increase the heart rate will not work as the patient's problem is most likely a degenerative SA-node.

The optimal treatment for this patient is implantation of a permanent pacemaker. Because of the heart's advanced age and hypertension, coronary disease may be excluded as the cause of the SA-node dysfunction. In this case, the coronary angiogram was normal and the patient had a dual chamber pacemaker implanted successfully with subsequent resolution of symptoms.

Have you looked
beyond the obvious?



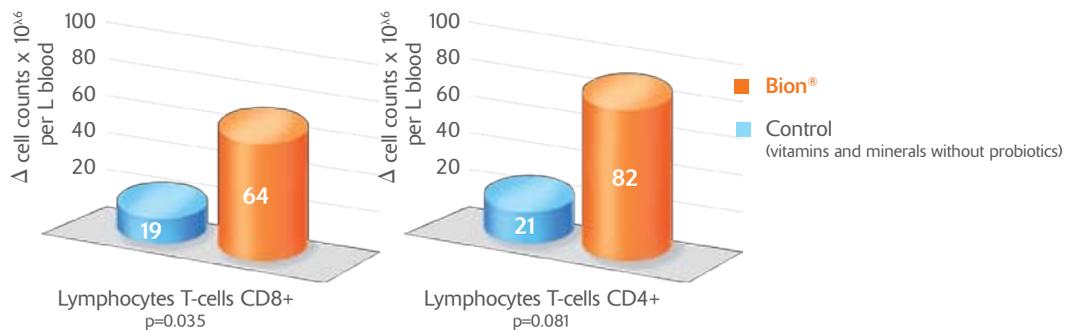
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Adapted from de Vrese et al. ¹

- When Bion[®] is taken over at least 3 months, studies show significantly shortened duration of common cold episodes by nearly 2 days (p = 0,045) and a reduction in the severity of the symptoms.¹

Reference:

1. de Vrese M, Winkler P, et al. Vaccine 2006;24:6670-6674.

B.05.13.003





Herbal Drug Rivals PPIs in Breakthrough Clinical Trial

Results from a breakthrough clinical trial investigating the efficacy and tolerability of treatments for functional dyspepsia (FD) have revealed that the natural medicine Iberogast worked as well as a proton pump inhibitor (esomeprazole), with less chance of symptoms recurring after stopping treatment.

The results were presented at DDW (Digestive Disease Week), the international gastroenterology congress, in Orlando, Florida in May 2013 by the principle investigator of the trial, Prof Gerald Holtmann, Director of the Department of Gastroenterology and Hepatology at the Princess Alexandra Hospital in Brisbane, Australia.

Iberogast is the only medicine indicated for both irritable bowel syndrome (IBS) and FD in Germany and the only complementary medicine approved for efficacy and safety in IBS and FD by Australia's TGA (Therapeutic Goods Administration). In South Africa, doctors' prescriptions are dispensed in pharmacies, with patients being reimbursed by the majority of medical schemes.

Study results

Funded by an Australian government grant, the trial involved 110 patients with FD who were divided into four arms



Professor
Gerald
Holtmann,
principal
investigator.

enabling comparisons between placebo, Iberogast, PPI (esomeprazole), and Iberogast combined with PPI.

- The clinical trial revealed that after four weeks of treatment, Iberogast worked as well in reducing symptoms of FD as a PPI, with both being significantly better than placebo ($p < 0.05$).
- Of particular note, is the fact that relapse rates after cessation of active therapy for two weeks, were significantly higher with the PPI (47%, $n=19$) compared to Iberogast (7%, $n=15$), especially for symptoms such as heartburn and abdominal pain.
- Furthermore, the clinical trial showed that combining a PPI and Iberogast did not yield a better response rate, and that relapse rates after using the combined mixture were higher compared to using Iberogast alone (58%, $n=12$).

Prof Holtmann commented that "The result is significant, as it shows for the first time, that when studied for efficacy and safety, there is no statistical difference in efficacy of natural medicines and mainstream drugs.

"What is interesting about this study is that it gives consumers, who experience often debilitating gastrointestinal symptoms, the comfort and confidence that there are clinically proven natural options outside of prescription medications.

"The fact that Iberogast has been used for over 50 years around the world is now reinforced by the results of this study."

Iberogast is a liquid formulation combining nine herbal extracts that work

synergistically to provide relief from the symptoms of both IBS and dyspepsia. The herbs included in Iberogast are angelica root, caraway fruit, celandine, liquorice root, bitter candy tuft, chamomile, lemon balm, peppermint and St Mary's thistle.

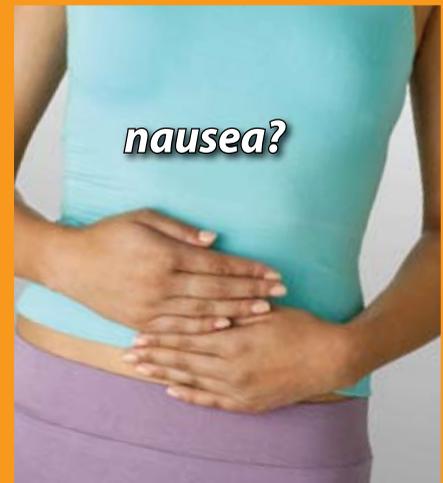
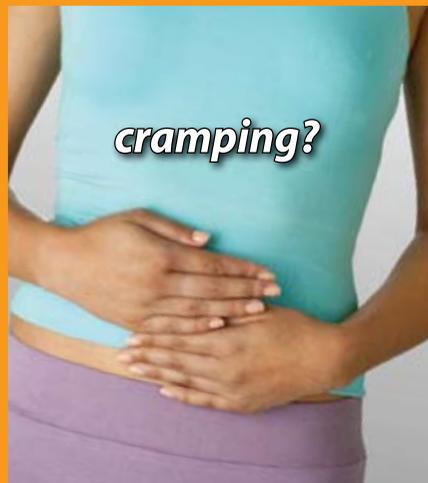
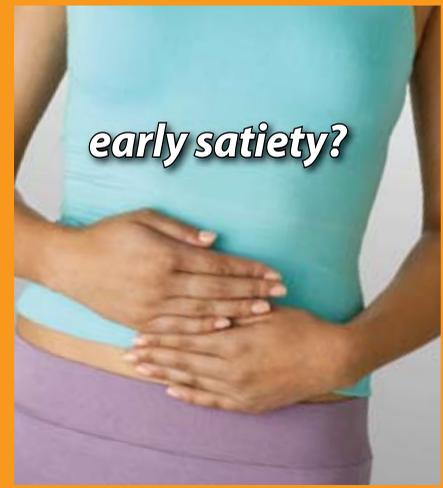
Widely used, extensively tested

Used by an estimated 25 million people worldwide, Iberogast has been studied in 19 clinical trials, seven of which were double blind and randomised. Since its launch, no significant adverse medical reactions have been reported to drug regulatory authorities worldwide.

Iberogast binds to 5-HT₃, 5-HT₄, muscarinic M₃ and opioid receptors in the gut. Results from clinical trials indicate that Iberogast reduces symptoms in patients with FD and IBS by normalising dysfunctional gastrointestinal motility, toning the lower oesophageal sphincter, reducing the production of gastric acid, reducing visceral hypersensitivity and demonstrating anti-inflammatory properties in the gut. These five actions work together to reduce the gastrointestinal symptoms associated with IBS and FD including bloating, cramping, constipation, reflux, flatulence, abdominal pain, diarrhoea, nausea and stomach pain.

References:

1. Wang WH et al *Clin Gastro & Hepato* 2007;5 178-185.
2. Gundermann, KJ et al *Advances in Natural Therapy* 2003; Vol 20 (1) Jan-Feb; 43-49.
3. A Placebo Controlled Randomised Treatment Trial for Functional Dyspepsia including Post-Treatment Drug Withdraw and Placebo Withdraw Effects. Holtmann, G et al *Digestive Disease Week 2013, Orlando, USA, Abstract M02071*



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IBS: Irritable Bowel Syndrome. References: 1. Madisch A, et al. Aliment Pharmacol Ther. 2004;19:271-9. 2. Rösch W, et al. Z Gastroenterol. 2002;40:401-8. 3. Gundermann K-J, et al. Adv Ther. 2003;20:43-9. 4. Malfertheiner P, et al. GI-Telex. Supplement for Gastroenterologists. 2011;2:1-8.



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The Proven Power of Nature



Managing Cough in Adults: Is there a Serious Underlying Cause?

A thorough history and physical examination, targeted investigations, adequate treatment trials and the option of combining therapeutic approaches are important components of an effective management plan in patients with acute and chronic cough. Serious underlying causes such as malignancy, pneumonia or congestive cardiac failure should be excluded.

Cough is a normal physiological reflex to remove secretion from and prevent inhalation of foreign material into the lungs. It is one of the most common reasons for patients to present in primary care and has significant social and economic impacts. It also affects patients' wellbeing and can significantly impair quality of life.¹⁻³ Cough can be difficult to manage and many evidence-based guidelines have been published⁴⁻⁸ with the American College of Chest Physicians recommending that clinicians use an empiric integrative diagnostic approach in adult patients presenting with cough.⁸ This article outlines a diagnostic approach to the management of cough in adults.

Mechanism of cough

The cough reflex is usually initiated by stimulation of afferent structures found in upper and lower airways, and the tympanic membrane and external auditory meatus. These structures respond to both chemical and mechanical stimuli and are innervated by the vagus nerve,⁹

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which sends a signal to the 'cough centre' in the brain stem, with subsequent motor activation of expiratory muscle groups, including the diaphragm, larynx, pharynx and intercostals. However, cough can also be generated at a central nervous system level or voluntarily.

Cough categorisation

Cough can be categorised arbitrarily by time, with acute cough typically lasting less than three weeks, and chronic cough lasting more than eight weeks.^{7,10} Cough lasting between these periods can be defined as sub-acute cough and can be managed as chronic cough once post-infectious cough is excluded. Cough can

also be described as productive (>30mL of sputum per day)¹¹ or non-productive. Clinicians should also enquire about any particular trigger, and quantity and quality of sputum produced (including the presence of blood).

Acute cough

Recent onset cough is usually self-limiting and commonly caused by infections (especially viral) of the upper or lower respiratory tracts, including the common cold.¹² It affects healthy adults and those with chronic lung diseases. Clinically, it is important to determine through medical history and physical examination whether the acute cough is due to a non-life-threatening diagnosis such as infection, an exacerbation of a pre-existing condition (eg, asthma) or chronic obstructive pulmonary disease, or whether it is due to a more serious cause such as pulmonary embolism, congestive heart failure or pneumonia. Features such as coryzal symptoms, sputum and fever, or physical examination

Key points

- A detailed medical history and physical examination are important in managing patients with cough.
- Acute cough is defined as cough lasting less than three weeks and chronic cough as lasting more than eight weeks.
- Acute cough is commonly caused by infections (especially viral) of the respiratory tract.
- It is important to exclude serious illness as a cause of acute cough and to exclude a post-infectious cause in patients with sub-acute cough.
- A trial of cessation of medications that can cause cough is recommended.
- Chronic cough is strongly associated with smoking. Upper airway cough syndrome, asthma or gastro-oesophageal reflux diseases are the most likely causes of chronic cough in a healthy non-smoker.
- A combined therapeutic approach in sequential steps and referral of the patient to a specialist may be required in the management of chronic cough.



Guidelines on cough

- Therapeutic Guidelines: Respiratory. Version 4, 2009⁴
- CICADA: Cough in children and adults: diagnosis and assessment.
- European Respiratory Society: ERS guidelines on the assessment of cough⁶
- British Thoracic Society: Recommendation for the management of cough in adults⁷
- American College of Chest Physicians: Diagnosis and management of cough executive summary⁸

findings such as upper airway inflammation and presence of crackles on auscultation may help determine the anatomical site of the infection (see the box).

Most patients presenting with acute cough do not need any investigation. However, patients who are at risk or who present with more worrying symptoms will require a chest x-ray and other specific investigations. Although there is little evidence that various over-the-counter preparations have a specific pharmacological effect, many patients do report a clinical benefit. Dextromethorphan, menthol, sedative antihistamines, codeine and pholcodine have all been shown to suppress cough reflex in clinical studies using cough challenge methodologies. Codeine and pholcodine are opiates and have a greater side effect profile than dextromethorphan.⁷ The flowchart later in this article shows an example of a clinical pathway for managing acute cough. Some of the usual common causes of acute cough are described below.

Acute bronchitis

Acute infection of the larger airways in otherwise healthy patients is most often viral and does not require antibiotics. Use of a neuraminidase inhibitor such as oseltamivir within 48 hours of onset of symptoms can reduce the clinical course of an influenza infection by one day on average.¹³ In treating the common cold, a first-generation antihistamine together with a decongestant has been shown to reduce severity and hasten resolution of cough and postnasal drip whilst the NSAID naproxen also improves cough.^{12,14}

The incidence of infection caused by *Bordetella pertussis* (whooping cough) in adults has increased worldwide and should be considered if the cough is persistent and paroxysmal or accompanied by post-tussive emesis or inspiratory whoop.¹⁵ Investigation should include an early posterior nasopharyngeal swab for culture and/or polymerase chain reaction testing for *B. pertussis*. Recommended treatments include isolation for five days and use of macrolide antibiotics, which can achieve clinical benefit if given within the first week, whereas later treatment may minimise the spread of infection.¹⁶

Asthma and asthma-like syndromes

Asthma onset can occur late in adulthood in individuals with smoking history or preceding rhinitis.¹⁷ Patients with uncontrolled or poorly controlled asthma can present with acute cough, particularly after exposure to trigger factors, or spontaneously at night. Associated symptoms such as chest tightness, wheeze or dyspnoea and a history of asthma or atopy are helpful. Obstructive spirometry with significant bronchodilator reversibility is a typical finding, and most patients will have a positive bronchoprovocation test.

Management of asthma includes allergen avoidance, appropriate preventive and reliever bronchodilators, and management of exacerbation according to established guidelines (eg, the Global Initiative for Asthma guidelines).¹⁸ Initial treatment should include use of an inhaled corticosteroid and a β agonist, and a response should be expected within one week. Oral leukotriene inhibitors may also be effective in people with asthma-induced cough, and can be added if cough persists.¹⁹ Concurrently managing conditions that may co-exist and aggravate the cough, such as smoking, respiratory tract infection, gastro-oesophageal reflux disease (GORD) and rhinitis with postnasal drip, is also recommended.

Drug-induced cough

Although uncommon, certain medications can cause cough, and these should be excluded in patients with unexplained cough. A temporal relation between

Important history and examination findings not to be missed

History

- Recent respiratory infection
- Occupational factors
- Smoking history
- Prominent dyspnoea
- Haemoptysis
- Systemic features (eg, fever, weight loss)
- Dysphagia, aspiration, gastro-oesophageal reflux symptoms
- Medications (eg, angiotensin converting enzyme inhibitors)
- Prominent aggravating factor

Physical examination findings

- Crackles on auscultation
- Examination of ear, nose and throat for rhinosinusitis
- Spirometry, bronchodilator reversibility, bronchial provocation challenge

cough development and commencement of a new drug treatment may not always be evident. Important drugs to consider include angiotensin converting enzyme (ACE) inhibitors (up to 15% of patients taking this medication may develop cough), beta-blockers in patients with asthma, and aspirin. Drugs that can cause diffuse interstitial lung disease, such as amiodarone and methotrexate may also cause chronic cough. A trial without the potentially offending drug (including cigarette smoking) is the first step in the management of a patient with a suspected drug-induced cough.

Other causes

It is important to consider a foreign body as a cause of acute cough, especially in patients at risk of aspiration. Radio-opaque objects may be visible on plain x-ray; further imaging (eg, CT scan of the chest) or endoscopic procedures (eg, nasoendoscopy or bronchoscopy) may be needed for diagnosis and retrieval of the foreign body.

Where tuberculosis is prevalent in a community, patients who present with a cough plus associated systemic features



(such as weight loss, night sweats or cervical lymphadenopathy) and chest x-ray changes need to be investigated to exclude *Mycobacterium tuberculosis* infection.³ Early morning sputum samples should be taken to look for acid-fast bacilli. Referral to a specialised tuberculosis chest clinic is warranted in highly suspected individuals. Further investigations such as Mantoux skin test or QuantiFeron Gold and bronchoscopic investigation may then be arranged.

Another diagnosis that is important not to miss is malignancy. Suspicion should be raised in people who are heavy smokers and have alarming clinical features such as haemoptysis and weight loss (see the chronic cough section). Other more rare causes of acute cough include pneumothorax, pleural effusion, pulmonary embolism and heart failure.^{20,21}

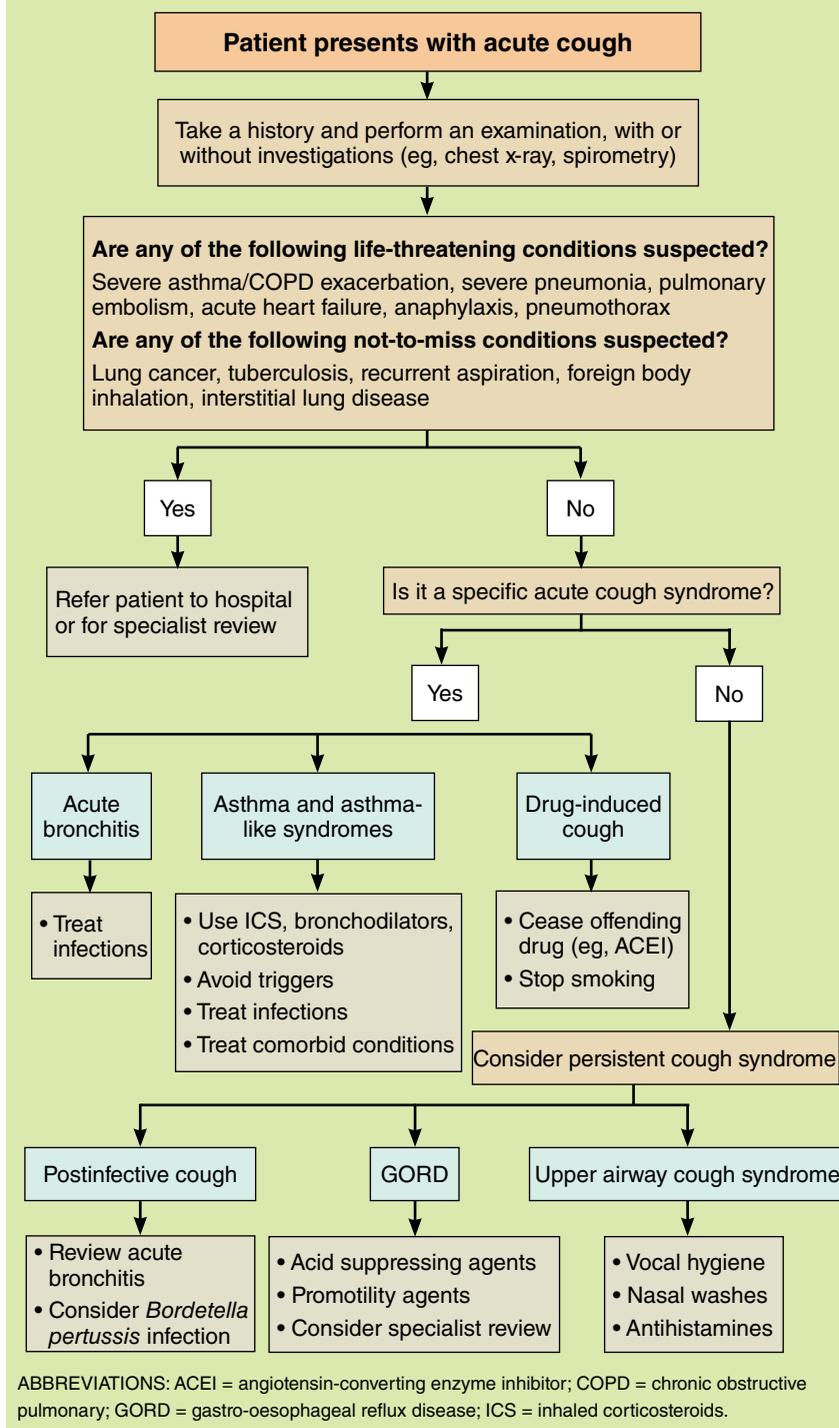
Sub-acute cough

There is currently little data regarding causes and treatment of sub-acute cough. Clinically, it is useful to determine if the cough is of a post-infectious nature. In such cases, probable reasons for lingering cough include persistent upper airway irritation, mucous accumulation, persistent postnasal drip or bronchial hyper-responsiveness. It is important to exclude infections such as tuberculosis or pertussis, and acute exacerbation of chronic respiratory diseases such as asthma or COPD. In non-infectious cases of sub-acute cough, the recommendation is to evaluate and manage the patient as presenting with chronic cough.

Chronic cough

The prevalence of chronic cough is strongly associated with smoking, with people who are current smokers having a two- to threefold greater prevalence than those who have never smoked.^{8,22} The prevalence rate increases with the number of cigarettes smoked and decreases significantly with smoking cessation. Other environmental and occupational factors, including particulates, certain home heating components (eg, wood stove, paraffin heater) and road traffic pollutants, may also need to be addressed. Several prospective studies have reported that the most likely causes

Suggested management pathway for patients with acute cough



of chronic cough in people who are non-smokers and who have no recent chest infection and a normal chest x-ray, include upper airway cough syndrome (includes postnasal drip syndrome), asthma and GORD. Furthermore, a

combination of two or more of these conditions is responsible for up to a third of cases.²³⁻²⁵ Other important conditions causing chronic cough include bronchiectasis, ACE inhibitor-related cough, diffuse parenchymal lung disease



and psychogenic cough. When no clear cause is found, the preferred term 'unexplained cough' is used. No clear cause is found in up to 20% of cases in carefully investigated case series, but probably even more in clinical practice.²¹

In managing a patient with chronic cough in primary practice, it is important to take a detailed history, including current and previous occupation, domestic environment, dust/chemical exposure and presence of pets, and perform a physical examination. A chest x-ray and spirometry should also be performed. If an obstructive pattern is observed, a pre- and post-short-acting β_2 -agonist effect on forced expiratory volume in one second (FEV₁) should be measured.

There is currently no evidence linking the cough duration to a particular cause, nor ongoing viral infection to persistent cough. There is also a poor diagnostic sensitivity and specificity relating to cough characteristics.²⁶ However, cough reflex sensitivity may be enhanced by viral infection, ACE inhibitors, GORD and asthma.^{24,27,28} Any associated alarming features warrant immediate attention. These features include a significant smoking history (more than 20 pack years), haemoptysis, new onset hoarseness, prominent dyspnoea (nocturnal or resting), systemic features (eg, fever, weight loss, night sweats), complicated gastro-oesophageal symptoms (eg, anaemia, overt bleeding, dysphagia), feeding troubles or recurrent pneumonia.⁵ Abnormal respiratory clinical findings or radiographic changes also merit further investigation.

Systematically addressing the following specific common conditions may aid in the management of chronic cough. However, if there is failure of empirical treatment or targeted investigations are normal, the patient should be referred to a specialist. An approach to the diagnosis and management of chronic cough is shown in the flowchart.

Upper airways disease

Clinical features of nasal inflammation (blockage, rhinorrhoea, itchiness) with conjunctivitis may suggest allergic rhinitis, especially in atopic individuals. Skin prick testing may assist in identifying common allergens. Treatment of cough in this setting involves management of allergic rhinitis according to cur-

rent guidelines,¹⁵ primarily with topical nasal corticosteroids. Antihistamines, decongestants, allergen avoidance and immune-therapy may also play a role.

Patients with chronic rhinosinusitis who experience mucopurulent nasal discharge, sinus pain, anosmia and headaches may also be burdened by chronic cough. Management includes nasal saline irrigation and intranasal corticosteroid therapy for at least four weeks, with oral antibiotics cover for the same period.²⁹ Use of oral corticosteroids for a short duration is indicated if there is associated nasal polyposis. If the above medical therapy fails, a CT scan of the sinuses should be arranged for diagnosis and/or surgical planning, with subsequent referral of the patient to an ear, nose and throat specialist.

Vocal chord dysfunction

Patients with vocal chord dysfunction experience stridor and dysphonia due to episodic, uncontrollable narrowing of the cords during inspiration, with associated dyspnoea and cough occasionally. Direct laryngoscopy and flattening of the inspiratory flow-volume loop on spirometry can support the diagnosis. Acute interventions of vocal cord paradoxical movement sometimes involve continuous positive airway pressure and, rarely, tracheostomy. Successful longer-term treatment reported involves voice therapy and psychological counselling.³⁰ Apart from reassurance, irritant avoidance and supportive care, these patients are perhaps best managed in consultation with an experienced speech pathologist. Optimising medical treatment of comorbidities such as asthma is also crucial. Vocal chord dysfunction often leads to a misdiagnosis of asthma and subsequent overtreatment with inhaled corticosteroids; however, the two may coexist.

Nonasthmatic eosinophilic bronchitis

Nonasthmatic eosinophilic bronchitis is an increasingly recognised cause of chronic cough, usually with minimal sputum production. However, induced sputum in these patients demonstrates increased eosinophil counts. Typically, the patient has no airflow limitation on spirometry and no bronchial hyper-reactivity on bronchial challenge test. These

results suggest active airway inflammation in the absence of airway hyper-responsiveness. Treatment with inhaled corticosteroids should alleviate the cough within four weeks of therapy.³¹⁻³⁴

Chronic lung diseases

Patients with chronic lung diseases often have persistent cough, with excessive sputum production seen in those with conditions such as chronic bronchitis and bronchiectasis. Chronic obstructive pulmonary disease (COPD) is characterised by airflow obstruction and is usually progressive, with enhanced chronic airway inflammation to noxious particles. The clinical diagnosis should be suspected in patients with dyspnoea, chronic cough or sputum production, and exposure to risk factors (eg, tobacco smoke, pollution, burning of biomass fuels). Assessment and management of patients with COPD should be guided by established guidelines (eg, Global Initiative for Chronic Obstructive Lung Disease guidelines).³⁵

Bronchiectasis shares many clinical features with COPD. Clinical diagnosis can be established by chronic daily cough with viscid sputum production and a high-resolution CT scan of the chest demonstrating bronchial thickening and luminal dilatation. This could be due to a congenital condition, such as cystic fibrosis, ciliary dyskinesia or immunodeficiency, or acquired through recurrent or significant airway insults, such as childhood infections, foreign body aspiration or connective tissue disease. Treatment aims at controlling infection and improving bronchial hygiene. Referral of the patient to a respiratory physician, with support from a multidisciplinary team (including a physiotherapist and pulmonary rehabilitation), is recommended.

Asthma

Asthma is a common cause of chronic cough and should be considered once upper airway cough syndrome has been evaluated. Medical history is not reliable to exclude the diagnosis and the bronchoprovocation test, which has a high negative predictive value and a positive predictive value of 60% to 88%,^{22,36} is often needed.³⁷ Most patients will respond to treatment, including inhaled



corticosteroids and β -agonists within one week, but complete resolution may take eight weeks or more. If cough persists, a 5-day to 10-day trial of oral corticosteroids may be required (see the sec-

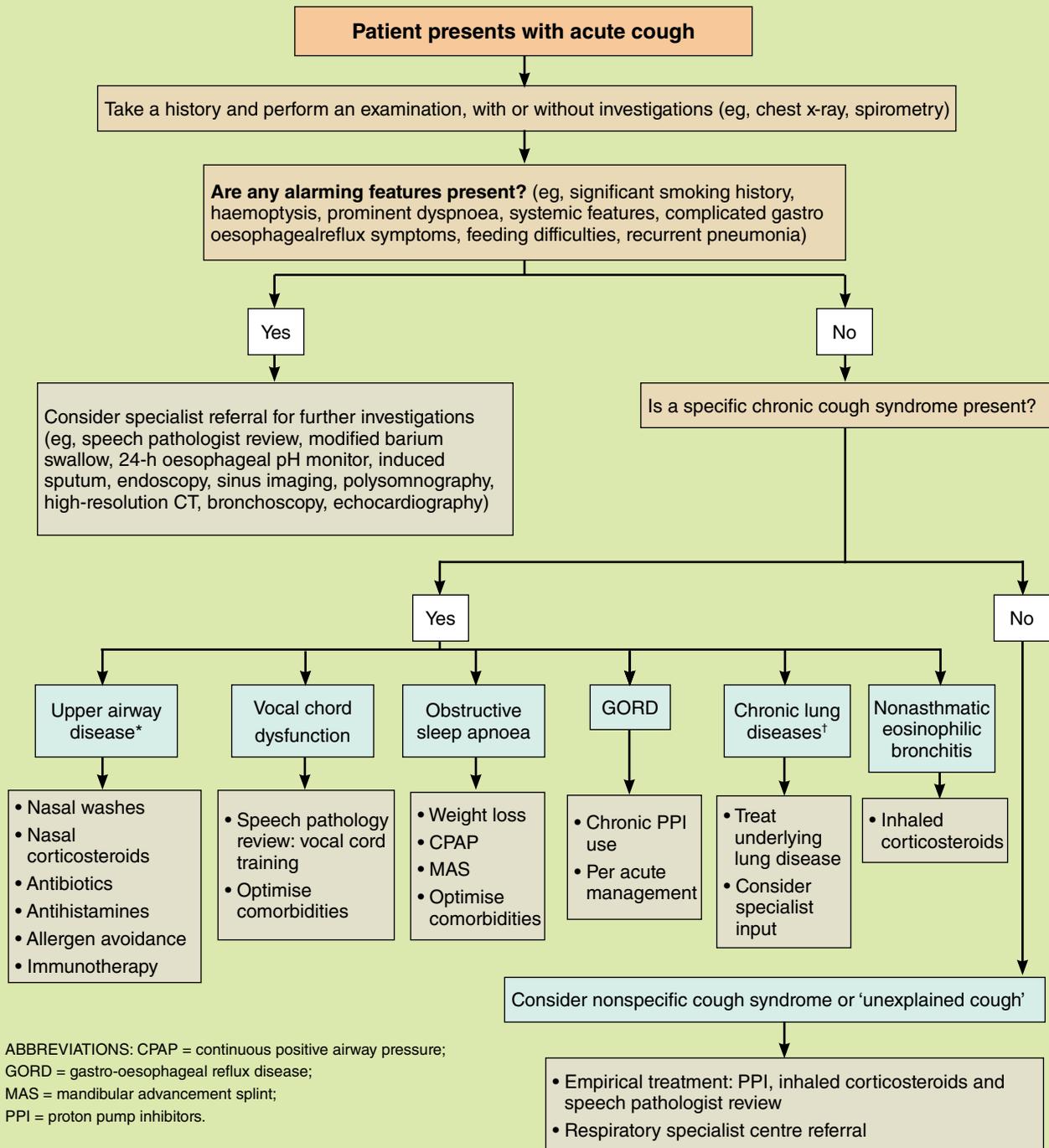
tion on asthma under the acute cough heading).

Obstructive sleep apnoea

Obstructive sleep apnoea is character-

ised by symptoms of snoring, observed apnoeic episodes during sleep (with or without nocturnal awakenings) and daytime hyper-somnolence. Overnight polysomnography remains the standard for

Suggested management pathway for patients with chronic cough





diagnosis. Management includes weight loss advice, nasal continuous positive airway pressure and mandibular splinting devices, depending on severity.

Gastro-oesophageal reflux disease

Up to a third of patients with GORD may experience chronic cough,³⁸ suggested by association of cough with meals, worsening on supine/stooping posture or the presence of dyspepsia. Reflux-associated cough may also affect patients without noticeable gastro-oesophageal symptoms. The most useful test for GORD is 24-hour ambulatory oesophageal pH monitoring. However, it is not routine to put patients through such a test. Anti-reflux treatment reduces cough reflex sensitivity in affected patients so a trial of acid suppressants may be warranted without investigation. Proton pump inhibitors with or without pro-kinetic agent cover, for at least eight weeks, are recommended.^{7,29} However, if the cough persists, acid suppressants should be discontinued after the recommended trial period.

Unexplained cough

Occasionally, cough persists despite addressing the acute and chronic causes described above. Some authors recommend a trial of empirical treatment with inhaled corticosteroids, proton pump inhibitors and speech pathologist review.²² Referral of the patient to a respiratory specialist may also assist, especially if conditions such as refractory asthma and eosinophilic bronchitis are suspected.

Conclusion

Cough is one of the most common causes of patients presenting to primary care physicians, and can be challenging from a diagnostic and therapeutic viewpoint. Chronic cough can be disabling and may have a significant cost burden. Viral upper respiratory tract infections are the most common cause of an acute cough and are usually self-limiting. Smoking is the most common cause of chronic cough, whereas asthma, GORD and upper airway cough syndrome are the most common causes in non-smokers.

An effective management plan is important in the evaluation and treatment of cough. Clinicians should take a thorough history and perform a physical examination, targeting investigations, providing adequate treatment trials and canvassing the option of combining therapeutic approaches. It is important to determine early whether a serious underlying cause such as malignancy, pneumonia or congestive cardiac failure is present. In difficult or undiagnosed cases, clinicians should refer the patient to a specialist with an interest in chronic cough management.

References are available on request.

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Levofloxacin Still Effective in Treating Respiratory Tract Infections

Community-acquired respiratory tract infections (RTIs) are among the most prevalent infectious diseases in the developed world and constitute a substantial economic burden. The current therapy for RTIs is often empiric, usually involving administration of a beta-lactam or macrolide.

World-wide, RTIs account for a large proportion of antibiotic prescriptions and visits to the doctor each year. Pneumonia affects approximately 450m people a year. It is a major cause of death among all age groups with approximately 4m deaths occurring. The incidence is highest among persons at the extremes of the age range. Recent increases in the incidence of community-acquired pneumonia (CAP) have been associated with a dramatic rise in the rate of infection in the elderly and in patients with comorbidities. The prevalence of chronic bronchitis is between 3%-17% in most developed countries, with higher rates of 13%-27% in less developed areas of the world.

Pathogens responsible for lower RTIs

Streptococcus pneumoniae remains the most prevalent or frequently isolated etiological agent in cases of CAP. Other organisms, such as *Haemophilus influenzae* and *Moraxella catarrhalis*, as well as the more atypical pathogens such as *Chlamydia pneumoniae*, *Legionella pneumophila*, and *Mycoplasma pneumoniae*, are becoming more common.

Acute exacerbation of chronic bronchitis (AECB), a COPD condition, is also a significant and increasing community-acquired respiratory tract infection. The pre-eminent pathogens associated with AECB are *H influenzae*, *S pneumoniae*, and *M catarrhalis*, which when combined account for 85% to 95% of bacterial exacerbations. Other less common pathogens associated with AECB include *Staphylococcus aureus*

and *Pseudomonas aeruginosa*, along with opportunistic Gram-negative pathogens. Together, these pathogens account for 70% of all acute infectious AECB, with the remaining 30% being caused by viruses.

Fluoroquinolone's efficacy vs traditional and atypical pathogens

The increasing incidence of antibiotic resistance for respiratory pathogens complicates the use of empiric treatment with traditional agents. A growing body of evidence suggests that some fluoroquinolones are both bacteriologically and clinically effective against both traditional and atypical respiratory pathogens. Levofloxacin stands out as one of the most important fluoroquinolones.

Levofloxacin is a broad spectrum antibiotic that is active against both Gram-positive and Gram-negative bacteria.

Levofloxacin has been approved for the treatment of CAP, AECB, acute maxillary sinusitis, uncomplicated skin infections, acute pyelonephritis, and complicated urinary tract infections. It has proved to be an effective 'respiratory' fluoroquinolone in both upper and lower RTIs. The advent of a high drug dose strategy has proved to be effective and safe, allowing shorter durations of therapy to be administered. This has helped to reduce cost and development of resistance.

Advantages of levofloxacin

Levofloxacin has all the excellent features of its parent compound, ofloxacin, with the additional advantages of being



Pneumonia deaths are highest among persons at the extremes of the age range

more effective against a wider spectrum of bacteria at half the dose. The once daily dose and great safety profile have made it well accepted by most patients.

It has been observed that levofloxacin penetrates well into bronchiolar tissue and sputum which is significant when treating patients with RTI. Findings suggest that clinically effective concentrations of the drug are achieved at target respiratory sites, exceeding the minimum inhibitory concentrations for common respiratory pathogens.

Levofloxacin has two important advantages over many other fluoroquinolones with regard to reducing resistance. Firstly, it uses two mechanisms of action for bactericidal activity. One requires RNA protein synthesis and the second mechanism doesn't. Most fluoroquinolones only use one mechanism, so the risk of developing resistance is higher. The second advantage is its single once-daily dose. Other fluoroquinolones often must be taken more frequently. It demonstrates 100% bioavailability with a broad spectrum of activity, and produces comparatively fewer side effects making its use very favourable compared to other fluoroquinolones.



Who Should Administer Conscious Sedation?

Part Two: Classes of sedation providers and the importance of training

We saw in part one that the term ‘procedural sedation and anaesthesia’ (PSAA) has become the most appropriate and accurate description of what sedation practitioners do when they administer sedative and analgesic drugs. PSAA outside the operating room has been on the rise due to the increase in diagnostic and therapeutic procedures, new advances in diagnostic imaging, improved pharmacologic agents, and a better awareness of the physiologic and psychologic needs of patients.

The role of anaesthetists and non-anaesthetists as sedation providers for this expanding need appears to be increasing. There remains, however, disquiet about safety and quality standards in the provision of sedation, especially the use of combinations of drugs and who should administer sedation for operative procedures outside the operating room. The position of anaesthetists and non-anaesthetists remain controversial.

Anaesthetists vs non-anaesthetists

When dealing with the issue of who should administer conscious sedation, we are faced with the current worldwide sit-

uation where both anaesthetists and non-anaesthetists provide sedation services. Some anaesthetists believe they should be the sole sedation providers. They claim they have an anaesthetic background and are already qualified to do so.

Non-anaesthetists believe they can also perform sedation safely. There are several published articles in the literature on safe non-anaesthetist involvement in sedation practice. Many evidence-based studies have been published.

The debate raises the question of the profession of the anaesthetist. In a recent article in an anaesthetic journal it was said: “delegating anaesthesia to persons, even medical doctors, who are not anaesthetists tends to reduce the quality of the anaesthetic procedure. Only qualified anaesthetists are able to achieve technical acts according to codified and reproducible procedures adapted to each patient. Anaesthesia is a specialty in its own right”.¹ By implication then the

‘sub-specialty’ of sedation falls under the jurisdiction of anaesthetists who can determine who should be permitted to administer conscious sedation.

Sedation providers

PSAA outside the operating room involves a multitude of providers. The choice of provider and the techniques and drugs used is usually specific to each institution, facility or healthcare professional and largely dependent on personnel available. In rural areas there may be no choice due to a shortage of healthcare personnel.

Presently we find three groups of sedation providers:

- **Consultant anaesthetists** who act as sole sedation practitioners, usually as dedicated sedation practitioners, with most of the procedures happening in operating rooms or day-surgery units. This group is in the minority. Most consulting anaesthetists claim they do not need sedation training as they had anaesthetic training and know how to monitor and maintain airway potency and rescue the patient when there are complications.
- **Trained sedation practitioners outside of anaesthesia** (non-anaesthetists), who provide conscious sedation usually as travelling practitioners, under well-defined circumstances and in locations such as dental and medical

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surgeries, facilities and even in hospitals. This is the major group, today called professional sedation practitioners. They have made a significant contribution to the provision of sedation services worldwide, especially in areas burdened by a shortage of healthcare professionals. They do not practice as operator sedation practitioners but usually as dedicated sedation practitioners. They are the group who usually have obtained structured sedation training, eg, a certificate or diploma in sedation and pain control.

- **Multiple practitioners outside of anaesthesia** (also non-anaesthetists), who routinely provide conscious sedation in various settings, eg, dental practitioners, endoscopists, emergency physicians, and radiologists. They usually operate as single operator sedation practitioners, ie, the same person gives the drugs and performs the procedure. According to the SA Society of Anaesthetists (SASA) guidelines this group of sedation practitioners should only use single and not combinations of drugs.²

The way forward

So the question remains: is there some common ground from which we can determine who should administer conscious sedation? There are signs of collaboration between anaesthetists and non-anaesthetists: all agree that sedation practitioners must be trained. All international guidelines concur that practitioners involved in sedation practice must be trained in specific sedation techniques.^{2,3}

Anaesthetists should ask themselves, what are the consequences of leaving the non-anaesthetists to their own designs? After all, there is a worldwide shortage of anaesthetists.

What is needed is unified guidance for anaesthetists and non-anaesthetists and their teams. The writer believes this can be accomplished.

Skills shortages and economic realities will require that non-anaesthetists be more involved in sedation practice in future. Sedation may become the field of the non-anaesthetists if anaesthetists do not join in training them, supporting

them, and guiding them in the practice of safe sedation. The way forward is collaboration. It is time to move away from competency based on specialty, eg, anaesthetists versus non-anaesthetists, to competency based on skills, knowledge and experience.

Training

In 2007 the Standing Dental Advisory Committee, The Royal College of Anaesthetists, and the Royal College of Surgeons (Faculty of Dental Surgery) in the UK produced recommendations for both anaesthetists and non-anaesthetists regarding safe sedation practice and training in sedation.³ These address the issue of who should be permitted to administer conscious sedation. They recommend that the administration of safe sedation, whatever technique is used and whoever performs it, should consider the following:

- The environment where the sedation takes place
- Meticulous patient selection and assessment
- Qualifications and training (education)
- Experience and on-going update of knowledge and skills.

Although there is wide agreement on these guidelines, there are unfortunately very few structured sedation training programmes in the world.

The guidelines from the Standing Committee on Sedation in Dentistry³ puts forward minimum requirements for dental and medical practitioners including anaesthesiologists and their teams. The guidelines have recommendations which are essential and those that are desirable. They recommend that every sedation practitioner, even consultant anaesthetists, should provide evidence of training in specific advanced sedation techniques in an appropriate environment. The Royal College of Anaesthetists has now introduced a sedation module in their curriculum.

The SA situation

The question is: what is the position as regards anaesthetists and non-anaesthetists in SA? The SASA guidelines on



The future of sedation training: University College of London Hospital uses lifelike dummies to teach sedation techniques.

sedation for adults are very clear and are intended for anaesthetists and non-anaesthetists.² They use the term 'sedation practitioners' to describe who is involved in the administration of sedation. These guidelines state: "Relevant qualifications and ongoing training remain the foundation of safe practice. Formal teaching, simulation training, supervised cases and protocols can help to provide this."²

Conclusion

Authority to administer conscious sedation should move away from competency based on specialty to competency based on skills and knowledge. To establish what that means and to answer the question: "Who should administer conscious sedation?" the final article in this series will present a list of practical considerations when providing sedation practitioners with appropriate skills and knowledge.

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Dermatology Clinic: Emerging Therapies in Psoriasis

There is no cure for psoriasis, but recent research has led to improved understanding of the disease. Several new biological therapies target specific steps in the pathogenesis of psoriasis, and enhancements in topical therapy and phototherapy have improved the armamentarium of effective suppressive treatments.

Psoriasis is a chronic inflammatory, immune-mediated disease that predominantly presents with skin and joint manifestations. It is common, affecting 2% to 3% of the world-wide population.¹ Once psoriasis has appeared as a localised disease, it persists throughout life, manifesting at unpredictable intervals. It is not contagious.

There are several different phenotypes of psoriasis. The most common is plaque psoriasis, which is estimated to affect between 80% and 90% of people with psoriasis. Plaque psoriasis is characterised by thickened, well demarcated erythematous skin lesions covered with silvery scales. The nails and, less often, the mucous membranes, may also be affected. Pathogenically, excessive growth and aberrant differentiation of keratinocytes is driven by T-cell infiltration and associated elevated cytokine levels. Although not considered life-threatening, plaque psoriasis is a medically significant disease that can have a profound impact on a patient's quality of life.

Recent research has led to improved understanding of psoriasis. Several new

biological therapies have been developed that target specific steps in the pathogenesis of the disease. Enhancements in topical therapy and phototherapy have also improved the range of treatments for this disorder. This article reviews both older and newer treatment options that are available for treating all forms of psoriasis, and of different severity (see the box). The role of newer therapies is highlighted in two cases (see the boxes).

Topical therapies

Corticosteroids

Corticosteroids are the most commonly prescribed topical agents for psoriasis. They have a rapid onset of action but psoriasis often recurs rapidly when treatment is ceased. Corticosteroids may exhibit tachyphylaxis (decreased response over time), which has resulted in some dermatologists recommending intermittent use.

Topical corticosteroids are available in a variety of potencies and delivery vehicles. The choice of formulation is based on disease severity, the site of the lesions and patient preference. Use of corticosteroids is limited by their side effects and short-term effectiveness.

Vitamin D₃ analogues

Topical vitamin D₃ analogues are used in the treatment of mild to moderate psoriasis. They act by binding nuclear vitamin D₃ receptors on genes involved in cellular proliferation, differentiation

and inflammation. These agents have fewer side effects than corticosteroids and can be used long term. The vitamin D₃ analogue calcipotriol can be used as monotherapy or in combination with topical corticosteroids. A topical formulation containing both calcipotriol and betamethasone dipropionate appears to be more effective and to have fewer side effects than calcipotriol alone.^{2,3}

Retinoids

Tazarotene is a retinoic acid receptor-specific retinoid. It has demonstrated efficacy in the topical treatment of psoriasis.

Tazarotene down-regulates keratinocyte differentiation, proliferation and inflammation. It also up-regulates the expression of three genes that appear to be specific for tazarotene (*RARRES1*, *RARRES2* and *RARRES3*), which results in increased transcription of proteins involved in cellular differentiation and proliferation and may mediate an anti-proliferative effect.⁴

Coal tar

Coal tar, one of the few remaining old-fashioned therapies for psoriasis, is still effective. However, the smell of coal tar, its staining properties and its potential for irritation may impair patient acceptance of this therapy. Tar shampoos are frequently used to treat scalp psoriasis.

Dithranol

Dithranol, an anthracene derivative, is used topically to treat psoriasis. It has a slower onset of action than corticosteroids but does not cause rebound upon withdrawal. Dithranol induces apoptosis of keratinocytes in psoriasis through disruption of mitochondrial function and structure. It may be used alone, in combination with salicylic acid or in addition

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Therapies for psoriasis

Older therapies

Topical therapies: corticosteroids, coal tar, dithranol

Phototherapy: conventional PUVA and NB-UVB

Systemic therapies: methotrexate, cyclosporin, acitretin

Newer therapies

Topical therapies: calcipotriol (vitamin D₃ analogue, with or without betamethasone dipropionate), tazarotene (retinoid)

Phototherapy: excimer laser

Systemic therapies: biological therapies (adalimumab, etanercept, infliximab, ustekinumab)

ABBREVIATIONS: NB-UVB = narrow band ultraviolet B; PUVA = psoralens plus ultraviolet A.

to tar. Side effects include skin irritation and staining of the skin and hair.

Phototherapy

Conventional phototherapy

Conventional phototherapy is a mainstay in the treatment of psoriasis. It is available in two modalities: psoralens plus ultraviolet A (PUVA) and narrow band ultraviolet B (NB-UVB). Both modalities cause depletion of dermal and epidermal inflammatory cells, including lymphocytes, macrophages and dendritic cells. They may also have a role in decreasing keratinocyte hyperproliferation.

Systemic PUVA phototherapy is associated with an increased risk of squamous cell carcinoma and possibly Merkel cell carcinoma and melanoma; for this reason, NB-UVB has largely replaced PUVA. NB-UVB is most effective when undertaken three times per week for six to eight weeks. Phototherapy requires strict compliance and long-term toxicity associated with it includes photocarcinogenesis.

Excimer laser

The excimer laser offers effective and safe treatment for small but stubborn areas of psoriasis.

This type of laser produces ultraviolet

Case 1: Skin-directed therapies for localised psoriasis

A 55-year-old woman presented with an 18-month history of classic psoriatic lesions on her scalp, extensor elbows and knees (Figures 1a to c). She was diagnosed with mild to moderate chronic plaque psoriasis, which was managed satisfactorily with topical agents – combination calcipotriol and betamethasone dipropionate, applied once daily (Figures 2a to c).

Before treatment



Figures 1a to c. The patient's localised psoriasis on the scalp, elbow and knees at presentation.

After treatment



Figures 2a to c. The patient's psoriasis about eight weeks after commencing treatment with once daily combination calcipotriol and betamethasone dipropionate.

radiation at a specific wavelength (308nm), which is almost identical to the wavelength of NB-UVB phototherapy (312nm). Excimer laser treatment

requires fewer patient visits than conventional phototherapy and targets the affected areas of the skin while sparing the surrounding uninvolved skin.



Non-biological systemic therapies

Non-biological systemic therapies for psoriasis may be effective but they can be associated with significant short- and long-term toxicities. Most patients with moderate to severe disease achieve satisfactory disease control (ie, significant or complete clearing of disease) in the short-term with at least one of the non-biological systemic agents currently available.

Methotrexate

Methotrexate is the most commonly used systemic agent for psoriasis. It is a folic acid antagonist with immunosuppressive and cytostatic effects. Close patient monitoring is necessary during treatment because methotrexate can cause hepatotoxicity and myelosuppression.

Cyclosporin

Cyclosporin works by inhibiting T-cell transcription of interleukin-2. The long-term use of cyclosporin is limited by concerns about nephrotoxicity, hypertension and cutaneous malignancies, particularly SCC. Cyclosporin is ideally suited for crisis intervention, but it should be replaced by other treatment modalities for long-term disease management. It is currently recommended that cyclosporine should not be used for more than two years in dermatology patients.^{5,6}

Acitretin

Acitretin is an oral retinoid that is effective in treating psoriasis and often used in combination with phototherapy. Acitretin works by inhibiting excessive cell growth and keratinisation. The efficacy and side effects of acitretin appear to be dose-related. Mucocutaneous side effects such as cheilitis and hair loss are the most common dose-dependent side effects. Acitretin is a potent teratogen, so there are strict requirements for pregnancy prevention during and after its use.

Biological therapies

The biological therapies for psoriasis use genetically engineered drugs which target specific steps in the pathogen-

Case 2: Systemic biological therapy for widespread psoriasis

A 36-year-old man presented with moderate to severe chronic plaque psoriasis that had failed to respond to traditional 'standard' systemic therapies, including phototherapy (Figures 3a and b). He was treated with a systemic biological agent (infliximab).

The patient's response to treatment with the biological agent was assessed using the Psoriasis Area and Severity Index (PASI) – see the box on next page. A good response was observed, with PASI score reduction from 36.3 to 2.7 (93%), which comfortably surpasses the benchmark of 75% for assessing improvement (PASI 75). Figures 4a and b show the patient 10 weeks after commencing treatment with infliximab. His quality of life improved dramatically as a result of the successful treatment.

Before treatment



After treatment



Figures 3a and b. The patient's widespread psoriasis at presentation.

Figures 4a and b. The patient's psoriasis 10 weeks after commencing treatment with infliximab.

esis of the disease that involve T cells and cytokines (eg, TNF-alpha and interleukin-23). Currently, chronic plaque psoriasis is treated by means of three biological TNF-alpha inhibitors (adalimumab, etanercept and infliximab).

When treatment with a biological therapy is commenced, there is a risk of tuberculosis emerging from reactivation of latent *Mycobacterium tuberculosis* infection. Therefore, pre-treatment screening for tuberculosis is mandatory,



with chest radiography and Quantiferon-TB Gold testing. Regular monitoring of liver function and full blood is recommended.^{7,8} Patients taking biological therapies should be monitored for early signs and symptoms of infection throughout treatment. The use of PASI scores to assess the treatment efficacy of the biological therapies is explained in the box.⁹

Adalimumab

Adalimumab is a fully human monoclonal antibody that binds to TNF-alpha, preventing it from activating TNF receptors. It is administered subcutaneously at weeks zero and one, and fortnightly thereafter. About 70% of patients treated with adalimumab achieve PASI 75 at week 16. Interrupted therapy may result in loss of treatment response. Anti-adalimumab antibodies develop in 8.4% of patients and are associated with increased clearance and reduced efficacy of adalimumab.¹⁰

Etanercept

Etanercept is a genetically engineered fusion protein composed of a dimer of the extracellular portions of human TNF receptor 2 fused to the Fc domain of human IgG1. Etanercept binds both soluble and transmembrane forms of TNF, and also binds lymphotoxin (TNF-beta).

Psoriasis Area and Severity Index (PASI)

The Psoriasis Area and Severity Index (PASI) is a scale for quantifying the global severity of a patient's psoriasis based on area coverage and severity (plaque appearance).⁹ The severity is calculated by measuring three clinical signs – erythema (redness), induration (thickness) and desquamation (scaling) – with each sign being assigned a number from 0 to 4 (4 being worst). Then the extent of involvement of four regions of the body is determined and assigned a number (0 to 6). Compiling these numbers gives a PASI score in the range of 0 to 72.

An improvement in PASI score of at least 75% compared to baseline (PASI 75) is considered the gold standard measure of treatment efficacy.

PASI calculators are available online (see www.pasi.corti.li or www.pasitraining.com/calculator/step_1.php).

About one-third of patients achieve PASI 75 at week 12; this response rate increases to at least 50% of patients at week 24, with continuous dosing.¹¹ Etanercept is administered subcutaneously as a weekly fixed dose. There appears to be little loss of efficacy over time.

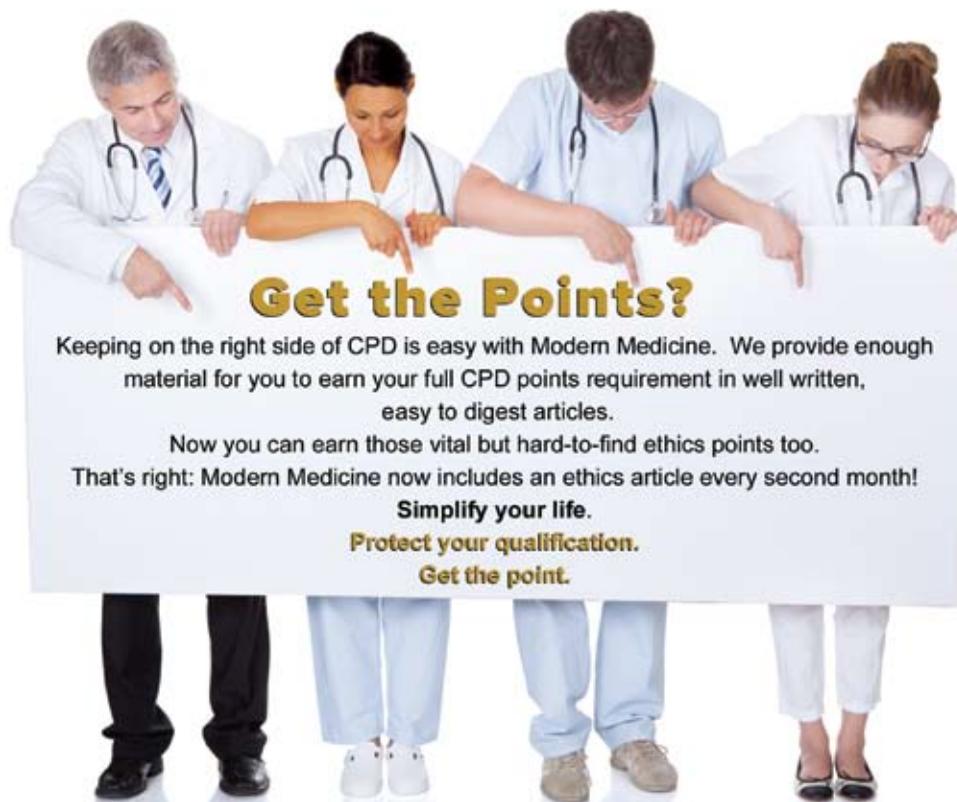
Infliximab

Infliximab is a chimeric human–murine monoclonal antibody and the only biological agent approved for psoriasis that is administered intravenously. It is infused at weeks zero, two and six and every eight weeks thereafter. About 80% of patients treated with infliximab achieve PASI 75 at week 10.¹² There may be some loss of efficacy over time, presumably due to development of neutralising antibodies against the murine component or to enhanced metabolism. Methotrexate may be administered concurrently to reduce loss of efficacy.

Conclusion

Plaque psoriasis is a chronic skin condition and treatment must be individualised according to age, gender, stage in life, disease severity and associated comorbidities. There is no cure for psoriasis, but effective suppressive treatments are available that aim to induce a remission or reduce the psoriasis to an amount that is tolerable to the patient. Three basic treatment modalities exist for psoriasis-topical agents, phototherapy and systemic agents (including biological therapies); these may be used alone or in combination.

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 [Migroben® 80. Each film-coated tablet contains 80 mg valsartan. Reg. No. 43/7.1.3/0032. [Migroben® 160. Each film-coated tablet contains 160 mg valsartan. Reg. No. 43/7.1.3/0033. [Co-Migroben® 160/12.5. Each film-coated tablet contains 160 mg valsartan and 12.5 mg hydrochlorothiazide. Reg. No. 43/7.1.3/0084. [Co-Migroben® 160/25. Each film-coated tablet contains 160 mg valsartan and 25 mg hydrochlorothiazide. Reg. No. 43/7.1.3/0085.
 [Acnetane® 10 mg. Each capsule contains 10 mg isotretinoin. Reg. No. 34/13.4.2/0356. [Acnetane® 20 mg. Each capsule contains 20 mg isotretinoin. Reg. No. 34/13.4.2/0357. [Adco-Alzam 0.25 mg. Each tablet contains 0.25 mg alprazolam. Reg. No. 30/2.6/0212. [Adco-Alzam 0.5 mg. Each tablet contains 0.5 mg alprazolam. Reg. No. 30/2.6/0211. [Adco-Alzam 1 mg. Each tablet contains 1 mg alprazolam. Reg. No. 30/2.6/0213. [Adco-Zildem 60. Each tablet contains 60 mg diltiazem hydrochloride. Reg. No. 30/7.1/0287. [Adco-Zildem 90. Each tablet contains 90 mg diltiazem hydrochloride. Reg. No. 30/7.1/0288. [Adco-Zildem 180 SR. Each tablet contains 180 mg diltiazem hydrochloride. Reg. No. 30/7.1/0183. [Adco-Zildem 240 SR. Each tablet contains 240 mg diltiazem hydrochloride. Reg. No. 30/7.1/0184. [Adco-FEM 35. Each tablet contains cyproterone acetate 2 mg and ethinyloestradiol 0.035 mg. Each non-hormonal tablet contains sugar: Lactose monohydrate 67 mg. [Adco-Talomil 20 mg. Each tablet contains 25 mg citalopram hydrobromide equivalent to 20 mg citalopram. Reg. No. 35/1.2/0272. [Adco-Bisocor 5 mg. Each film-coated tablet contains 5 mg bisoprolol. Reg. No. 37/5.2/0010. [Adco-Bisocor 10 mg. Each film-coated tablet contains 10 mg bisoprolol. Reg. No. 37/5.2/0011. [Adco-Atenolol 50 mg. Each tablet contains 50 mg atenolol. Reg. No. W/5.2/115. [Adco-Atenolol 100 mg. Each tablet contains 100 mg atenolol. Reg. No. W/5.2/116. [Adco-Zetomax 5 mg. Each tablet contains lisinopril 5 mg (as the dihydrate salt). Reg. No. 33/7.1.3/0513. [Adco-Zetomax 10 mg. Each tablet contains lisinopril 10 mg (as the dihydrate salt). Reg. No. 33/7.1.3/0514. [Adco-Zetomax 20 mg. Each tablet contains lisinopril 20 mg (as the dihydrate salt). Reg. No. 33/7.1.3/0515. [Adco-Zetomax Co 10/12.5. Each tablet contains lisinopril dihydrate (equivalent to 10 mg anhydrous lisinopril) and hydrochlorothiazide 12.5 mg. Reg. No. 37/7.1.3/0162. [Adco-Zopimed. Each film-coated tablet contains 7.5 mg zopiclone. Reg. No. 33/2.2/0450. [Adco-Dapamax. Each tablet contains 2.5 mg indapamide. Reg. No. 30/7.1/0092. [Adco-Sporazole. Each capsule contains 100 mg of itraconazole in a microgranule formulation. Reg. No. 37/20.2.2/0559. [Adco-Paroxetine 20 mg. Each tablet contains paroxetine mesylate equivalent to 20 mg paroxetine base. Reg. No. 36/1.2/0096. [Adco-Omeprazole 20. Each capsule contains 20 mg omeprazole. Reg. No. 37/11.4.3/0228. [Adco-Amoclav BD 1000 mg. Each film-coated tablet contains amoxicillin trihydrate equivalent to 875 mg amoxicillin and potassium clavulanate equivalent to 125 mg clavulanic acid. Reg. No. 36/20.1.2/0211. [Ponstel 250. Each capsule contains 250 mg mefenamic acid. Reg. No. 28/2.7/0703. [Ponstel Forte. Each capsule contains 500 mg mefenamic acid. Reg. No. 28/2.7/0548. [Ponstel S. Each 5 ml suspension contains 50 mg mefenamic acid. Reg. No. 28/2.7/0704. [Adco-Simvastatin 10 mg. Each tablet contains 10 mg simvastatin. Reg. No. 35/7.5/0277. [Adco-Simvastatin 20 mg. Each tablet contains 20 mg simvastatin. Reg. No. 35/7.5/0278. [Adco-Simvastatin 40 mg. Each tablet contains 40 mg simvastatin. Reg. No. 35/7.5/0279. [Adco-Vascard 20 SR. Each sustained release capsule contains 20 mg nifedipine. Reg. No. 30/7.1/0407. [Adco-Vascard 30 SR. Each sustained release capsule contains 30 mg nifedipine. Reg. No. 32/7.1/0551. [Adco-Zolpidem Hemitartrate 10 mg. Each tablet contains 10 mg zolpidem hemitartrate. Reg. No. 36/2.2/0132. [Adco-Mirteron 15. Each tablet contains 15 mg mirtazapine. Reg. No. A39/1.2/0217. [Adco-Mirteron 30. Each tablet contains 30 mg mirtazapine. Reg. No. A39/1.2/0218. [Adco-Prednisolone Syrup. Each 5 ml contains prednisolone 15 mg. Reg. No. 38/21.5.1/0125. For full prescribing information refer to the package insert approved by the medicines regulatory authority. ZA.13.GEN.003 02/2013. Adcock Ingram Limited. Reg. No. 1949/034385/06. Private Bag X69, Bryanston, 2021. Tel. +27 11 635 0000. www.adcock



Assessing Urinary Incontinence in Women

Urinary incontinence is a condition that is often not reported by patients but may affect almost half of all women. Since women who seek help for incontinence usually consult a GP in the first instance, a systematic approach is vital in assessing and managing female urinary incontinence. This article presents authoritative advice on the investigation of this common clinical problem.

Urinary incontinence is common in females, with a prevalence between 25% and 45%. Daily incontinence affects between 5% and 15% of middle-aged and older women.¹ Many women do not seek help. Those who do usually consult their GP first, but a survey has found only 35% receive recommended treatments.² GPs are ideally placed to screen for incontinence by routinely inquiring about bladder and bowel symptoms. A GP with a systematic approach to assessment is also ideally placed to initiate management of urinary incontinence.

Risk groups for urinary incontinence

High-risk groups for urinary incontinence include:

- School-aged children;
- Pregnant and postpartum women;
- Menopausal women;
- People who are obese;
- People with diabetes, disabilities or neurological conditions eg, stroke, Parkinson's disease and psychiatric illness;
- Elderly people, particularly those with impaired mobility, impaired cognition and frailty.

About the author

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A decline in physical health has been associated with an increased incidence of incontinence. Conversely, moderate intensity physical activity, including walking, has been reported to reduce the risk of developing urinary incontinence by 20% to 25%.³

Poorly controlled diabetes is often associated with worsening urinary symptoms. Improving diabetes control is important in this group.

The presence of nocturia should alert practitioners to the possibility of sleep apnoea, particularly in patients who are snorers and obese. Sleep apnoea is associated with increased atrial natriuretic peptide (ANP) production, which can lead to nocturia. The incidence of sleep apnoea is increased in the presence of alcohol excess, hypothyroidism, congestive cardiac failure and diabetes.

Treating sleep apnoea can reduce bladder symptoms.⁴

Many classes of medications can cause or contribute to urinary incontinence, including diuretics and certain antihypertensive medications (see the box). For example, the antihypertensive prazosin can cause stress incontinence because of its alpha-adrenergic blocking effects. Before prescribing a new medication, doctors should inquire about bladder symptoms and, at follow up, should check whether the new medication has affected these symptoms. The possibility that urinary incontinence is caused by a medication should be considered before prescribing drug treatments for incontinence.

History

Many patients do not volunteer to talk about their urinary symptoms. Useful introductory questions are:

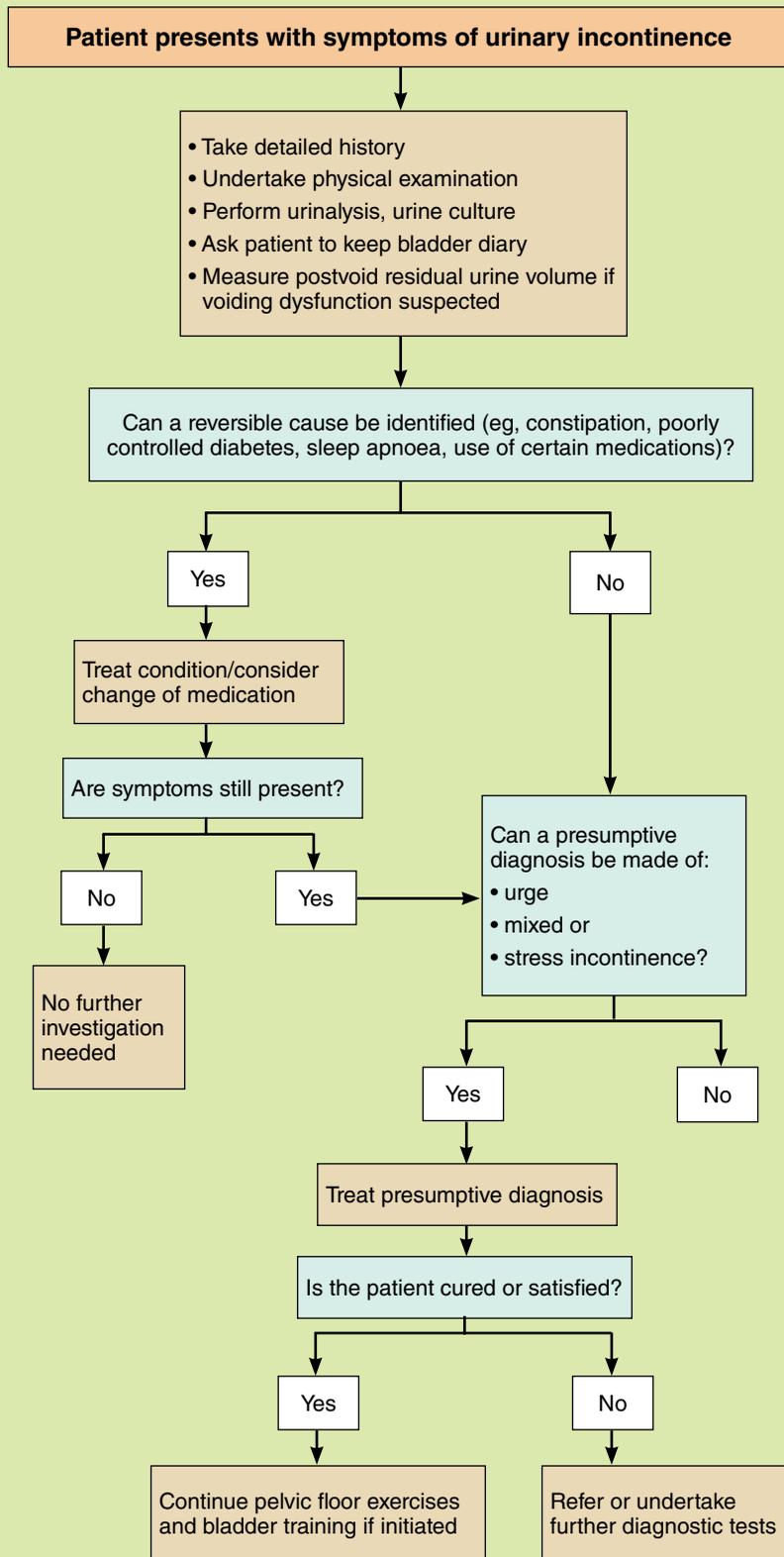
- 'How many times do you get up to go to the toilet at night?' and 'How often do you go during the day?'
- 'Do you have to hurry to the toilet?' and 'Do you leak urine if you don't get to the toilet quickly enough?'
- 'Do you leak urine on coughing, sneezing, laughing or exercise?'

Key points

- Urinary incontinence affects between 25% and 45% of women at some time in their lives.
- GPs are ideally placed to initiate management.
- Reversible causes should be sought, particularly medications such as diuretics and antihypertensive drugs (including prazosin).
- History, examination, urinalysis, urine culture, a bladder diary and (in selected cases) measurement of post void residual urine volume are sufficient for a diagnosis in most cases.
- Pelvic floor exercises and bladder training can be effective treatments.
- Specialist referral should be considered for patients who do not respond to these measures.



An approach to investigating female urinary incontinence



• 'Do you have to wear pads?'

Having established that a patient has urinary incontinence, it is helpful to take a detailed history (see the box).

Constipation is associated with worsening urinary symptoms.⁵ Straining in constipation can weaken the pelvic floor muscles. In the presence of constipation, symptoms of urinary urgency and frequency and postvoid residual (PVR) urine volumes may be increased. Faecal impaction can cause urinary retention and is also associated with an increased incidence of urinary tract infection. Good bowel care and treatment of constipation are essential parts of any continence management programme.

One-third to two-thirds of women with stress incontinence report symptoms of sexual dysfunction, including dyspareunia, vaginal dryness and coital incontinence. More than two-thirds (68%) report that their urinary symptoms adversely affect their sex life.⁶

Examination

Abdominal examination

The abdomen should be examined to exclude a palpable bladder, which would suggest incomplete bladder emptying. However, the absence of a palpable bladder does not exclude impaired bladder emptying. A palpable bladder usually corresponds to a volume greater than 300mL.

Neurological examination

An examination that includes checking for lower limb weakness, abnormal gait or impaired sensation should be undertaken if the history suggests a possible neurological cause, such as a spinal cord lesion, past stroke or Parkinson's disease. Hyperreflexia may be a clue to coexisting multiple sclerosis.

Perineal/genital examination

Inspection of the vulva and perineum allows any alteration in anatomy, atrophic changes, excoriation, erythema or rashes due to incontinence and pad use to be identified.

The patient should be asked to cough and strain in lying and standing positions to elicit evidence of leakage or prolapse. Optimally, this is done with a full bladder. The presence of leakage on coughing is helpful in diagnosing stress



Medications and other drugs that can affect urinary continence

- Alcohol
- Anaesthetics*
- Angiotensin-converting enzyme inhibitors (eg, captopril, enalapril)
- Alpha blockers (eg, prazosin)
- Anticholinergic medications (eg, disopyramide, benztropine)*
- Anticholinesterase inhibitors (eg, donepezil, galantamine, rivastigmine)
- Antipsychotics (eg, clozapine, haloperidol)
- Antihistamines*
- Caffeine
- Calcium channel blockers
- Diuretics (eg, frusemide, bumetanide)
- Lithium
- Narcotic analgesics*
- Nasal decongestants
- NSAIDs
- Sedatives*
- Tricyclic antidepressants*

* Can cause urinary retention

incontinence. A negative result is less helpful as it is influenced by other factors, such as bladder volume. Sometimes leakage may be elicited only with provocative testing.

Pelvic floor assessment

Pelvic floor muscle strength can be assessed as strong, weak or absent, or it can be graded on a scale such as the Oxford scale (1 to 5, where 1 is weak and 5 strong).⁷ A physiotherapist experienced in pelvic floor assessment or a nurse continence adviser can assist in the assessment if required. A digital examination to assess that the patient can perform a pelvic floor contraction correctly is particularly important before prescribing pelvic floor muscle training (PFMT). A pelvic floor contraction involves activating the pelvic floor muscles around the anus and vagina, squeezing the openings closed and lifting the pelvic floor muscles cranioventrally, thus displacing the urethra up and behind the pubic symphysis.

Cognitive assessment

This is important in the elderly or those with psychiatric or neurological illness. Patients with impaired cognition often give an unreliable history. They also have difficulty completing bladder charts and are often unable to modify fluid intake or to participate in bladder training or PFMT. They are at risk of poor compliance and cognitive decline with anti-cholinergic medications.

Initial investigations

Urinalysis and urine culture

Urinalysis is a screening test to detect haematuria, glycosuria and pyuria, which may be a clue to the presence of bacteriuria. If urinalysis gives normal results, then urinary tract infection is unlikely. If results are abnormal, a mid-stream urine culture should be undertaken.

Bladder diary

A frequency–volume chart, or a micturition bladder diary, is useful to quantify the severity of the problem. It is recommended that the patient complete this for at least three days and nights for accuracy. Tailored to suit the individual, the diary can provide information on frequency, bladder volumes, incontinence episodes, pad usage, bowel habits, fluid intake and response to treatment. However, a surprising number of patients have difficulty completing these charts accurately, even in their simplest form.

Postvoid residual urine volume

PVR urine volume should be measured by bladder ultrasound examination in patients with suspected voiding dysfunction, suggested by recurrent urinary tract infections, previous continence or prolapse surgery, spinal surgery or severe constipation. Continence nurses often have access to portable bladder scanners. There is no evidence-based PVR volume that is considered normal, and the significance of a PVR value depends on coexisting symptoms. However, a PVR less than 50mL is usually considered adequate bladder emptying, and a PVR greater than 200mL is considered

Detailed history in urinary incontinence

A detailed history should cover:

- Duration of symptoms
- Nocturia episodes
- Frequency of voiding
- Urgency and urge incontinence
- Number of incontinence episodes
- Leakage on coughing, sneezing, laughing, exercise
- Haematuria
- Dysuria, history of urinary tract infections
- Sensation of incomplete emptying
- Use of continence products
- Bowel habits, including faecal incontinence
- Fluid intake: caffeine, alcohol, water
- Past urological and gynaecological history and treatment
- Medications
- Severity of symptoms and how bothersome

inadequate emptying.⁸ Higher PVRs are more common in the elderly, independent of symptoms. Higher PVRs increase the risk that medications with anticholinergic properties will worsen urinary symptoms and lead to urinary retention.

Diagnosis of incontinence type

The history of lower urinary tract symptoms, with the examination, will help identify whether the problem is likely to be stress incontinence, urge incontinence, incomplete bladder emptying or a combination of these (mixed incontinence; see the box).⁹ Stress incontinence is more common in younger and middle-aged women. Mixed and urge incontinence are more common in older women.

Initial management

Antibiotic treatment

Patients with a symptomatic urinary tract infection should be treated with antibiotics. Patients with urinary incontinence and bacteriuria but no other symptoms suggesting a urinary tract infection should also receive a course of antibiotics. However, if the



Indications for urodynamic testing

- Before surgery for genuine stress incontinence* or pelvic organ prolapse in women, when the results are likely to change management
- Treatment failure (conservative or surgical), when the diagnosis is not clear
- Suspected neurological cause of lower urinary tract dysfunction, such as a spinal cord lesion or multiple sclerosis resulting in neurogenic bladder
- Impaired bladder emptying

* Incontinence due to increased abdominal pressure in the absence of detrusor contraction.

urinary incontinence does not improve despite resolution of the bacteriuria, they are likely to have asymptomatic bacteriuria. They should not have repeated courses of antibiotics if subsequent urine cultures demonstrate bacteriuria in the absence of new symptoms.

Pelvic floor exercises and bladder training

A patient with urinary symptoms can be provided with fact sheets on good bladder habits, pelvic floor muscle exercises and bladder training, as well as information about constipation.

Before suggesting pelvic floor exercises it is important to assess that the patient can perform a pelvic floor muscle contraction correctly, as it has been reported that almost half of all women are unable to do so. In addition to pelvic floor muscle exercises, women with stress incontinence should be instructed to do the 'knack' – ie, contract the pelvic floor muscles just before and during a cough.¹⁰

Patients with urge incontinence should practise good bladder habits and undertake bladder training. They should:

- Drink 1.5 to 2 litres of fluid per day.
- Minimise intake of caffeine, carbonated drinks and alcohol.
- Avoid going to the toilet 'just in case.'
- 'Hold on' to increase their bladder capacity.

Bladder charts can be useful in monitoring response.

Anticholinergic medication

Patients with normal bladder emptying who do not respond to bladder training alone may be considered for a trial of bladder training together with an anticholinergic medication such as oxybutynin (2.5mg at night, increasing to 2.5mg twice daily initially, if tolerated). Some patients can tolerate doses of up to 5mg three times a day.

Continence products

Patients requiring assistance with continence products can be referred for advice and assessment by a continence nurse or physiotherapist.

Indications for specialist referral

Patients should be referred to a specialist such as a urologist, gynaecologist or geriatrician who deals with incontinence if there is:

- Insufficient improvement with conservative therapy
- Haematuria (in the absence of a urinary tract infection)
- A persistent painful bladder
- Recurrent urinary tract infections
- Suspected or proven voiding problems
- Significant pelvic organ prolapse
- Persistent or recurrent incontinence after surgery
- Suspected urinary fistula.

Additional investigations

Kidney function

If there is suspected renal impairment, biochemical tests of kidney function are indicated.

Imaging

Routine imaging of the lower urinary tract is not recommended unless the history, symptoms or signs suggest co-existing lower urinary tract or pelvic pathology.¹¹

Imaging of the upper urinary tract is also not indicated for the evaluation of non-neurogenic stress, urge or mixed incontinence. However, it is indicated in neurogenic incontinence with a high risk of renal damage, in chronic retention with urinary incontinence and in untreated severe urogenital prolapse.

Routine cystoscopy is not recom-

Types of urinary incontinence*

Stress urinary incontinence (SUI)

Involuntary leakage on effort or exertion, or on sneezing or coughing

Urge urinary incontinence (UUI; also known as urgency urinary incontinence)

Involuntary leakage accompanied by or immediately preceded by urgency

Mixed urinary incontinence

Involuntary leakage associated with urgency and also with effort, exertion, sneezing or coughing

* As defined by the Standardisation Sub-committee of the International Continence Society.⁹

mended. Cystoscopy is, however, highly recommended if there is haematuria.

Urodynamic testing

Urodynamic testing aims to reproduce patient symptoms in order to identify their cause. Urodynamic tests can be used to:

- Help assess bladder sensation and bladder capacity.
- Detect detrusor over-activity and associated incontinence.
- Assess urethral competence.
- Determine detrusor function during voiding.
- Assess for outlet obstruction and incomplete emptying.
- Detect the presence of stress urinary incontinence.

Urodynamic testing is also useful in the diagnosis of neurogenic bladder. It should be undertaken in selected patients, particularly if the result is likely to change management (see box).

Conclusion

Urinary incontinence is common. A history, examination, urinalysis and urine culture, bladder diary and (in selected cases) measurement of PVR volume are sufficient for a diagnosis in most patients. Simple treatments such as PFMT and bladder training can be initiated. Those who do not respond to these measures will benefit from specialist referral.

References available on request.

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Cosmetic Implants May Hinder Early Breast Cancer Detection

Cosmetic implants may render breast cancer more deadly, a recent study suggests. Later detection, or finding cancer at a more advanced stage than might otherwise be the case, seems to be the key factor.

A plausible link between implants and later detection of deadlier cancer is claimed in a meta-analysis of twelve cross-sectional observational studies comparing stage distribution of breast cancer in nearly 29 000 women with and without implants. Although the authors of the review (Eric Lavigne et al writing in *BMJ*) stress that their findings should be interpreted with caution and encourage a further study due to confounders in some of the studies investigated in their meta-analysis, they also note that a "better understanding of the detection of breast cancer and survival patterns following diagnosis of breast cancer among women with implants will aid in giving clear information on the consequences of breast augmentation."

Women with implants and breast cancer were 38% more likely to die from their disease, the review noted. Furthermore, women with implants were 26% more likely to present with a non-localised stage of breast cancer.



Cosmetic breast implants are radio-opaque. Visualisation during mammography is impaired by this, although it can be improved by pulling breast tissue over the implant. Still, this leaves about a third of the breast insufficiently imaged.

The review notes that several factors in the studies examined should be taken into account, such as that some stud-

ies adjusted for age at diagnosis while others did not, but nonetheless it suggests that overall there is a hazard ratio of 1.2:1 for women with implants who are diagnosed with breast cancer having advanced or later stage disease. It concludes that the research to date suggests that the survival of women diagnosed with cancer is adversely affected by cosmetic breast augmentation.

Personalised Hydration Can Improve Outcomes in the Cath Lab

Preliminary data from the POSEIDON trial suggest improved clinical outcomes of up to six months from using left ventricular end-diastolic pressure (LVEDP) to guide hydration in patients undergoing coronary angiography or percutaneous coronary intervention (PCI).

Hydration with normal saline personalised on the basis of LVEDP resulted in a significantly lower rate of death, myocardial infarction (MI), or dialysis at that time point compared with standard hydration (3.1% vs 9.5%). It also reduced contrast-induced nephropathy.

"That works out to a number needed to treat of 16, which is comparable to that seen with the use of clopidogrel after stenting," reported Dr Somjot Brar of

Kaiser Permanente Los Angeles Medical Center, adding that the approach could easily be implemented in the cardiac catheterisation lab. He added that the "tools in terms of implementing the protocol are already available in the cath lab, and these include the hemodynamic assessment, which is routinely done regardless, and then the type of fluid utilised is also available in pretty much every cath lab."

The POSEIDON trial offers a framework to achieve optimal outcomes in reducing contrast nephropathy and its adverse long-term events. Designed to test whether tailoring hydration based on LVEDP was better than using a standard approach in all patients, it investigated

396 adult patients with a low glomerular filtration rate. They had either diabetes, hypertension, a history of congestive heart failure, were over the age of 75, or had a combination of these factors.

The primary endpoint of contrast nephropathy, a 25% or 0.5mg/dL increase in serum creatinine with at least two values measured on days one through four, was significantly reduced in the intervention group (6.7% vs 16.3%), with a reduction in clinical events at six months. There was a significant reduction in death (0.5% vs 4%) and MI (2% vs 6.5%). The rate of dialysis was also lower in the intervention group (0.5% vs 2%), but the difference did not reach statistical significance.

Vigorous Sport Poses Low Risk for Patients with ICDs

In contrast to what is often believed, it seems that safe participation in various sports, even very vigorous sport, is possible for many people with implantable cardioverter-defibrillators (ICDs). A cohort study by researchers at Yale School of Medicine has shown the risk is relatively low, based on data from the ICD Sports Safety Registry. This has been operating since 2006 at 41 sites in North America and 18 in Europe.

Conventional wisdom has dictated that ICD patients should avoid high action sports and rather stick to golf or bowls. Seeking actual data to explore the truth of this belief, researchers investigated episodes of shock, both appropriate and inappropriate, a single shock episode in which there were multiple shocks, shock-associated moderate injury and lead system damage. In investigating the occurrence of shock-related sports inju-



ries, they looked for death, resuscitated arrest or severe arrhythmia. In the study, neither death nor resuscitated arrest occurred.

Although more people (16%) experienced shocks when they were active rather than resting (6%), there was no difference between the rate of shocks during competitive events and those that happened during other physical activity.

Researchers suggested that the data showed there is no need for a “blanket recommendation against competitive sports for all patients with ICDs” but nevertheless not all sports are safe for every ICD patient. Participants in the study tended towards moderate but not high contact or aggressive sports. Injury and lead damage might be greater in such sports, they noted. These findings, therefore, might not apply equally to all patients with ICDs who play sport.

Disinfect All ICU Patients for Better MRSA Prevention

The vulnerability of ICU patients to infection by normally harmless microbes has led in the USA to routine testing for certain bacteria on admission and isolation of patients who harbour organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA), to halt the spread of such bacteria amongst ICU patients. However, researchers including Prof Susan Huang of the University of California, Irvine, School of Medicine, question this approach of targeting superbugs one at a time and claim that, “Universal decontamination is the easiest and most effective way to prevent infection.”

Isolating patients who are carriers does not necessarily help them, nor is it the best option for preventing further infections, the researchers suggest. They conclude, rather, that all ICU patients should be bathed with anti-microbial soap and a topical antibiotic ointment should be used for five days to combat reservoirs of infection in the nose. This achieved a reduction in infection of 44%.

The study of 74 256 patients was undertaken at 43 hospitals across the



USA. It examined three methods of controlling hospital-acquired infections.

Although the study did show that testing and treating patients who carried the bacteria was more effective than simply testing and isolating these patients,

only treating the carriers was less effective than treating each and every patient. Universally disinfecting patients to eradicate all types of microbes, they found, was the most effective, whether or not they showed any signs of harbouring MRSA.

Nedbank's Health Industry Insight Makes Banking Easy

"Nedbank, the bank for the entrepreneur, is committed to partnering with medical professionals and helping grow their practices," says Candace Bronner, Nedbank Business Banking's Senior Manager for New Business Development. "We realise that meaningful relationships with our clients and understanding their business is the key to delivering relevant banking solutions that provide outstanding value for them."

"Medical professionals need a financial partner who not only understands their circumstances and aspirations but can also provide relevant solutions. They want a banking experience that is hassle-free, allowing them to concentrate on what's most important to them – running their practices."

At the core of the bank's offering to the medical fraternity is a relationship-based model. A dedicated business manager to medical professionals serves as the entry point to the bank's services. Each business manager is supported by a team – a credit manager, credit analyst and services manager – with a thorough understanding of the nuances of the healthcare industry, local economy and business market, and a genuine interest in the success of each practice.

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Nedbank Business Banking has a specialised and compelling health professionals' offering. Solutions include a flexible overdraft facility, asset-based finance and 'partner loan' finance. The latter can facilitate BEE transactions and entry of new medical partners or recapitalisation of an existing partner's loan account.

"Also we offer transactional solutions including a cheque account, transactional banking, and a credit card linked to Nedbank's Greenbacks Reward Programme," Bronner said.

Other products and services that have been tailored specifically for medical practice clients include:

- A private wealth management service
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"A major benefit of Nedbank Business Banking is that both your practice and personal financial needs can be managed in one place. Because medical professionals and their practices are often financially dependent on each other, our client-service teams offer individual banking solutions, better advice and a hassle-free service to you and your practice as we already know and understand your needs," says Candace Bronner.



BP Monitoring and Lifestyle Change Essential to Reduce CVD Risk

Last month, Omron Healthcare BV announced expansion of operations in South Africa through extension of its distribution network. During the opening event, the company's 'Perspective on hypertension and its awareness in South Africa' was presented to the nation's key opinion leaders in the field of cardiovascular research and diseases prevention.

In an on-going mission to raise awareness about hypertension, the organisation, along with Prof Angela Woodiwiss (head of Molecular and Cellular Laboratory and co-director of the Cardiovascular Pathophysiology and Genomics Research Unit, Wits) and Prof Vash Mungal-Sing (CEO of Heart and Stroke Foundation SA; head of SA Hypertension Society and head of Nephrology and Hypertension, UCT) presented different aspects of the disease, as well as prevention techniques. "We are pleased to be able to share our knowledge and work together with professionals in the field of cardiovascular research towards raising awareness of hypertension," said André van Gils, CEO of Omron Healthcare.

Additionally, HiTech Therapy and

Patient Focus Africa, were introduced as the new distribution partners. HiTech Therapy, leaders in rehabilitation, exercise and wellness products and Patient Focus Africa, providing medical and pharmaceutical products as well as services, both add value through their extensive knowledge of the local market and widespread distribution lines throughout South Africa.

"Through this expansion we will deliver on our commitment to contribute to the growth of the healthcare sector and to the empowerment of individual health monitoring," said van Gils.

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New Appointments at Adcock Ingram

Chief Operating Officer – Werner van Rensburg

The company welcomed Werner van Rensburg as its new chief operations officer from June 2013.

Werner holds a masters degree in mechanical engineering (cum laude), an MBA (cum laude), and a masters certificate in supply chain management.



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Werner will bring his unique and comprehensive supply chain management expertise to the Adcock table.

He has had valuable experience in operations, group IT, operational finance, HR, group quality assurance, product development and strategic development in the pharmaceutical industry.

Government Relations Executive – Doreen Kosi

As of May 6 2013, Doreen Kosi took the reins as the new government relations executive. Doreen has over 16 years experience in the public service, having previously worked as an administrator (locally and abroad) in the National Department of Education and as chief director in the office of the Deputy President of SA.



Doreen holds a masters degree in public and development management from Wits, with a particular focus on strategy development and implementation. She also holds a certificate in management advancement from Wits Graduate School of Business Administration and certificates in public relations and community relations (with distinction) from the Public Relations Institute of SA.

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DEPARTMENT OF MEDICINE

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Asthma Control Reaches a New Level of Affordability

Pharma Dynamics, SA's leading supplier of cardiovascular medicine, has announced the launch of Sintair.

Sintair (montelukast sodium equivalent to montelukast), is available in cherry flavoured 4mg and 5mg chewable tablets, as well as 10mg tablets for patients 15 years and older. It's a schedule 3 drug.

Once daily Sintair has been registered for the prophylaxis and chronic treatment of atopic asthma, and offers a valuable treatment option to younger patients who may have difficulty using inhalers, causing dose delivery and asso-

ciated outcomes to be variable.

Sintair tablets are effective therapy for asthma in children aged two years and older.

In adolescents and adults, Sintair improves multiple parameters of asthma control and is considered to be a useful additional in the step-up approach, or combination therapy, for moderate and severe persistent asthma not controlled with inhaled corticosteroids.

Sintair is now available at up to 47%



less than the originator montelukast.¹ The package insert as approved by the Medicines Control Council is available upon request from k.bissolati@pharmadynamics.co.za

Sintair is available in three dosage strengths:

Product	Active	Pack size	Price (SEP excl VAT)
SINTAIR 4mg	Montelukast sodium equivalent to 4mg montelukast	30 chewable tablets	R150
SINTAIR 5mg	Montelukast sodium equivalent to 5mg montelukast	30 chewable tablets	R150
SINTAIR 10mg	Montelukast sodium equivalent to 10mg montelukast	30 tablets	R150





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:	
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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
JULY 2013

Please return by October 31 2013

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

ECG OF THE MONTH	COUGH IN ADULTS	CONSCIOUS SEDATION	THERAPY FOR PSORIASIS	INCONTINENCE IN WOMEN
1 <input type="radio"/> T <input type="radio"/> F				
2 <input type="radio"/> T <input type="radio"/> F				
3 <input type="radio"/> T <input type="radio"/> F				
4 <input type="radio"/> T <input type="radio"/> F				
5 <input type="radio"/> T <input type="radio"/> 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: JULY 2013

CPD allocation: 5 points

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 July 2013 issue must reach Modern Medicine, PO Box 84622, Greenside 2034 by **October 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 13)

1. This patient has a pulse rate of 48 beats/ minute.
2. This patient has atrial fibrillation.
3. This patient has complete heart block.
4. This patient should be given atropine as initial treatment.
5. This patient should be referred for permanent pacemaker implantation.

COUGH IN ADULTS (Pg 18)

1. Acute bronchitis is usually superinfected by bacteria and antibiotics are indicated.
2. Cephalosporins are indicated for pertussis infections.
3. GORD, post-nasal drip and asthma are common causes chronic cough in non-smokers.
4. Asthma can best be excluded by careful history and examination.
5. Bronchiectasis can be excluded by AP and Lateral Chest X-ray.

CONSCIOUS SEDATION (Pg 28)

1. Trained sedation practitioners are called professional sedation practitioners.
2. Consultant anaesthetists as sedation providers are the majority group.

3. The Royal College of Anaesthetists recommends that only non-anaesthetists need be trained in sedation.
4. According to the SASA guidelines on sedation, operator sedationists can administer combinations of drugs.
5. The dedicated sedation practitioner is only involved in the administration of drugs, monitoring of the patient, and rescue if it becomes necessary during the procedure.

THERAPY FOR PSORIASIS (Pg 30)

1. Calcipotriol should not be used in combination with steroids.
2. Tazarotene is a retinoic acid receptor specific retinoid.
3. NB-UVB demonstrates less risk for causing squamous carcinoma than systemic PUVA.
4. The major side-effects of methotrexate are nephro- and neuro-toxicity.
5. Infliximab is administered intravenously for the treatment of psoriasis.

INCONTINENCE IN WOMEN (Pg 35)

1. Nocturia in women is usually associated with decreased Atrial Natriuretic Peptide.
2. A palpable bladder equates to 300ml of urine.
3. Stress incontinence refers to anxiety-induced involuntary urinary passage.
4. Post-voidal urine volume of 40ml represents inadequate voiding.
5. Good bladder training involves frequent bladder emptying "just-in-case".

Opportunities

Consulting rooms available for a large multi-disciplinary group practice. Preferably with an existing patient base in the Northcliff and Honeydew areas.

If you are interested in this opportunity; please forward your CV to: honeydewmanager@nhcltd.com

We will arrange a meeting to discuss the earning potential and provide you with all the necessary information.

See answer form opposite

2013	    	 
22 - 26 Jul	CDE - Centre for Diabetes and Endocrinology: 5-Day Advanced Course in Diabetes Care WHERE: 81 Central Street, Houghton, JOHANNESBURG CONTACT: Centre of Diabetes and Edocrinology • 011-712-6000 • john@cdecentre.co.za or michael@cdecentre.co.za	CPD (30), EXHIBITION, 50-100 Speakers www.cdecentre.co.za
26 - 28 Jul	2nd Update in the Management of Patients with Vestibular Disorders WHERE: Indaba Hotel, JOHANNESBURG CONTACT: Tessa Booyen • 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
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
1 - 4 Aug	Cardiothoracic Conference WHERE: Fairmont Zimbali Resort, DURBAN CONTACT: The Conference Company • 031-303-9852 • chanel@confco.co.za	CPD, EXHIBITION, 50-100 Speakers www.cardiothoracic.co.za
2 - 4 Aug	WITS Masters Class in Laparoscopic Suturing WHERE: Wits Faculty of Health Sciences, JOHANNESBURG CONTACT: Dine Poulton • 011-768-4355 • dine@londocor.co.za	CPD, 10 Speakers www.londocor.co.za
14 - 17 Aug	19th International Symposium on Dental Hygiene WHERE: Cape Town ICC, CAPE TOWN CONTACT: Embassy Conferences & Incentives • 021-424-6644 • mariefer@iafrica.com	CPD, EXHIBITION, 10-50 Speakers www.embassyconferences.co.za
15 - 18 Aug	CMT (Continuing Medical Training) Medical Conference 2013, No. 2 WHERE: Kopanong Hotel, Benoni, JOHANNESBURG CONTACT: Continuing Medical Training • 011-849-8966 • cmt@iburst.co.za	CPD, 10-50 Speakers www.cmtcc.co.za
16 - 18 Aug	SAGES - Gastroenterology Society Conference WHERE: Champagne Sports Resort, DRAKENSBURG CONTACT: Eastern Sun Events • 041-374-5654 • sages@easternsun.co.za	CPD, EXHIBITION, 10-50 Speakers www.sagescongress.co.za
18 - 21 Aug	BHF - Board of Healthcare Funders Conference WHERE: Cape Town ICC, CAPE TOWN CONTACT: Zola Mtshiya • 011-537-0200 • zolam@bhfglobal.com	CPD, EXHIBITION, 10-50 Speakers www.bhfglobal.com
22 - 25 Aug	RSSA/SORSA - Radiological Society / Society of Radiographers WHERE: Durban ICC, DURBAN CONTACT: Consultus • 021-938-9238 • csnyman@sun.ac.za	CPD, EXHIBITION, 10-50 Speakers www.2013sorsarrssa.co.za
28 - 30 Aug	6th Biennial Neurological Rehabilitation Association Conference WHERE: Hilton Hotel, Sandton, JOHANNESBURG CONTACT: RCA Conference Organisers • 011-487-3819 • register@rca.co.za	CPD, EXHIBITION, 10-50 Speakers www.rca.co.za
28 Aug - 1 Sep	WFICCM - 11th Congress of the World Federation of Critical Care Medicine WHERE: Durban ICC, DURBAN CONTACT: Turner Conferences • 031-368-8000 • info@criticalcare2013.com	CPD, EXHIBITION, 50-100 Speakers www.criticalcare2013.com
29 Aug - 1 Sep	SASCRO/SASMO - 16th National Society of Clinical and Radiation Oncology and Society of Medical Oncology Congress WHERE: Champagne Sports Resort, DRAKENSBURG CONTACT: R K Communication • 051-436-7733 • rkc@telkomsa.net	CPD, EXHIBITION, 10-50 Speakers www.ssccongress2013.co.za
28 Aug - 1 Sep	SASOP - Biological Psychiatry Congress WHERE: Wild Coast Sun, SOUTH CAPE CONTACT: Sonja du Plessis / Stacey Coetzee • 011-768-4355 • sonja@londocor.co.za / stacey@londocor.co.za	CPD, EXHIBITION, 10-50 Speakers www.sasop.co.za

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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.

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**Database of Medicine Prices [Online]. Date as on the website [cited 26 April 2013] Available from URL: <http://www.mpr.gov.za/PublishedDocuments.aspx>

Reference: 1. Soodat YK, Rayner BL. South African Hypertension Guideline 2011. *S Afr Med J* 2012; 102:57-84.

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