NEWSPAPER POST

TheSynapse

The Medical Professionals' Network

MEDICAL IMAGING

Diagnostic Imaging of Acute Appendicitis

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Cross-sectional imaging with ultrasonography (US) and computed tomography (CT) have proved useful for the evaluation of suspected acute appendicitis.

The principal advantages of US are its lower cost, lack of ionizing radiation, and ability to assess vascularity through colour Doppler techniques and to provide dynamic information through graded compression. The principal advantages of CT include less operator dependency than US, as reflected by a higher diagnostic accuracy, and enhanced delineation of disease extent in a perforated appendix and in obese patients. Both exams are particularly useful in detecting other conditions that may mimic appendicitis.

Acute appendicitis is the most common condition requiring emergency abdominal surgery. The condition typically develops in older children and young adults. It is rare under the age of 2 years. The lifetime risk of acute appendicitis ranges from 7% to 9%. Acute appendicitis presents a challenging problem to caregivers because it must be differentiated from a variety of other conditions that result in acute abdominal pain.

Clinical signs and symptoms associated with acute appendicitis include colicky, periumbilical or right lower quadrant pain; nausea; vomiting; point tenderness in the right lower quadrant; rebound tenderness; and leukocytosis. Although knowledge of the classic findings is important, the clinical diagnosis of acute appendicitis is not always straightforward. Approximately one-third of individuals with acute appendicitis have atypical clinical findings. Younger children are not able to clearly describe their symptoms. In addition, the presenting signs and symptoms of many nonsurgical conditions may mimic those of acute appendicitis; 5%–25% false-negative appendectomy rates have been reported for the paediatric population. Various clinical scoring systems have been proposed to aid diagnosis; the MANTRELS score has been shown to be the most useful (Table 1).

There are serious consequences to the delayed diagnosis of acute appendicitis. Reported complications include perforation, abscess formation, peritonitis, wound infection, sepsis, infertility, adhesions, bowel obstruction, and death.

The MANTRELS Score

Characteristics	Points
M igration of pain to right lower quadrant	1
A norexia	1
N ausea and vomiting	1
T enderness in right lower quadrant	2
R ebound pain	1
E levated temperature	1
L eukocytosis	2
S hift of white blood cell count to left	1
Total	10

Table 1: *The Mantrels Score*

Although abdominal radiography remains a widely used examination in patients with acute abdominal pain, it has been shown to be a relatively insensitive and non-specific means for evaluating this condition, and its use adds unnecessary cost and radiation exposure. Routine use of abdominal radiography in these individuals has little value unless bowel obstruction or perforation is suspected.

The reported diagnostic accuracy of US in the diagnosis of acute appendicitis has varied greatly, with sensitivity values ranging from 44% to 94%, and the specificity values from 47% to 95%.

An overall sensitivity of 85% and specificity of 92% has been reported for US based on meta-analysis of paediatric and adult studies published between 1986 and 1994. The clinical utility of US lies primarily in the patient subgroup in whom the clinical findings are equivocal,

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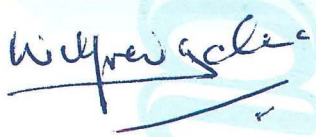
Editor's Word

Welcome to another interesting issue of *TheSYNAPSE* Magazine. In this issue we focus on Dermatology, starting with an article that looks at **Melanoma in the Maltese Islands** and another article on the **Skin and Internal Disease**.

You can also read the second parts of the articles featured in issue 4 dealing with **Stem Cells**. To add more variety, you can also have an expert insight in the **Management of Pressure Ulcers** and recent trends in **Early insulinisation of the diabetic patient**.

We also have the regular articles in the Medical Imaging Section, dealing this time with the **Diagnosis of Acute Appendicitis** whereas we continue to follow trends in the **Dow Jones in the MoneyWise** section as well as the progression of **Avian Influenza**.

October is a special month for *TheSYNAPSE* as we celebrate our Tenth Year since the launch of our rapidly growing Internet Portal on *www.thesynapse.net*. We encourage you to participate actively by joining our rapidly growing community and benefiting from the range of services and benefits available for all members.



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Diagnostic Imaging of Acute Appendicitis

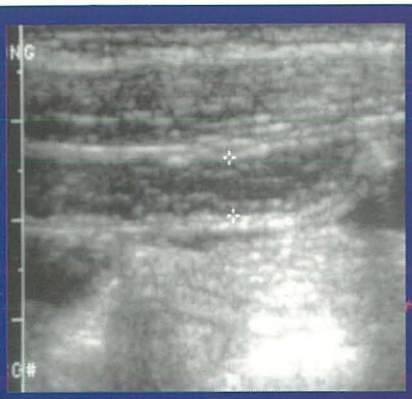

Figure 1: *US scan showing a normal appendix (between crosses) in the longitudinal section.*

both to establish the diagnosis of appendicitis and to aid in the diagnosis of other abdominal and pelvic conditions that may mimic the disorder, particularly gynaecologic diseases.

The graded-compression technique of US is performed with a high-resolution, linear array transducer. Gentle, gradual pressure is used to compress the anterior abdominal wall, resulting in displacement and compression of normal

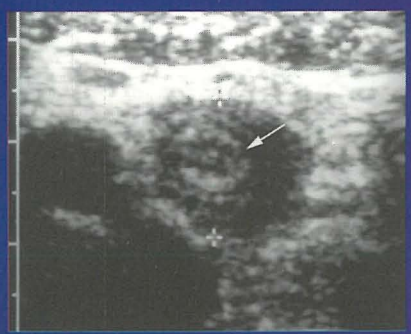

Figure 2: *US scan showing a thickened inflamed appendix (>6mm) in the cross-section. Note central submucosal ring (arrow).*

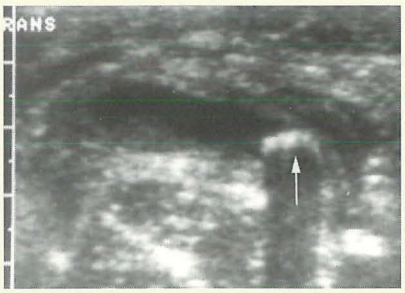

Figure 3: *US scan of an inflamed appendix in longitudinal section containing an appendicolith (arrow).*

bowel loops. Adequate compression has been achieved if the iliac vessels and psoas muscle are visualized, since the appendix will be anterior to these structures. Scanning should identify the ascending colon, a nonperistaltic structure containing gas and fluid. More inferiorly to the terminal ileum is seen, which is easily compressible and displays active peristalsis. The caecal tip where the appendix arises is approximately 1–2 cm below the terminal ileum; this appears as a tubular structure with a diameter measuring 6mm or less (Figure 1). A technically adequate examination can be achieved in over 95% of patients. Technical failures are due to the presence of severe pain or patient obesity that precludes satisfactory graded-compression.

On ultrasound, the inflamed, nonperforated appendix appears as a fluid-filled, noncompressible, blind-ending tubular structure (Figure 2) with a maximal diameter greater than 6 mm. In early nonperforated appendicitis, an inner echogenic lining representing submucosa can be identified (Figure 3). Other findings of appendicitis include an appendicolith (Figure 4), pericaecal or periappendiceal fluid, increased periappendiceal echogenicity representing fat infiltration and enlarged

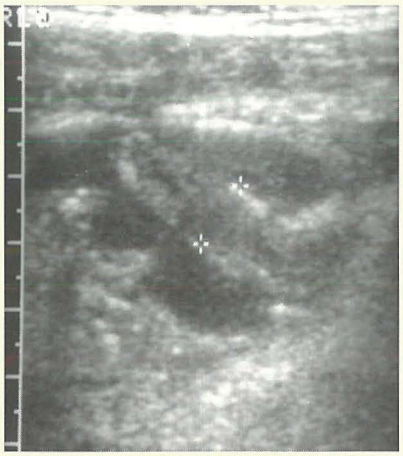

Figure 4: *US scan of an inflamed appendix (between crosses) in longitudinal section with adjacent free fluid.*

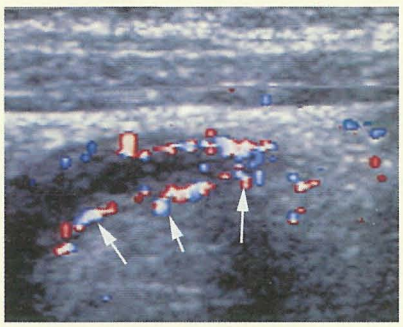

Figure 5: *Colour Doppler US scan of an inflamed appendix in longitudinal section showing abundant blood flow (arrows).*

mesenteric lymph nodes. The only US sign that is specific for appendicitis is an enlarged, noncompressible appendix measuring greater than 6 mm in maximal diameter.

Perforation occurs in 23%–73% of children with acute appendicitis and US features include loss of the echogenic submucosal layer and presence of a loculated periappendiceal (Figure 5) or pelvic fluid collection or abscess.

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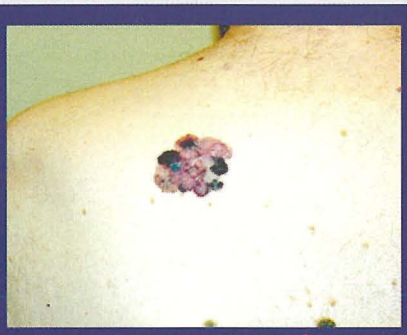
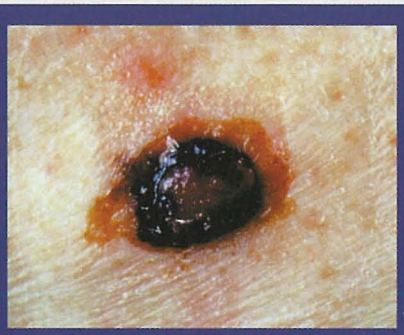
Melanoma – The

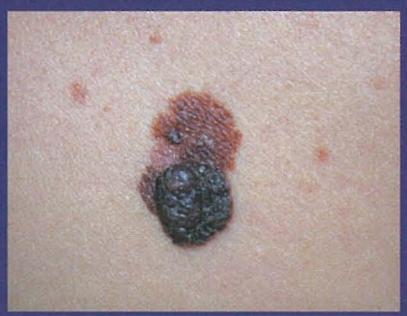
by **Lawrence Scerri** *MD FRCP (Lond & Glasg) CCST Derm (UK) FAAD*
Chairman, Department of Dermatology,
Sir Paul Boffa Hospital, Floriana

Malignant melanoma is a potentially fatal variety of skin cancer, which has been exhibiting an upward trend in incidence in most Caucasian populations during the past two to three decades. A genetic predisposition in the form of fair type I/II skin, atypical mole syndrome and family history of melanoma is well recognised. However, the single most important extrinsic aetiological factor is beyond doubt ultraviolet exposure, particularly episodes of sunburn and excessive sun exposure in childhood.[1] To this end, numerous public awareness campaigns to educate the public on sun protection and to stress the importance of early melanoma detection have been conducted worldwide, Malta being no exception.

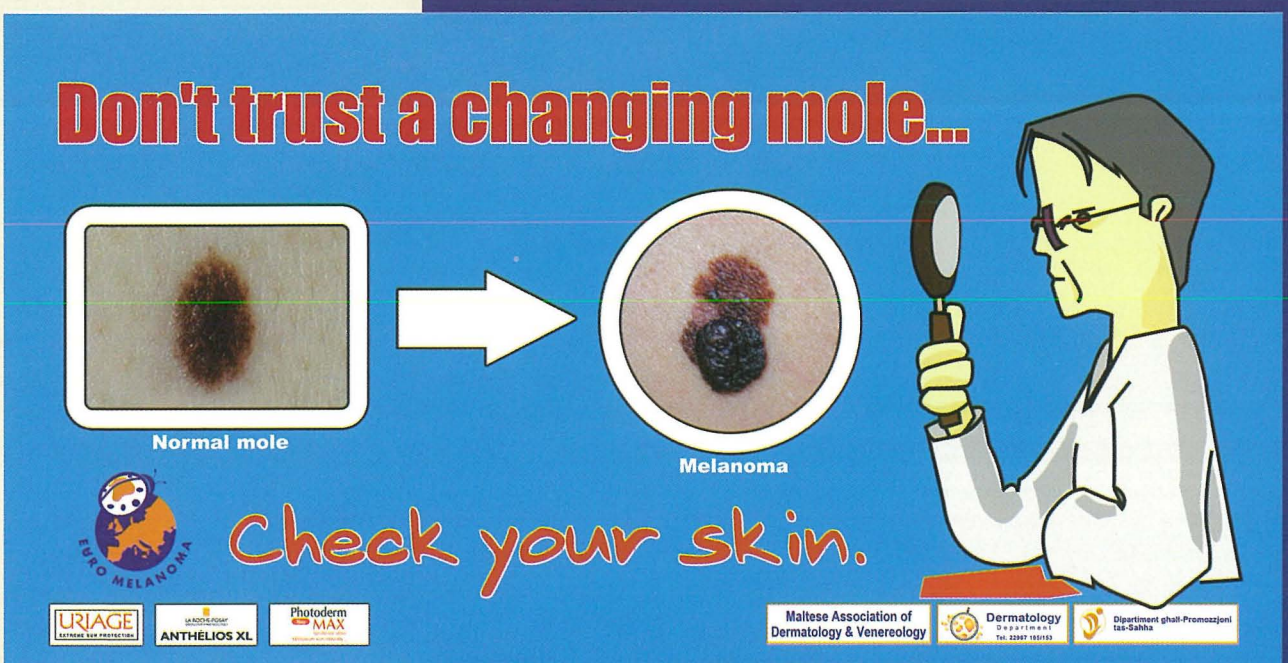
In a study looking at the epidemiology of melanoma in Malta between 1993 and 2002, a worrying trend of increasing incidence was documented.[2] The age-standardized incidence went up by 116% in males (from 3.7 per 100,000 to 8.0 per 100,000), and by 16% in females (from 5.1 per 100,000 to 5.9 per 100,000). The increase in incidence in both sexes occurred mainly in the older age group (60+), with the incidence remaining relatively stable in the younger to middle age groups. The most frequently affected sites were the trunk in males (48.6%), and the trunk and lower limbs in females (35.7% and 34.8% respectively). Breaking down the figures according to Breslow's thickness, one notes that the increase in incidence was predominantly in the thin to medium thickness tumours, with the frequency of thick melanomas remaining relatively stable over time. Whereas melanoma used to be commoner in females (female/male ratio 1.6), it went on to become commoner in males in more recent years (female/male ratio 0.9). On a positive note, the absolute 5-year survival rate went up from 74% (70% in males, 77% in females) to 92% (86% in males, 97% in females) during the study period. The survival rate however worsened with increasing age.







A 1999 Maltese study designed to measure the level of public knowledge about the harmful effects of the sun on the skin and to gain information about sun protection practices revealed that the general level of



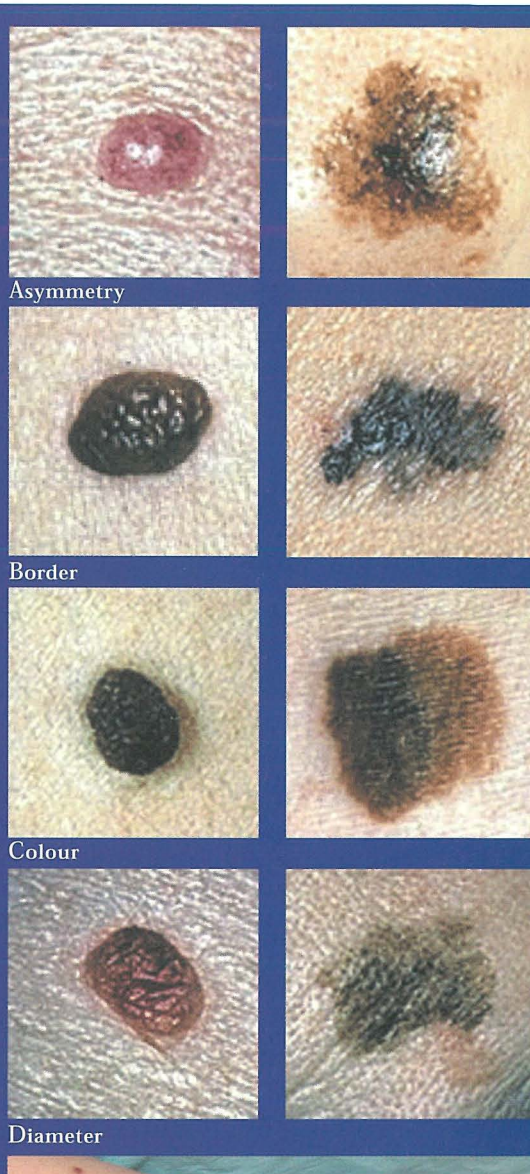
Maltese picture

awareness on such matters was very high.[3] However, in spite of being armed with such useful knowledge, most people still did not take adequate precautions to protect their skin from harmful solar radiation. This lack of precaution was noted in both occupational and recreational settings, and particularly amongst males. On a positive note, parents reported a high rate of enforcement of sun protection measures on their young offspring. Another study amongst dermatology outpatients revealed similar findings.[4]

A 2002 study conducted on Maltese secondary school children was designed to evaluate knowledge, attitude and behaviour in relation to the sun and the skin.[5] Once more, the level of knowledge was impressively high, with the exception of a few misconceptions, namely, that one cannot get sunburnt on a cloudy summer's day, and that acquiring a suntan is not harmful as long as one does not get sunburnt in the process. Furthermore, a considerable number of students did not know that the protective effect of a sunscreen lasts only 2 to 3 hours, and hence repeated application is necessary. Of concern, a high number of students felt that they look better with a suntan and admitted to peer pressure in this regard. Also worrying was the fact that over half the students admitted to intentional sunbathing.

Such data can be taken as a clear reminder of the importance of continuing public awareness and educational campaigns. On a local level, we have had the Euro-Melanoma campaign since 2000. In this activity, Malta joins several other European countries in a concerted effort to promote primary prevention of melanoma through sun protection and sun avoidance, and equally important, to stress the importance of early detection of melanoma which in turn helps to lower mortality rates. The campaign is based on the dissemination of educational material to be displayed in local hospitals, clinics, pharmacies, and in the press, as well as billboards in strategic public locations, and on the buses. Furthermore, numerous interventions in the media by healthcare professionals are organised. A one-day clinic, where people with suspicious pigmented lesions can attend for screening, is normally held on the Euro-Melanoma day, which usually takes place in April or May. Educational material distributed as part of the campaign includes professionally illustrated handouts explaining the ABCDE criteria for melanoma diagnosis (A - Asymmetry, B - irregular Border, C - uneven Colour, D - Diameter >6mm, E - Evolution or recent history of change in a lesion). Diagnostic aids designed to assist the clinician in weeding out benign from malignant melanocytic lesions, when they look dubious to the naked eye, include the hand-held dermatoscope, as well as computerised 'mole scanners'. Such tools effectively cut down on unnecessary excisions, provided that they are operated by trained and experienced clinicians.

In conclusion, it must be acknowledged that significant progress has been registered, as far as early melanoma detection is concerned, including early detection of sub-clinical nodal metastasis through the use of sentinel lymph node biopsy. However, there is certainly still a lot of room for improvement with regard to changing public attitude and behaviour in the field of sun protection, particularly amongst adolescents and young adults. Until such time that the suntan is no longer considered to be an essential part of the 'cool' summer look, and compulsive sun bathing on a mass scale is phased out, the road ahead will remain a long tortuous uphill struggle.



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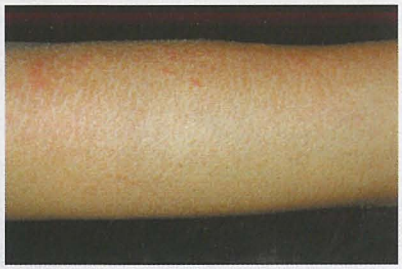
The skin and internal disease

The importance of looking beyond the skin

by **Michael Boffa** *MD FRCP(Edin) FRCP(Glasg) FAAD CCST(Derm)(UK) MSc(Lond)*
Consultant Dermatologist

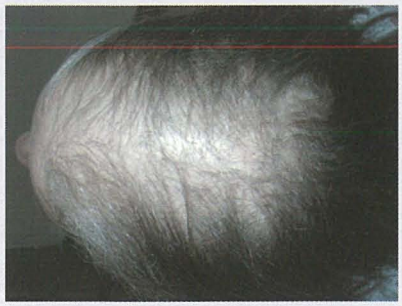
The skin is the largest organ in the human body. It has important 'local' roles such as protecting internal structures from potentially harmful factors in the environment but in addition is very much an integral part of the body and has a complex structure endowed with a rich blood supply and elaborate immune system. It is therefore not surprising that the skin and its appendages can be affected by a wide range of diseases of other organ systems. Correct diagnosis of cutaneous manifestations may be of immense help in the diagnosis of underlying medical conditions. This article will focus on a selection of skin problems and discuss their associations with internal disease and also briefly review skin manifestations of certain disease states. Topics likely to be relevant to a general medical audience are emphasised.



Xerosis

Generalised pruritus

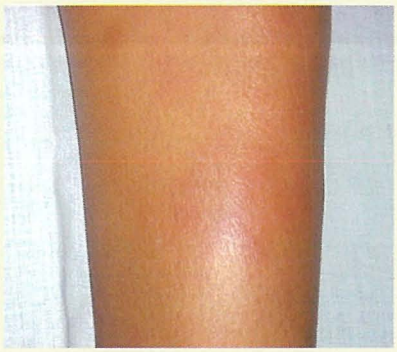
In most cases pruritus is due to obvious skin conditions such as eczema, xerosis (dry skin), urticaria, lichen planus, scabies, pediculoses and psoriasis. Less common cutaneous causes of pruritus include dermatitis herpetiformis, bullous pemphigoid, pemphigus foliaceous and mycosis fungoides. Occasionally, pruritus may be caused by an underlying medical problem and in some cases itching may be the presenting complaint and an important clue in its diagnosis. Patients with unexplained pruritus should get a thorough history and examination and basic blood investigations (full blood count, ferritin, creatinine, liver and thyroid function tests) to detect possible underlying medical conditions.



Diffuse hair loss

Diffuse hair loss

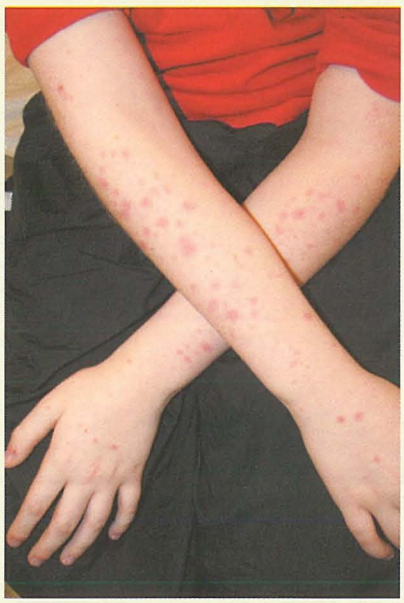
Diffuse alopecia affects hairs throughout the scalp in a more or less uniform pattern without visible inflammation or scarring. Causes of diffuse alopecia include drugs (eg. coumarins and heparin), telogen effluvium (as seen after childbirth, major surgery and illnesses, psychological stress and crash dieting) and anagen effluvium (as seen following cancer chemotherapy). Iron deficiency is an important and common cause of diffuse hair loss in menstruating women who habitually eat little red meat. Diffuse alopecia may occur in several endocrine syndromes including hypo- and hyper-thyroidism, hypopituitarism and hypoparathyroidism. Useful investigations in patients with diffuse hair loss therefore include full blood count, ferritin and thyroid function tests. Chronic, progressive, diffuse, 'androgenetic' hair loss in women starting in their 20s and 30s is common and is usually due to an inherited trait. Serious underlying hormonal abnormalities are rare but should be considered especially in patients with menstrual irregularities and hirsutism with or without signs of virilisation.



Erythema nodosum

Erythema nodosum

Erythema nodosum is a reactive inflammation of the subcutaneous tissue that typically presents with ill-defined, tender, erythematous plaques or nodules symmetrically distributed over the shins. The condition may be triggered by a variety of factors including infections (eg. streptococci, *mycobacterium tuberculosis*, yersinia, chlamydiae and viruses), sarcoidosis, drugs (especially oral contraceptives and sulphonamides), inflammatory bowel disease and, rarely, malignant disease. Investigations required depend on the clinical setting but in most cases include full blood count, throat swab, antistreptolysin O titre and chest X-ray.



Erythema multiforme

Erythema multiforme

Erythema multiforme is characterised, as the name implies, by varying clinical manifestations ranging from symmetrically distributed erythematous maculopapules with central ischaemia ('target lesions') on the acral regions, elbows and knees to severe disease with mucous membrane involvement (Stevens-Johnson syndrome). Causes include infection (eg. *Herpes Simplex*, mycoplasma, hepatitis B, infectious mononucleosis and other organisms), drugs (eg. sulphonamides, non-

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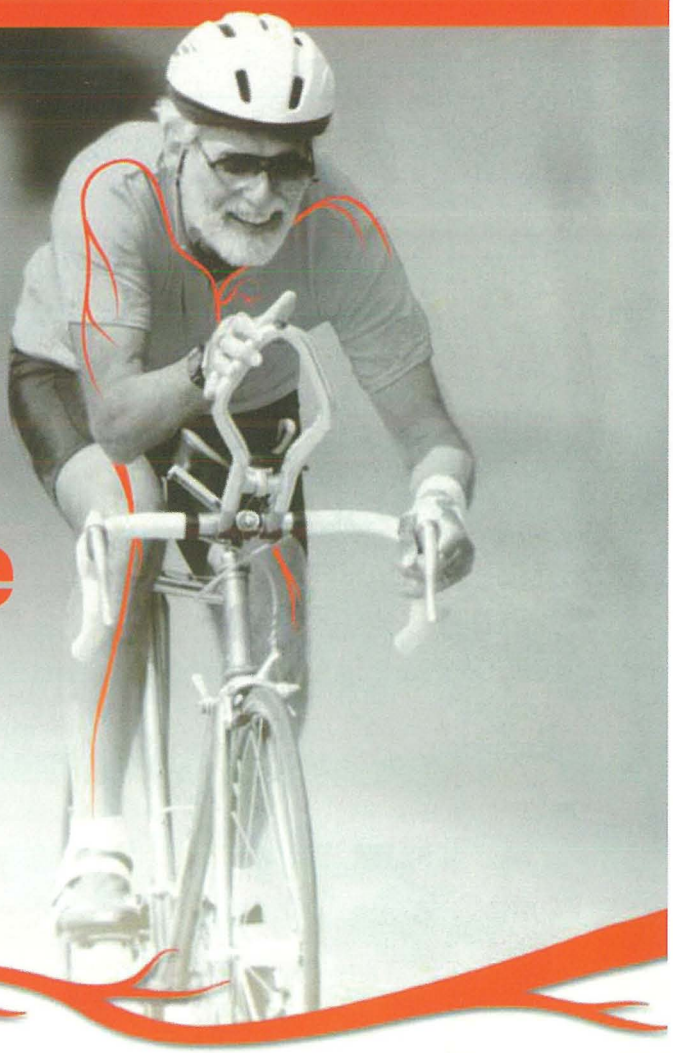

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World Heart Day 2006

Unilever and The World Heart Federation unite to help raise awareness of heart disease and the role of a healthy diet

Heart disease and stroke is the world's largest killer, claiming 17.5 million lives a year – one third of annual global mortality[1] and in Europe alone, cardiovascular disease (CVD) causes nearly half of all deaths[2]. Although cancer perhaps attracts more attention – and probably provokes more fear in people – 18 times more women worldwide die of CVD than from all cancers put together[3].

Sunday 24th September is World Heart Day 2006. This year's campaign theme is – How Young is Your Heart? The aim is to encourage people around the world to adopt a heart healthy lifestyle to have a heart for life.

As individuals, we each have a number of risk factors for the development of cardiovascular disease. These risk factors are made up of those that are non-modifiable, such as our age, sex and gender, and those that are modifiable, and relate to the way we live our lives.

Modifiable risk factors may be influenced by factors in our lifestyles, such as what we choose to eat, the amount of physical activity we undertake and whether or not we use tobacco. The major modifiable risk factors are high cholesterol, and raised blood pressure.

Diet is one of the most important as well as one of the most adjustable by the individual of all of these modifiable risk factors and a calorie restricted, nutritionally balanced diet has been associated with slowing the ageing process of the heart.

In 2003, the World Heart Federation and Unilever agreed a partnership to help increase the awareness of the role a healthy diet and lifestyle can play in helping to maintain heart health and reducing the risk of cardiovascular problems, to both the public and healthcare professionals.

Kate Mitchell, from Unilever Foods says, "For more than 40 years Unilever has played a leading role in helping consumers maintain healthy hearts. Since 2003, we have worked in partnership with the World Heart Federation to help reduce the global burden of heart disease. Part of this collaboration involves regular scientific dialogue between the experts at the World Heart Federation and our own at the Unilever Food and Health Research Institute (UFHRI). We hope that through this collaboration, we can help people to keep their hearts healthy so that they can enjoy life to the full, today and tomorrow."

As part of the partnership agreement, joint initiatives between World Heart Federation, national heart foundation members and Unilever Foods national operating companies are being undertaken across Europe. Mr Alex Manche Consultant Cardiac Surgeon at St Luke's Hospital added "The role of a healthy diet in helping to keep our hearts healthy is well established. Limiting the consumption of saturated fats and reducing blood cholesterol levels as part of an overall healthy diet is one of the most positive lifestyle changes we can make to lower our personal risk of cardiovascular disease."

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- *For best results consume with a meal, as part of a healthy diet.*

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In order to reduce cholesterol levels and achieve a healthier heart, World Heart Federation recommend taking regular physical activity and eating a balanced diet rich in fruit and vegetables, low in saturated fats and including foods that contain plant sterols.

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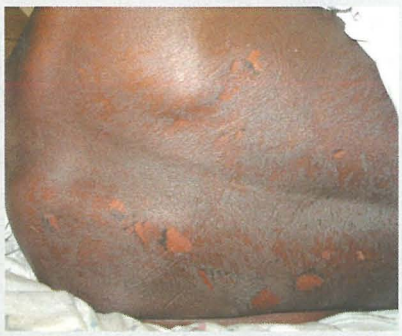
The skin and internal disease

steroidal anti-inflammatory drugs, antiepileptics, oral contraceptives and others), connective tissue diseases, pregnancy and internal malignancy. In toxic epidermal necrolysis, Stevens-Johnson-like mucous membrane disease is accompanied by progressive, generalised loss of skin; the condition is life-threatening and usually caused by a drug reaction.



Toxic Epidermal Necrolysis

Diabetes mellitus

Patients with diabetes are prone to various skin problems. The commonest is probably cutaneous candidiasis, particularly of the genitals (where it may be the presenting feature of diabetes), intertriginous areas, mouth and nail folds. Good diabetic control is essential for managing cutaneous candidiasis. Furuncles and other *Staphylococcus Aureus* infections are also more common in diabetics. Specific cutaneous complications of diabetes include diabetic dermopathy (dull-red papules on the shins evolving into atrophic brownish scars) due to microangiopathy and possibly neuropathy, necrobiosis lipoidica (degenerative disease of collagen causing erythematous, atrophic, yellowish plaques on the anterior surfaces of the lower legs; this disease is very resistant to treatment) and insulin reactions and lipodystrophy (rare with modern insulins). Diabetic neuropathy may present with decreased sweating of the lower extremities, erythema, atrophy and oedema associated with numbness, tingling and burning. Diabetic neuropathy may lead to catastrophic trophic ulceration over pressure sites and deserves the utmost attention. Skin conditions that are commoner in diabetics include disseminated granuloma annulare, vitiligo, eruptive xanthomas, scleroedema and reactive perforating collagenoses. Contrary to popular belief, diabetes *per se* does not cause generalised pruritus however anogenital candidiasis associated with poor diabetic control may, of course, cause troublesome localised itching.

Liver disease

Hepatobiliary diseases are often associated with abnormalities of the skin, nails and hair. Pruritus is the commonest cutaneous symptom in liver disease and may precede the appearance of jaundice. In obstructive liver disease itch is thought to be due to the presence of bile salts in the skin but other liver metabolites may be involved. Other cutaneous signs of chronic liver disease include telangiecteses (due to hyperoestrogenaemia), hyperpigmentation, xanthomatosis (typically in primary biliary cirrhosis), diffuse alopecia (may be due to zinc deficiency) and nail changes including clubbing. Pellagra, seen mainly in alcoholics, is due to dietary deficiency of niacin; it typically presents with dermatitis and pigmentation in photoexposed areas, sometimes associated with diarrhoea and mental disturbances and responds rapidly to oral vitamin replacement.

Renal disease

Pruritus is a common and distressing complication of chronic renal failure and is seen in the majority of patients on haemodialysis. It may be persistent, extensive and intractable but in others may be transitory and localised. The pathophysiology is debated but may include secondary hyperparathyroidism, aluminium overload during dialysis and skin dryness. Treatment is difficult. Emollients may be helpful for patients with dry skin and some may benefit from ultraviolet B phototherapy.

Internal malignancy

The skin may be associated with internal malignancy in a number of ways. Skin changes may be a marker for an inherited condition associated with malignancy (eg. Peutz Jeghers syndrome – periorificial lentigines associated with intestinal polyposis), occur as a result of treatment of internal malignancy or represent direct tumour extension or metastases to the skin. Paraneoplastic syndromes are diseases that appear before or concurrently with an internal malignancy and result from production of biologically active hormones, growth factors or antigen-antibody interactions induced by the tumour. Examples include dermatomyositis, acanthosis nigricans, acquired ichthyosis, acquired hypertrichosis and erythema gyratum repens. Such syndromes may be associated with cancer of a wide range of internal organs including lung, breast, female and male genital tracts, stomach, kidney, colon and rectum and lymphoid tissue. The skin changes may be the initial clue to the presence of an underlying neoplasm and it is therefore vital that such changes are recognised and investigated properly.

Figure 1

Systemic conditions associated with generalised pruritus

Chronic renal failure

Biliary disease
- Primary biliary cirrhosis
- Drugs
- Extrahepatic biliary obstruction
- Intrahepatic biliary obstruction of pregnancy

Hyper & hypothyroidism

Malignancies
- Lymphoma (especially Hodgkin's lymphoma)
- Leukaemia
- Multiple myeloma
- Other malignancies

Haematological disorders
- Iron deficiency
- Myeloproliferative disease especially polycythaemia rubra vera

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Stem Cells – What, Why, Whereabouts and When? – Part II

by **Pierre Schembri-Wismayer** *MD PhD MMCPath*
Lecturer, Department of Anatomy & Cell Biology
Faculty of Medicine, University of Malta

Plasticity and therapeutic cloning

As explained in the first part of the article, embryonic stem cells have the possibility of development into all types of tissue into all different sources of tissue. Adult stem cells, up till recently believed to be tissue-specific stem cells, have generated a lot of interest (and a good amount of controversy too) in the past few years due to recent studies showing a good deal of plasticity.

Plasticity can be defined as the capability of a stem cell derived from one tissue to produce cells of a number of different tissues. The extent of plasticity is controversial and is thought to depend on the environment of these stem cells, including the extent of surrounding tissue damage.

A lot of what is known about stem cell plasticity comes from animal studies and also clinical studies of sex-mismatched organ transplants where different tissues in the recipient (usually of a bone marrow transplant) were assessed for cells containing sex-mismatched cells in other tissues.

Bone marrow stem cells, probably the most well studied stem cells, have been shown in various studies to give rise to numerous other different types of cells, including muscle cells, cardiac muscle cells, liver cells, lung cells, bone cells, cartilage cells, fat cells and even neuronal cells.[1,2] These are derived from either the haematopoietic stem cell or the mesenchymal stem cell found in bone marrow.

The therapeutic potential of this phenomenon causes a lot of interest to ethicists, scientists and clinicians alike. The option of efficiently re-programming cells derived directly from the patient (rather than depending on a few lines of embryonic stem cells, maintained in tissue culture) is one we all look forward to with hope. It would reduce most problems with transplant rejection, and the ensuing problems of immunosuppressive regimens and their associated complications.

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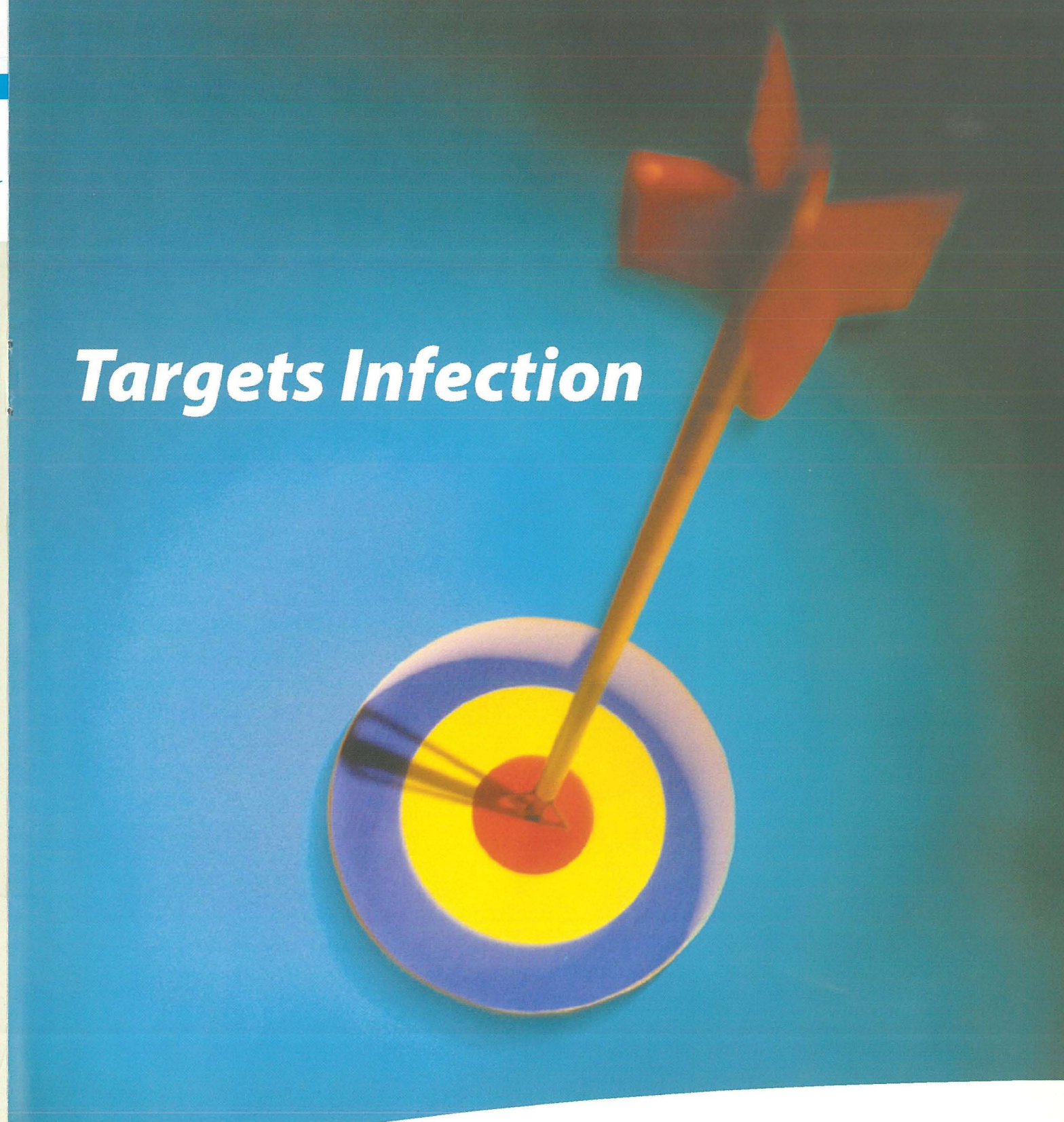

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Book review

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The European Textbook of Family Medicine

Just hot off the press, The European Textbook of Family Medicine was launched during the WONCA Europe 12th Regional Conference. 77 authors from 13 countries, including the editor of this magazine, have worked together to create this textbook. Almost all involved in producing this book are busy European family physicians.

Historically, family medicine has always been the 'Cinderella' of medical specialties in Europe. It has been seen by some as a refuge for those doctors unwilling or unable to specialise in the secondary care disciplines. However, this book provides substantiative evidence that the European Family Medicine is alive and well and 'coming of age'.

Policy-makers and health care organisations across Europe have only recently discovered what has been known by family physicians for a long time – namely that well trained and well organised family physicians can provide high quality health care which is both effective and efficient in the use of resources, which can contribute to the control of spiralling health care costs and result in clinical outcomes that are comparable with other medical specialties.

The book is divided into eight separate sections, each containing a number of chapters. The sections include reviews of the discipline of family medicine, health promotion in family practice and follow-up of patients treated in secondary care. There are in addition, sections on the essential skills required for family practice, research, learning and teaching as well as near patient testing.

Agendabookshop

The textbook is a great reference for both undergraduate students as well as practicing physicians, not only those practicing family medicine but also other specialities.

The book is published by Passori Editore and may be purchased through the Agenda Bookstore on TheSYNAPSE (*ISBN 88-86750-15-3*).

Winning with TheSYNAPSE

Membership in TheSYNAPSE Web Portal gives you the opportunity to win great prizes by participation in regular eQuizes and surveys. All that eligible members require is to participate and win. Over the last few weeks we have had a huge number of winners. Sixty doctors have won a book "The Electocardiogram – a Practical Guide" by Drs Maurice Algazi and Dr Philippe Meurin. Drs Johan Vella and Mario Stellini each won a copy of BNF Issue No. 51 March 2006 courtesy of Les Laboratoire Servier.

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The winners of the Exelon® eQuiz were Dr Tonio Bugeja and Dr Victor Curmi. They each won a 1 year's subscription to The Lancet

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Lantus® eQuiz

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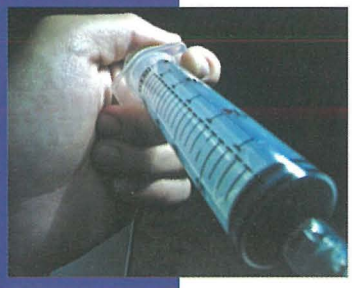
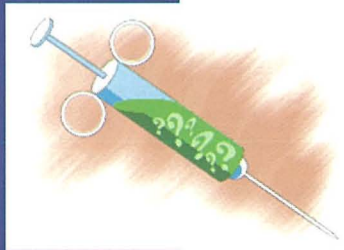
Vaccines against non communicable diseases

Please refer to the article about Adult Immunization – an overview, by Dr Tonio Piscopo appearing in Issue No. 03/06 of TheSYNAPSE Magazine. The article ends with a mention of vaccines against diseases which are non-communicable. One such condition is cocaine addiction for which an anti-cocaine vaccination currently being investigated and developed should be available in the not too distant future.

Understanding of addiction is increasingly indicating a strong biological aspect that is amenable to pharmacotherapy. We are entering a phase where pharmacotherapy in addiction will be available even to prevent the onset of this devastating disease. Here follows further details about this novel vaccine.





Cocaine abuse continues to be prevalent with 32% of Maltese heroin users abusing cocaine as a secondary drug. Cocaine dependence also continues to be an important public health problem world-wide. Effective therapies for cocaine craving and addiction remain obscure and currently there are no proven or established pharmacotherapies for cocaine addiction. Recently, immunopharmacotherapy has been proposed as a promising way to tackle or even prevent cocaine dependence. By way of the natural immune response, an anti-cocaine vaccine promotes the production of cocaine specific antibodies that sequester the drug, and therefore slows the drug's passage to the brain, where it exerts its reinforcing and thus addictive effects. A therapeutic vaccine, namely TA-CD, for the treatment of cocaine dependence is currently in Phase 2 clinical trials.

Cocaine causes euphoria by inhibiting the re-uptake of neurotransmitters (mainly dopamine) at nerve synapses in the brain. Cocaine may therefore be considered to be an indirect dopamine agonist because it potentiates the synaptic actions of dopamine that have been released endogenously.

The active ingredient of the TA-CD vaccine is a protein conjugate: a cocaine derivative coupled to recombinant cholera toxin B (rCTB). The finished TA-CD vaccine consists of the protein conjugate adsorbed onto aluminium hydroxide gel adjuvant in saline. It is administered by intramuscular injection and it is anticipated that a short course of injections will be required to induce antibody responses.

Clinical studies have been conducted to assess the safety and immunogenicity of TA-CD vaccine to date. In a Phase IIa study supported by the US National Institute on Drug Abuse (NIDA) in 2002, up to 4 vaccinations (at 0, 2, 4 and 8 weeks) of 82 µg TA-CD were administered intramuscularly in 9 outpatient cocaine abusers. The vaccine was well tolerated both locally and systemically. Antibody levels correlated both with the dose of vaccine given and with the number of vaccinations. Antibodies were detected subsequent to the second injection. Results also showed that the maximum mean antibody response occurred between 70 and 90 days post vaccination, with cocaine specific antibodies persisting for at least 6 months. In 2004 it was also reported that the likelihood of using cocaine decreased in those subjects who received an intensive vaccination schedule. The subjects who did relapse within 6 months reported a reduction in the euphoric effects of cocaine.

A cocaine vaccine would be an innovative and exciting way of treating and preventing cocaine addiction. However, its introduction and administration would be surrounded by many legal and ethical implications. Privacy may be compromised since cocaine antibodies present in serum for six months may be used as a marker. Vaccinated individuals may therefore be identified and stigmatized. Another imminent issue would be selection of candidates for vaccination. Should immunization be voluntary or compelled? Should vaccination be restricted to addicts, to those at risk of addiction or universal? Should children and adolescents be immunized?

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St Luke's Hospital

Stem Cells – What, Why, Whereabouts and

continued from page 12

The mechanism of therapeutic cloning holds a lot of potential for the ultimate re-programming of adult cells into totipotent stem cells. This introduces a lot of ethical issues, due to the creation of a novel zygote-like cell (and therefore potentially a new human being). Theoretically, however, it would also create a source of every cell-type, potentially needed for transplantation procedures and regeneration therapies, from any one of the patient's skin or blood cells.

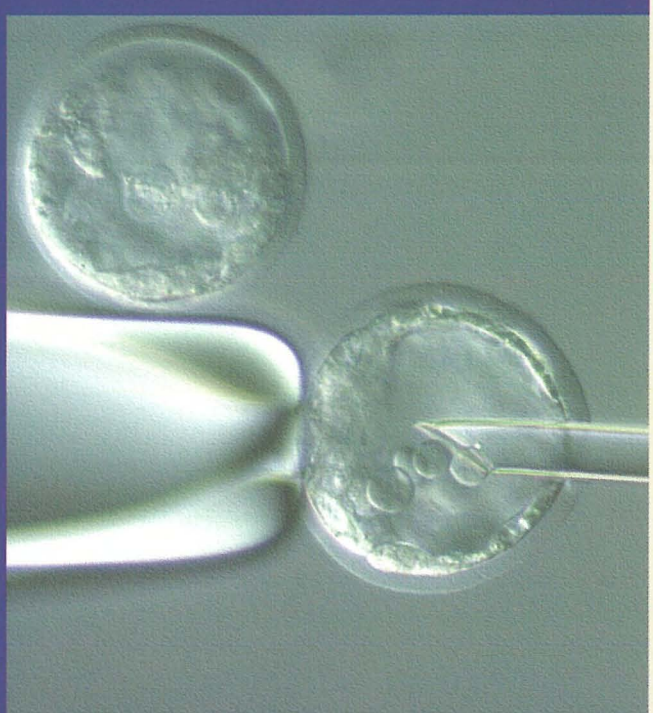
Making human embryonal cell lines from adult cells through the process of therapeutic cloning is presently an unachieved goal of stem cell research. It holds great potential but as it is seen as ethically problematic, human cloning has been outlawed in several national and international declaration.[3,4] The process of therapeutic cloning – creating a novel zygote-like cell to develop person-specific stem cells, unfortunately tends to be hijacked by the fact that this research could also result in the much more controversial reproductive cloning.

Most mammalian embryos created through cloning do not in fact develop into mature animals, in fact the great majority die at a very early stage of development as was the case with the experiments which eventually produced Dolly – she was one success story from 300 plus attempts.[5]

This is due to a number of characteristics of the embryonal development, including the process of imprinting, only a few of which are understood to any extent.[6]

Due to the very low likelihood that a zygote created through cloning would ever develop into a human being, even in the best circumstances in the womb, one may argue whether it may be possibly acceptable on moral grounds to accept the process of therapeutic cloning.

Normally, embryonic stem cells are derived from a clone once it has been allowed to develop into a blastocyst.[7]



This in itself engenders certain aspects of personhood to those of us (including myself) who believe that human life starts from the zygote formation, despite the fact that the chances of development into a person are presently non-existent. It may be possible in the future to directly derive the therapeutic clone from the initial nuclear-transferred cell. This may possibly reduce some of the ethical conundrums associated with therapeutic cloning by not allowing anything similar to an early embryo to ever develop.

Clinical and Therapeutic implications of stem cell biology

Lots of interesting clinical results have already been seen from stem cell transplantation and many others await us in the near future.

Bone marrow transplants are a form of stem cell transplantation which has been curing patients of aplastic anemia, leukaemia, and various other diseases for many decades.

This has more recently been supplemented with similar procedures of cord blood transplants and G-CSF-mobilised peripheral stem cell transplants.

Heart disease is one of the front runners in the field of stem cell clinical trials, where bone marrow injected into the heart of patients during or after myocardial infarction has resulted in an improvement of ejection fraction and other cardiac function parameters.[8]

The great interest is that unlike all other previous therapies available, this therapy results in a return of function to the post-infarct heart – a finding that holds much promise.

Other areas of ongoing clinical research into stem cells include retinal, pancreatic and skeletal diseases.[9-11]

With the perpetual lack of donor organs, the capability of developing new organs from one's own stem cells (or those of donors) provides a new frontier in medicine.

Tissue engineering is a whole new branch of medical research which is developing rapidly to make the most of advances in stem cell research as well as biomechanics and other technologies.

The option of introducing nerve cells to sites of neuronal injury following accidents or vascular events also opens up new frontiers into an as yet restricted field, resulting in rehabilitation of seriously disabled patients.

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When? – Part II

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Ethical issues in umbilical cord blood banking – Part II

by **Pierre Mallia** *MD MPhil PhD FRCGP*
Lecturer in Biomedical and Clinical Ethics

In the first part of the article we considered some legal issues and ethical concerns of the European Group on Ethics on for-profit umbilical cord blood sampling. In this second part we continue to analyse the ethical conclusions of collecting such samples during delivery, in order to help the practitioner in his advice to patients who inquire about such technologies.

Clearly it was found that there is no evidence that the Autologous use of cord blood (storing one's own cord blood) has any benefit over using cord blood from other sources.[1] The EU therefore is strongly of the opinion that in order for people to have equal access, if anything, it is public banks that should be looked into. Moreover such public banks will then network together in order to have immediate access should the need arise. However it stresses that couples should be free to make a choice based on sound information which should *stress that they are still very much in the experimental stage.* Two other concerns of equal importance are:

1. The values of freedom and free enterprise come into conflict and may indeed damage the reputation of the medical profession and the principles of solidarity and justice, according to which access to health care should 'be on an equitable basis and based on realistic needs'. One has to consider therefore, within the concept of allocation of resources, whether it is worth investing in this field and sacrifice other areas that need funding.

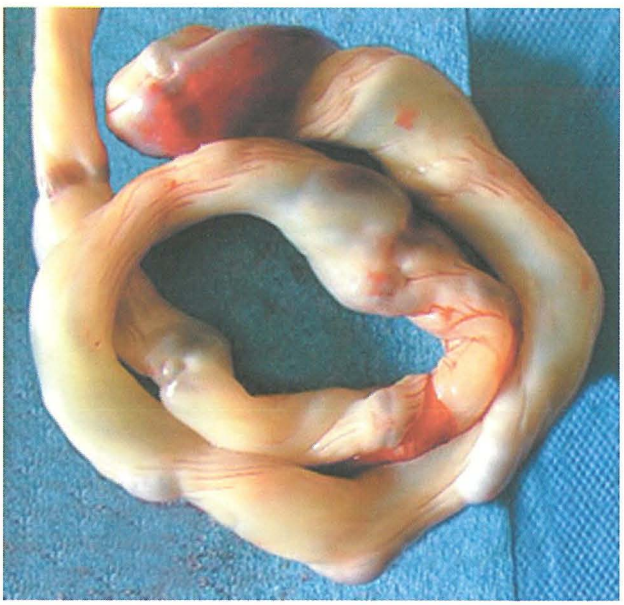
2. Secondly, concerns are raised with the protection of vulnerable groups.

On this second point it is worth dwelling a little. The report states that, '*Citizens (referring to people wanting to set up private cord blood banking) may be tempted to take advantage of all possibilities proposed for health even if they are not validated. Furthermore, time of pregnancy and of birth represents a period when women/parents might be vulnerable. This vulnerability and the sense of guilt in the parents who wish to do everything possible for their child's good, induced by providing misleading or over optimistic information may lead people to invest money for something that they cannot really afford, and that may not be worth the money invested.*' [1]

Within the hospital setting, the pressure by the parents to perform the collection may be heavier than when a systematic procedure in the context of donation is set up; it might obviously detract the attention of the practitioners from the care of the mother and child.

Clearly it is more ethically viable to have public banks than private ones; the latter potentially depriving the former from potential donors. Moreover there are no guarantees what will happen to the sample should the private company go bankrupt. Clearly there should be a form of insurance and security that the sample will be transferred to another bank. Nothing of the sort is being shared with parents locally. Public banks need a great diversity and quantity in order to represent the many HLA types existing.

In conclusion, donation of cord blood falls under the same category as organ donation and body tissues. Private banking



alone poses serious risks to equity in health care and certainly local governments are discouraged by the EU to allow them. Private banks can only fairly exist within the context of public banking which form networks with other banks. This way immediate and equal access is guaranteed and the process of obtaining samples becomes routine by people dedicated to this job; hence there would be no interfering in the normal process of delivery. Clearly a midwife being interrupted in the process of delivery by someone waiting to take a sample is a hazard in the delivery context, when the mother needs considerable support.

The likelihood that the sample obtained may be used to treat one's child is highly unlikely and future therapeutic possibilities are highly hypothetical. Encouraging such private enterprises interferes with the ethos of health care and certainly should arouse the suspicions of all the professionals involved with pregnancy and delivery. Such enterprises risk damaging the reputation of the medical profession and promote an image of trying to obtain financial advantage from a medical situation. This certainly goes beyond the spirit, enshrined since the dawn of the Hippocratic Oath, that professionals may charge a fee for their services. It is an exploitation of vulnerable groups and of governments which are not yet in a position to provide public banking.

Reference

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EXELON® hard capsules

Presentation: Capsules containing 1.5 mg, 3.0 mg, 4.5mg or 6.0 mg rivastigmine (as the hydrogen tartrate salt).

Indication: Mild to moderately severe dementia associated with Alzheimer's disease or Parkinson's disease.

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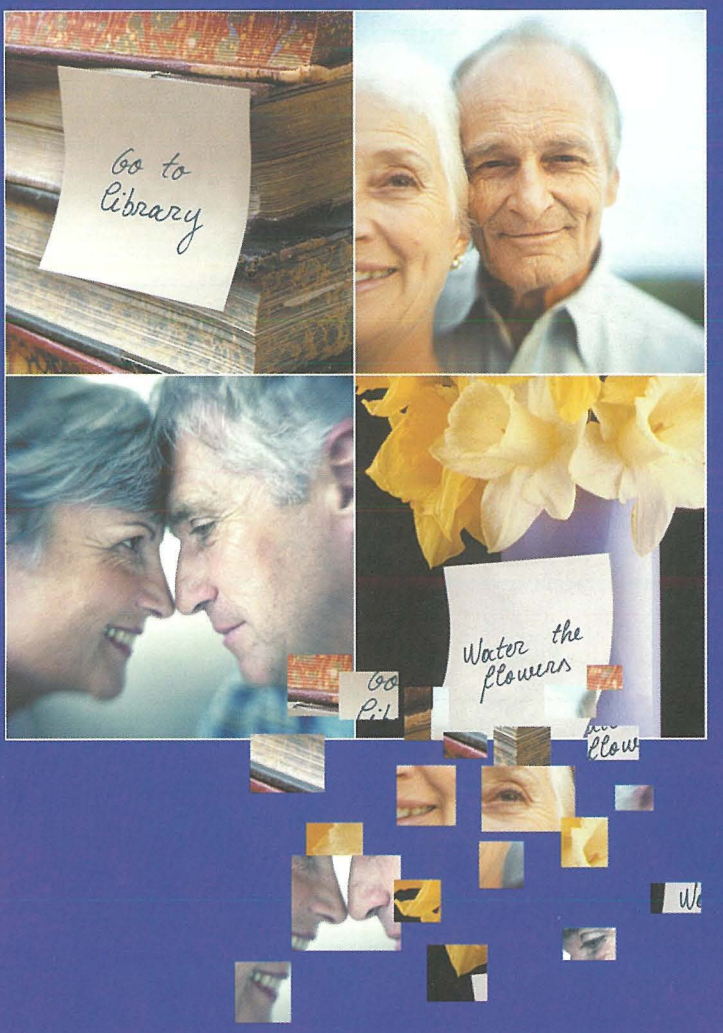

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EXE Ad 08/06 MT

Pressure Ulcer Management

by **Peter Ferry** *MD MSc MRCP*
Consultant Geriatrician, Department for the Elderly and Community Care, Malta

With a growing number of frail older patients, pressure ulcers have unfortunately become commoner. It is therefore of paramount importance that these are managed in the most appropriate manner. A description of the current evidence or lack of it is given in this review.

Pressure ulcers are usually the result of sustained pressure on parts of the body such as the heels, trochanteric and sacral areas. The main risk factors contributing to pressure ulcer formation are acute illness, injury or sedation. The two main groups of patients most susceptible of sustaining pressure ulcers are frail older patients and patients with spinal cord injuries.

Frail older patients have thinner skin, are more likely to have a lower body mass index, and may be malnourished and immobile due to various neurological and musculoskeletal pathologies. Because of the phenomenon of an ageing population, pressure ulcers are becoming increasingly prevalent.

It must be emphasized that pressure ulcers can in the majority of cases be prevented. Most doctors tend to underestimate the importance of a pressure-ulcer risk assessment, and this task is commonly delegated to nursing staff who use validated tools such as the Waterlow scale.[1]

In those patients who have developed pressure ulcers, the latter must be categorised according to four internationally recognised stages, stage I being the least severe and stage IV being the most serious.

Management

Stages I and II are managed conservatively. This involves basic nursing care such as changing the patient's position regularly and avoiding friction when the patient is moved. Special support surfaces such as cushions and mattresses may be used according to the perceived risk and availability of such resources. Regular aseptic cleaning of such wounds with physiological saline and mild soap will prevent them turning septic. Incontinence should be managed concurrently.

For pressure ulcers in the more advanced stages, removal of damaged tissue or debridement will keep the wounds free of damaged, infected or dead tissue that will delay the wound healing process. Debridement may be surgical, mechanical, autolytic, enzymatic, chemical or using larval therapy (sterile maggots).

Dressings [2]

There are a variety of dressings on the market that are used according to the stage and severity of the ulcer in question. The objective is to keep the wound itself moist and the surrounding skin dry. Stage I ulcers may not require a dressing. Stage II ulcers are usually managed with hydrocolloid or transparent semipermeable dressings that retain moisture, thus encouraging skin cell growth. For ulcers in a more advanced stage, more specialised dressings are used.

An ideal dressing would:
- Allow excess exudate to be removed from the wound surface
- Provide a moist micro-environment
- Be sterile/contaminant free
- Not shed dressing material in the wound
- Reduce wound pain
- Be easy to remove and apply
- Not cause allergic reactions
- Not cause trauma when removed
- Be impermeable to micro-organisms
- Provide thermal insulation

There is no dressing that satisfies all the above criteria, and available dressings can be categorised into five basic categories:

1. Contact layers (e.g. Tulle gras, knitted viscose, silicone-coated fabric): prevent adherence to the wound bed and allow free drainage of exudate. Indicated for superficial or lightly exuding wounds.

2. Passive dressings (e.g. films, foams, and hydrogels): create a local wound environment conducive to healing. Indicated for wounds with exudate or to prevent contamination or control odour.

3. Interactive dressings (e.g. hydrocolloids, alginates and products containing carboxymethylcellulose fibre): form a gel-like covering on wound surface that may promote healing.

4. Active dressings (e.g. Physiologically active components, skin grafts, tissue-engineered products): directly influence the physiology or biochemistry of the wound healing process

5. Antimicrobial dressings (e.g. Iodine, chlorhexidine, silver and honey).

There is insufficient research evidence to guide clinicians' decision making about which dressings are most effective in pressure ulcer management. Despite this statement, expert consensus recommends using modern dressings e.g. Hydrocolloids, hydrogels, hydrofibres, foams, films, alginates and soft silicones rather than basic dressing types eg. Gauze, paraffin gauze and simple dressing pads.

Antimicrobial agents

The role of antimicrobial agents in the treatment of pressure ulcers remains unclear. This is due in part to the uncertainty around the issues of whether bacterial presence is an important factor in wound healing. It has been suggested that systemic antibiotics should only be used as a last resort when topical interventions have failed to produce healing.[3]

The most commonly isolated bacteria are aerobic organisms e.g. Staph.aureus, Streptococcus species, Proteus species, Eschericia coli, Pseudomonas, Klebsiella and Citrobacter species.[4] Complications of infected ulcers include osteomyelitis and septicaemia.

Topical agents

Topical agents e.g. Antibiotics, antiseptics and disinfectants are sometimes used on pressure ulcers. These agents are divided into three categories:
1. Lotions with antimicrobial

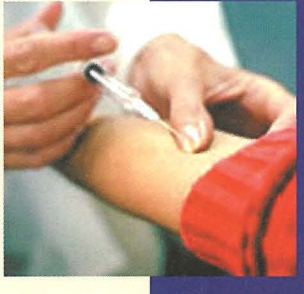
continues on page 22

Update on Avian Influenza

by **Tanya Melillo Fenech** *MD MSc*
Principal Medical Officer at Disease Surveillance Unit, Department of Public Health

H5N1 avian influenza virus is known to have infected 244 people in 10 countries during the past 3 years, killing 143 of them. WHO recommends that in patients with confirmed or strongly suspected H5N1 infection, doctors should give oseltamivir as soon as possible. The recommendation applies to adults, including pregnant women and children.

Clinicians have had little experience treating H5N1 in pregnant women, as animal studies don't indicate direct or indirect harmful effects on pregnancy or fetal development. Oseltamivir should not be used during pregnancy unless the potential benefit to the mother justifies the potential risk to the fetus. In the face of a deadly disease such as H5N1, the 'risk of oseltamivir in pregnancy would become insignificant'.



Genetic studies have shown the existence of 4 strains of H5N1 virus now circulating in South Asia and beyond. The existence of 4 distinguishable strains may have implications for the design and production of a vaccine for control of animal (and human) disease, if the genetic variation of the 4 strains involves changes in the antigenic properties of the haemagglutinin and neuraminidase surface proteins of the virus.

H5N1 avian influenza virus has become more complex, probably as a result of the antiviral drug oseltamivir, and recently, this is causing complications in detecting it in the laboratory. The drug is only able to prevent the virus from replicating and does not destroy it. However, it means that little of the virus is excreted into that part of the respiratory tract where specimens are taken for testing.

Should the world be caught without an effective vaccine or antiviral treatment for an avian flu pandemic, a last-ditch option may be to inoculate the sick with antibodies from the blood of those who are able to recover from the disease, according to a review of studies published after the 1918 Spanish influenza pandemic.

Current manufacturing capacity could vaccinate less than 5 per cent of the world's population in the event of a pandemic, making alternative treatments extremely desirable. One method known to work in other viral diseases such as rabies and measles is to

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Pressure Ulcer Management

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properties e.g. hypochlorites, hexacholorophene, potassium permanganate and gentian violet. These are mainly used to irrigate or cleanse wounds.
2. Preparations designed to stay in contact with the wound for a longer period of time e.g. Creams, ointment and impregnated dressings such as topical antibiotics (mupirocin, fucidic acid, and neomycin), and silver sulphadiazine.
3. Products that can be used either to cleanse or stay in contact with the wound for a longer time period e.g. Povidone iodine, chlorhexidine, benzoyl peroxide and hydrogen peroxide.

Mobilising, positioning and repositioning

As immobility is a significant risk factor for both the development of pressure ulcers and a contributory factor in delayed healing, mobilising, positioning and repositioning interventions should be considered for all individuals with pressure ulcers. It has also been suggested to avoid positioning directly on pressure ulcers or bony prominences.

Nutrition

Although malnutrition is positively correlated with pressure ulcer incidence and severity[5], there is no evidence to support routine administration of nutritional support or supplementation to patients with pressure ulcers to promote their healing. In patients who have detected nutritional deficiencies, these should be corrected.

It must be emphasized that all the above recommendations should be considered in the context of the patient's general health status, acceptability and comfort. The needs of informal carers should also be considered in management decisions.

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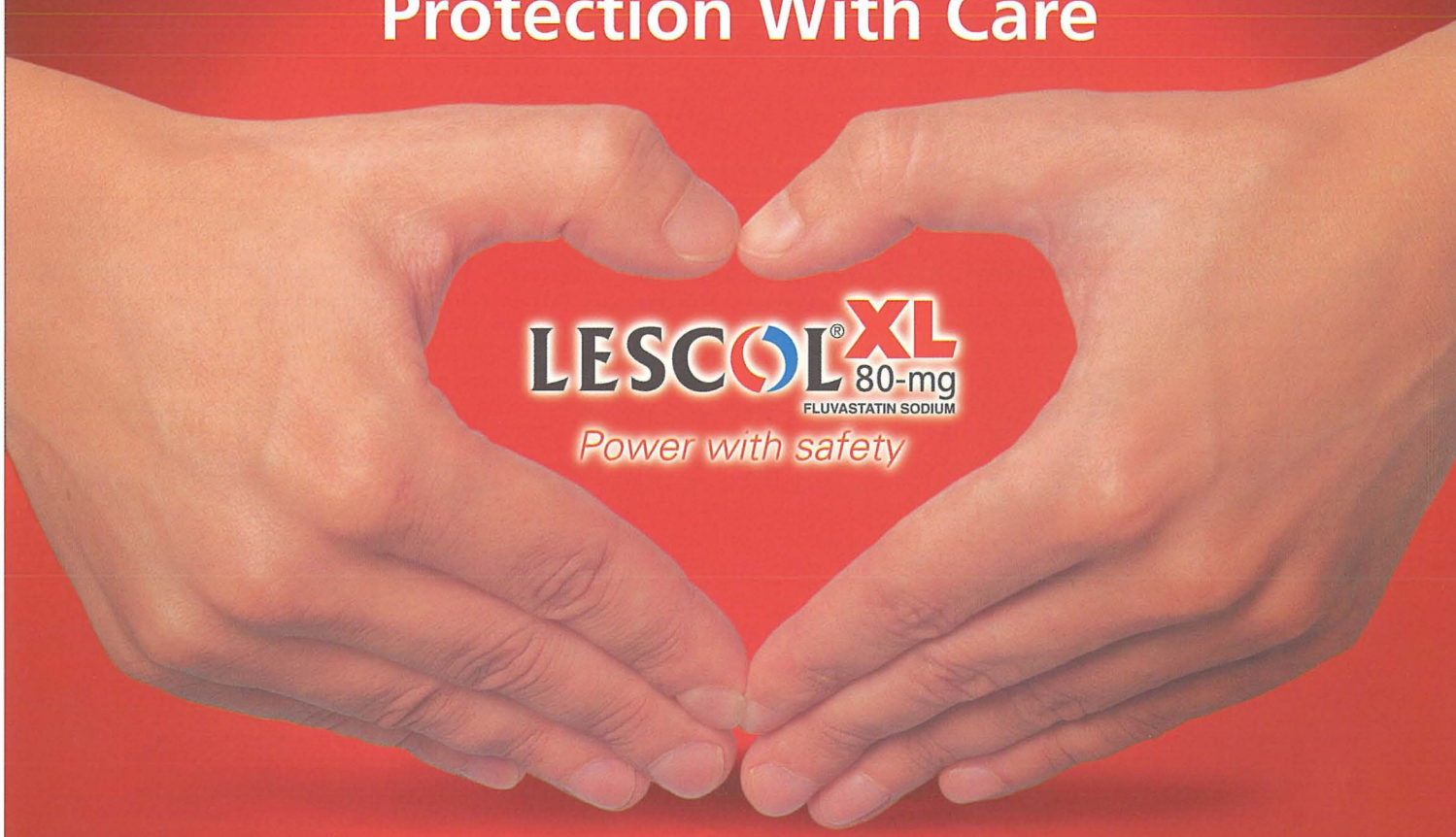
Protection With Care



- Lescol® XL provides effective lipid management in a wide range of high cardiovascular risk patients[1]
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(1) Corsini A, et al. The Use of Statins in Optimising Reduction of Cardiovascular Risk : Focus on Fluvastatin. Int J Clin Pract 2004; 58(5) : 494-503

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Presentation: Fluvastatin sodium. Lescol capsules containing the equivalent of 20 mg or 40 mg fluvastatin free acid. Lescol XL prolonged release tablets containing the equivalent of 80 mg fluvastatin free acid. Indications: For the reduction of TC, LDL-C, apoB, and TG, and the increase in HDL-C in patients with primary hypercholesterolemia and mixed dyslipidemia (Fredrickson Types IIa/IIb) as an adjunct to diet. Slowing of the progression of coronary atherosclerosis in patients with primary hypercholesterolemia, including mild forms, and coronary heart disease. Secondary prevention of major adverse cardiac events in patients with CHD after coronary transcatheter therapy. Dosage: Prior to initiating Lescol, the patient should be placed on a standard cholesterol lowering diet; dietary therapy should be continued during treatment. The recommended starting dose is 40 mg (1 capsule Lescol 40 mg) or 80 mg (2 capsules Lescol 40 mg once daily in the evening or 1 tablet Lescol XL 80 mg at any time of day). 20 mg (1 capsule Lescol 20 mg) may be adequate in mild cases. Contraindications: Hypersensitivity to the drug or excipients. Active liver disease or unexplained, persistent elevations in serum transaminases. Pregnancy, lactation, women of childbearing potential unless they are taking adequate contraceptive precautions. Precautions/Warnings: Caution is required in patients with a history of liver disease or heavy alcohol consumption, with unexplained diffuse myalgias, muscle pain/tenderness/weakness, and marked elevation of creatine kinase (CK) values. In patients with pre-disposing factors for rhabdomyolysis, the CK-level should be measured prior to treatment initiation. Caution with co-administration of fibrates, nicotinic acid and ciclosporin. Interactions: Fibrates; nicotinic acid; fluconazole; ciclosporin; bile acid-sequestrants; rifampicin; phenytoin; oral anticoagulants. Adverse reactions: Dyspepsia, abdominal pain, nausea, headache, insomnia. Rare cases of hypersensitivity reactions (mainly rash and urticaria), myalgia, muscle tenderness/weakness, myopathy. Very rare cases of thrombocytopenia, paraesthesia, dysaesthesia, hypo-aesthesia, vasculitis, hepatitis, other skin reactions (e.g. eczema, dermatitis, bullous exanthema), face oedema, angioedema, rhabdomyolysis, myositis, lupus erythematosus-like reactions. Elevation of transaminase and CK levels. Packs: Country specific

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Optimising Glycaemic Control

Does early introduction of insulin therapy

by **Josanne Vassallo** *MD, PhD, FRCP, FACP, FACE*
Consultant Endocrinologist, Senior Lecturer, University of Malta

The burden of diabetes mellitus is a serious and heavy one for patients and their families. Lack of glycaemic control can translate into a sense of hopelessness and helplessness on the part of the individual affected

This in turn is exacerbated by the eventual appearance of diabetes-related complications. A number of studies have shown that improving glycaemic control results in an improved quality of life.[1] Similarly over the last decade, the DCCT[2] and the UKPDS[3] trials demonstrated that the incidence of both micro- and macrovascular complications of diabetes mellitus is decreased with improved glycaemic control albeit at the risk of increased hypoglycaemic events.

The American Diabetes Association and the European Association for the Study of Diabetes have just published consensus guidelines on the management of hyperglycaemia in Type II diabetes mellitus.[4] An emphasis is placed on initial therapy with lifestyle modification, metformin and the rapid addition of medications, with transition to new regimens when glycaemic control is not achieved. The early addition of insulin therapy in patients who do not meet target goals is strongly advocated. Physicians are now fortunate in that the armamentarium of blood glucose lowering agents has increased but this has also resulted in a certain degree of uncertainty regarding the best regimens.

Review of the literature indicates that the need to individualise patient treatment is paramount. There is no fixed formula that can be applied to one and all and dose titration of all agents utilized is essential in order to achieve the ambitious HbA1c, postprandial and fasting blood glucose (BG) levels proposed by the American Diabetes Association (ADA) and the International Diabetes Federation (IDF)[5] shown below. There is still some discrepancy between the recommendations made by these two bodies as is evident from table 1.

Traditionally newly diagnosed Type II diabetes is treated with a combination of diet, exercise and the gradual introduction of oral hypoglycaemic agents. A number of patients with type II diabetes mellitus will achieve acceptable daytime blood glucose levels but have persistently elevated fasting blood glucoses and HbA1c levels. Wright et al reported that 50% of sulphonylurea-treated Type II diabetics require insulin therapy to achieve HbA1c of less than 7 %.[6]

However, the barriers to implementing early basal insulin therapy in Type II Diabetes remain significant both on the part of the healthcare professionals and the patient.[7] The latter are concerned with the fear of hypoglycaemia, weight gain, possible lifestyle restrictions and at times, a fear of injections. Furthermore, psychologically, there is often an association between the need to start insulin and the perception of increasing severity of diabetes mellitus compounded by a sense of personal failure. On the part of the doctor, lack of experience with instituting and supervising insulin treatment, fear of hypoglycaemia and perceived burden to healthcare systems and resources are real issues.

The development of new classes of drugs such as the thiazolidinediones and exenatide provide further possibilities for the management of diabetes mellitus. As newer insulin analogs are approved for clinical use, the management of diabetes could change across the globe with early introduction of basal insulin supplementation in addition to oral hypoglycaemic agents becoming the rule rather than the exception. Treating to target has been facilitated by the use of insulin analogs such as insulin glargine[8] whilst comparative studies have shown that there is less risk of hypoglycaemia with the newer insulin analogs[9,10]

A number of questions however, remain unanswered. There are established guidelines with respect to treating to target and maximizing medication efficacy but at what time point in the course of an individual's lifelong struggle with diabetes should early basal insulin therapy be instituted? The ORIGIN study is currently analyzing optimizing glycaemic control across the spectrum of glycaemic dysregulation and has included a group of subjects with impaired glucose tolerance and early diabetes mellitus possibly of less than 3 years duration. Furthermore, the issue of how aggressively to increase insulin doses and whether the expected improvement in long term outcomes will in fact be observed await further study.

Table 1: *Recommendations by the American Diabetes Association (ADA) and International Diabetes Federation (IDF)*

	Preprandial BG	Post prandial BG	HbA1c
IDF	<6.0 mmol/l	<8.0 mmol/l	<6.5%
ADA	<5.0-7.2 mmol/l	< 10 mmol/l	<7.0 %

in Type II Diabetes Mellitus
improve QOL and patient outcomes ?

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Diagnostic Imaging of Acute Appendicitis

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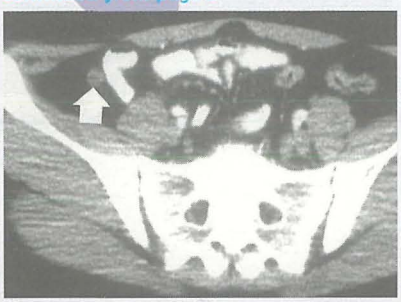

Figure 6: *CT scan showing a normal appendix in cross-section (arrow).*

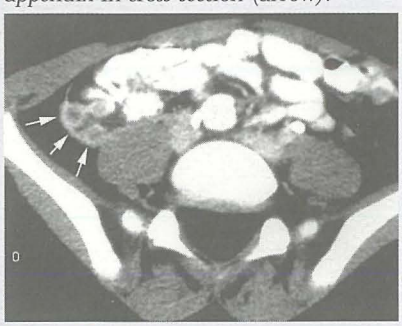

Figure 7: *CT scan showing an inflamed appendix in cross-section measuring <7mm in diameter (arrows).*

Colour Doppler US of nonperforated appendicitis typically demonstrates peripheral wall hyperaemia, reflecting inflammatory hyperperfusion (Figure 6). Colour flow may also be absent in gangrenous appendicitis.

Helical CT has been shown to be a highly sensitive and specific modality for the diagnosis of acute appendicitis in children and adults. The reported sensitivity of CT for the diagnosis of acute appendicitis has ranged from 87% to 100%, and the specificity has ranged from 89% to 98%. The advantages of CT over US are reduced operator dependence, superior contrast sensitivity, and the capability for viewing the entire range of air, soft-tissue, fat, and bone attenuation values inherent to the abdomen.

The normal appendix can be identified at CT. The appendix arises from the posteromedial aspect of the caecum, approximately 1–2 cm below the ileocaecal junction (Figure 7). The relationship of the base of the appendix to the caecum is constant, but the free end of the appendix is mobile and can be directed medially, caudally, laterally, or retrocaecally. The maximal normal appendiceal diameter measured on CT is quite variable; although it usually is 7 mm or less, it may occasionally be larger.

CT features of acute appendicitis include a distended appendix greater than 7 mm in maximal diameter, appendiceal wall thickening and enhancement an appendicolith (Figure 8), pericaecal fat stranding, adjacent bowel wall thickening, free peritoneal fluid, mesenteric lymphadenopathy, intraperitoneal phlegmon, or abscess.

Clinical studies have shown a significant decrease in the negative appendectomy rate in children with suspected acute appendicitis who underwent CT before surgery compared with those who did not (7% vs 13%). A decrease in the perforation rate has been observed in patients who underwent CT compared with those who did not (15% vs 23%). Another study showed that the number of days required for inpatient observation prior to surgery is reduced by CT assessment, therefore reducing the cost of care per patient.

In summary, both graded-compression US and helical CT have been shown to have potential utility in the evaluation of suspected acute appendicitis. Both US and CT have there advantages and disadvantages, with CT being more accurate, particularly in obese patients.

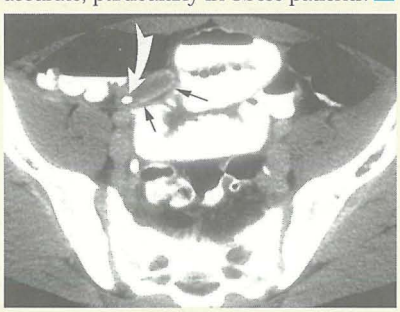

Figure 8: *CT scan showing an inflamed appendix in longitudinal section (straight arrows) which contains an appendicolith (curved arrow).*

Dr Pierre Vassallo can be reached at the Medical Imaging Centre on 21 491 200 or by email on pvassallo@mic.com.mt

Update on Avian Influenza

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transfer the blood of a recovered patient to a sick one, giving the latter antibodies against the pathogen.

Transfusions were also tried in the 1918 flu pandemic but hadn't been studied extensively. Analysis done suggests that patients with Spanish influenza pneumonia who received transfusion may have experienced a clinically important reduction in the risk for death and improvements in clinical signs and symptoms[1]

Update on Seasonal Vaccine

Seasonal vaccination should start in October. The government this year is offering the vaccine free of charge to the following categories:

- All health care professionals working in governmental hospitals, health centers and governmental institutions/homes;
- All persons residing in an institution;
- All persons aged 55 years and over;
- All persons of all ages suffering from: chronic respiratory disease, chronic heart disease, chronic liver disease, chronic kidney disease, diabetes mellitus, any chronic immunodeficiency state including AIDS;
- All essential workers including police, armed forces, civil protection, security services, Food and Veterinary Regulation Division, cleansing department, veterinary surgeons and their assistants, cargo handlers and custom officials involved in border control;
- Other workers at high risk: poultry farmers and their workers, Corradino staff and inmates.

Encourage your patients to take the seasonal vaccine.

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Keeping up with the (Dow) Joneses – A Turbulent Start to the Third Millennium

Part II –2003 to 2006

by J. G. P. Bonello, *F.L.I.A., Managing Director*
Financial Planning Services Limited
Financial Adviser since 1967

*Year four of the third millennium, **2003**, started with most investment gurus predicting that, as had happened in the 1929/1932 crash, we would see a fourth consecutive year of market decline for only the second time in history. Instead, it turned out to be the first positive year since 1999 with the Dow gaining 24.32%, up 2,112.29 points to close the year at 10,453.92.*

In the July MoneyWise column, we had reviewed the performance of the Dow Jones in each of the first three years of the new millennium. Counting the three "minus years" of 6.2%, 7.1% and 18.8% gives a total decline of 32.1%; yet the overall decline for the 3-year period ending 31st December 2002 comes to 27.4%.

The second three-year period saw the Dow Jones rise from 8,341.63 on 31st December 2002 to 10,717.50 at the end of 2005, for an overall increase of 28.5%. This marginally erased the first three-year loss of 27.4%. However, the full six-year variation (end 1999 to end 2005) is still a points drop of 779.62, or 0.678%.

The following are the major year by year highlights:

2003: During the year, despite mounting tensions, the Dow trended higher initially, retreating as war with Iraq became inevitable, and then soaring as the invasion of Iraq began in mid-March. Three weeks later, Baghdad was captured. Meanwhile, tax cuts, including a reduction in the dividend tax rate to 15%, were approved by Congress. Unemployment peaked at 6.3% in June, a level which would have been considered close to full employment in the 1970s. On June 25th, Fed Chairman Alan Greenspan, reduced interest rates to 1% - where they would in fact remain until June 30th of the following year. The year ended with the capture of Saddam Hussein by the U.S. army on December 13th – two days after the Dow had closed above 10,000 for the first time in 18 months.

2004: Possibly on the basis of the Massachusetts Institute of Technology's (MIT's) Professor of Economics, Paul Krugman's dictum: "Today's mammals are tomorrow's dinosaurs", the 8th April saw the replacement of Dow components Eastman Kodak (18th July 1930), AT&T (14th March 1939), and International Paper (3rd July 1956). The new components became American International Group (AIG), Pfizer and Verizon Communications. The dates between brackets for the replaced companies are the ones on which each company had, itself, become a component.

It is easy to understand that George Eastman's original Brownie cameras and his Kodak company's film processing have been totally overtaken by today's digital cameras and film technology. Equally, if you think how email has replaced paper in your personal communications and apply this to every household and office worldwide, you can follow the logic of the removal of International Paper. This is proof positive of the Dow's dynamic development as its overseers select the companies that reflect the most relevant and vibrant sectors of the American economy.

A look at the names of today's 30 companies includes AT&T Incorporated. Wasn't this company replaced on 8th April 2004? Here is the full background: AT&T was first listed as "American Telephone & Telegraph" on the 4th October 1916, when the number of companies making up the Dow Jones was increased from 12 to 20. It was dropped on the 1st October 1928, when the number of component companies was increased to 30. This increase happened in 1928, not in 1938 as inadvertently reported in the July MoneyWise column.

It was readmitted in 1939, changed its name to AT&T Corporation on 20th April 1994, and was again taken off the list on 8th April 2004. On the 1st November 1999, the Dow underwent the last facelift of the second millennium with 4 new companies: Microsoft, Intel, Home Depot and SBC Communications. The latter, upon completion of its merger with AT&T on the 21st November 2005, changed its name to AT&T incorporated – which company name replaced SBC Comms.

But how did the market itself perform in 2004? What were the major economic and political factors influencing it?

Stock market prospects were not helped as the Fed raised interest rates for the first of five times during the year. U.S. interest rates more than doubled from 1% in June to 2.25% on December 14th. Neither did the terrorist attacks in Madrid on March 11th, and the kidnappings and beheadings in Iraq, create a climate of investment confidence.

On October 25th crude oil future prices climbed to a then all-time high of $55.67 a barrel, and the Dow responded by falling to 9,749.99, down 6.7% for the year till then. The re-election of President Bush in November, and the subsiding of inflation expectations, in tandem with oil futures ending the year at $43.45, helped to see the Dow close the year at 10,783.01. This was a gain of 10.6% from its October 25th close, but only translated into a full-year gain of 3.15% based on the Dow's 2003 year-end.

In **2005**, the Dow fell 0.61% to 10,717.50, its smallest annual percentage change since 1926, and just the fourth time ever that its annual percentage change was less than 1%. The year's major disasters were the London terrorist bombings on 7th July and hurricanes Katrina and Rita at the very end of August. The latter shut down oil and gas drilling operations along the Gulf Coast. This caused oil prices to climb to record highs as global energy demand, led by the Chinese dragon, rose to unprecedented levels, and supply from the refineries dried up. Remarkably, the unemployment rate ended 2005 at 4.9%. Inflation expectations caused the Fed to increase interest rates by 25 basis points at each of its 8 meetings between 2nd February and 13th December to 4.25%. This inverted the yield curve (when short term rates exceed long bond yields) – an event that some see as a harbinger of recession.

The biggest loser on the Dow was General Motors with a mighty drop of 51.5% while, out of the 14 gainers, Hewlett Packard topped the list with a whacking 36.5% gain.

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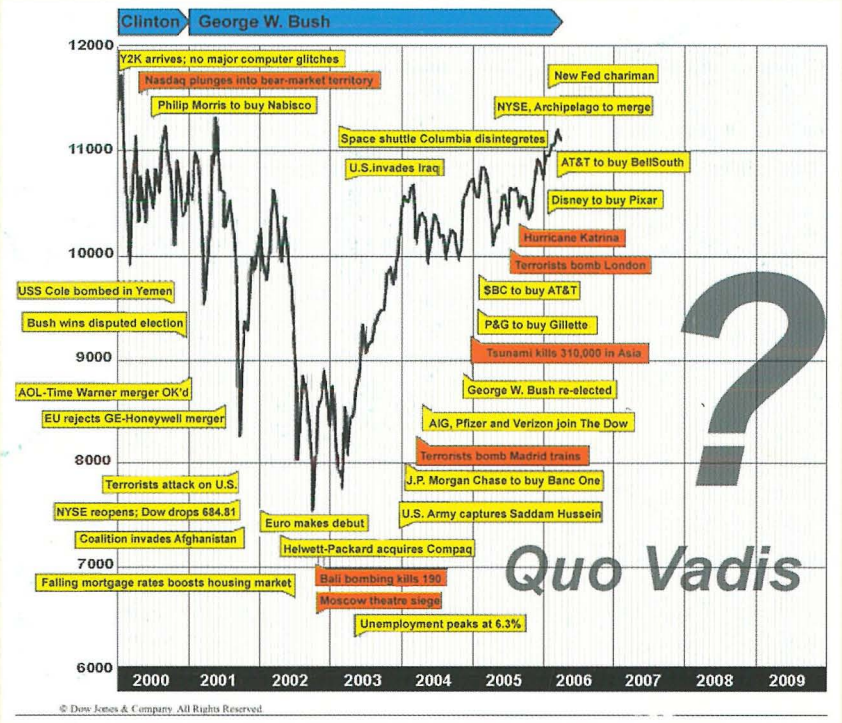
Keeping up with the (Dow) Joneses – A Turbulent Start to the Third Millennium

Part II –2003 to 2006

2006: On 1st February, Ben Bernanke was sworn in as Chairman of the Federal Reserve's Board of Governors, and its policymaking Federal Open Market Committee. The meetings of 28th March, 10th May and 29th June saw a further 3 consecutive interest rate increases take the Fed Funds rate to 5.25%, where it has stayed after no increases were announced on the 8th August and 20th September meetings. By then, the oil price had slipped and slithered by more than 20% from its 2006 peak. These factors brought the Dow to within 100 points of its all-time high of 11,722.98 at the beginning of the millennium (14th January 2000).



Quo vadis October 2006 to December 2009?

In October, I will be attending MDRT's Top of the Table meeting in Palm Desert, California. On the 20th, a star scheduled speaker is Jeremy J. Siegel. He is an expert on the economy and financial markets, and is a regular columnist for *Kiplinger's* and Yahoo! Finance, besides the *Wall Street Journal* and the *Financial Times*.

Mr Siegel will give his projection of stock and bond returns during the next five years. He will answer two questions from his latest book "Future For Investors":

1. What have been the characteristics of the best-performing sectors and stocks during the past 50 years? What does this mean for your current portfolio?
2. What will happen when all the baby boomers try to sell their stocks and bonds to finance what, they hope, will be a long and prosperous retirement?

Readers may feel free to email me on joe@bonellofinancial.com for a "foresight saga" from 25th October, which will probably be Malta's Budget day!