Issue 03/11

Newspaper post

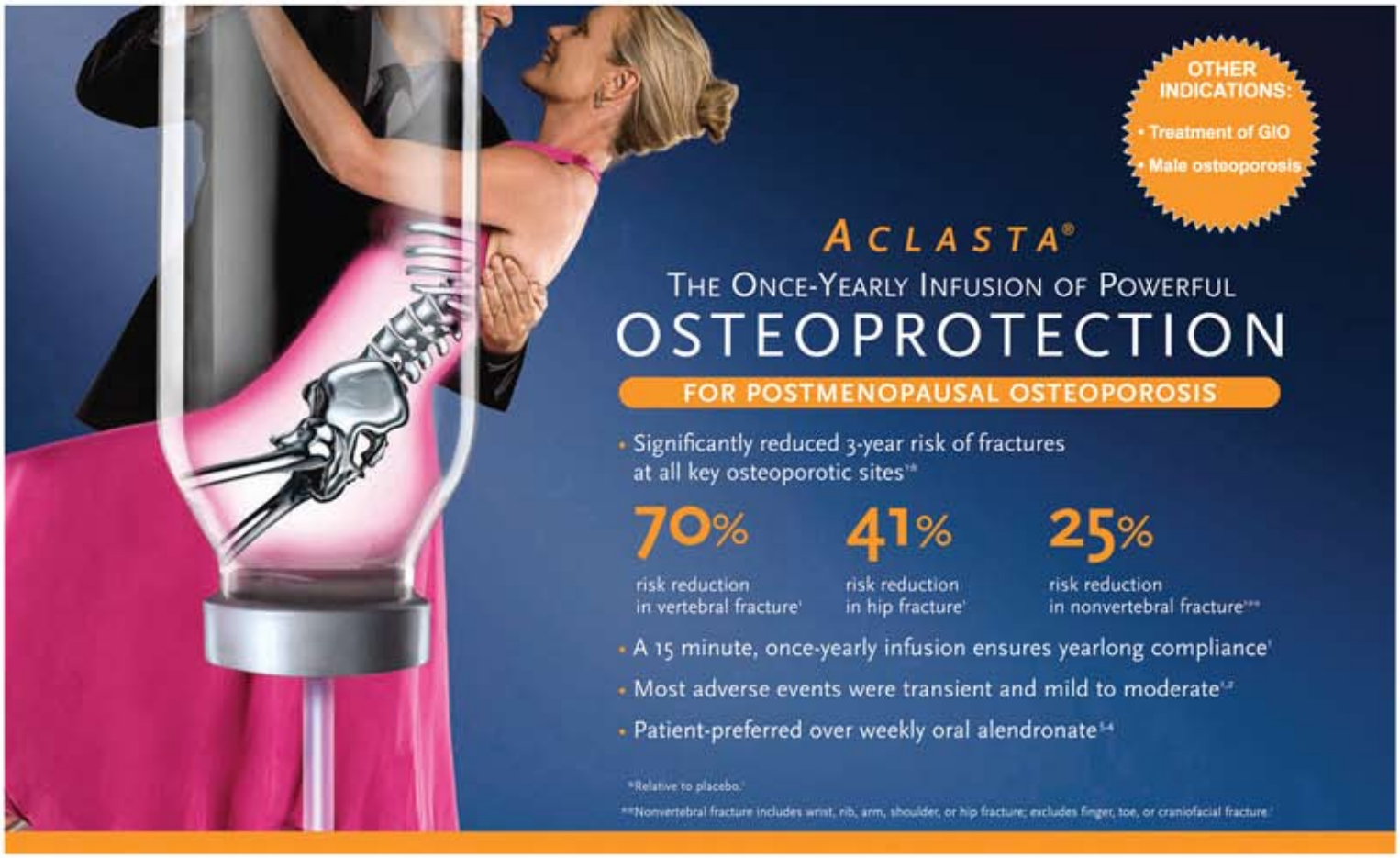
TheSynapse

The Medical Professionals' Network

Exclusive

The Malta Foundation Programme - One year on

p 6



ACLASTA® 5 MG (zoledronic acid) solution for infusion

PRESENTATION: Zoledronic acid. 100 mL solution bottle contains 5 mg zoledronic acid (anhydrous), corresponding to 5.330 mg zoledronic acid monohydrate. INDICATIONS: Treatment of osteoporosis in post-menopausal women and men at increased risk of fracture, including those with a recent low-trauma hip fracture. Treatment of osteoporosis associated with long-term systemic glucocorticoid therapy in post-menopausal women and in men at increased risk of fracture. Treatment of Paget's disease of the bone. **DOSAGE AND ADMINISTRATION: Osteoporosis:** A single intravenous infusion of 5 mg Aclasta administered once a year. In patients with a recent low-trauma hip fracture, it is recommended to give the Aclasta infusion two or more weeks after hip fracture repair. **Paget's Disease:** A single intravenous infusion of 5 mg Aclasta. Specific re-treatment data are not available for Paget's disease. Aclasta is administered via a vented infusion line and given at a constant infusion rate. The infusion time must not be less than 15 minutes. Adequate calcium and vitamin D are recommended in association with Aclasta administration. In patients with recent low-trauma hip fracture a loading dose of 50,000 to 125,000 IU of Vitamin D is recommended prior to the first Aclasta infusion. No dose adjustment in patients with creatinine clearance ≥35 mL/min, or in patients with hepatic impairment, or in elderly patients. The safety and efficacy of Aclasta in children and adolescents below 18 years of age has not been established. **CONTRAINDICATIONS:** Hypersensitivity to zoledronic acid or to any of the excipients or to any bisphosphonate; hypocalcaemia; pregnancy; lactation. **PRECAUTIONS AND WARNINGS:** Serum creatinine should be measured before each Aclasta dose. Aclasta should not be used in patients with creatinine clearance <35 ml/min. Transient increase in serum creatinine may be greater in patients with underlying impaired renal function. Monitoring of serum creatinine should be considered in at-risk patients. Patients must be appropriately hydrated prior to administration of Aclasta, especially important for the elderly and for patients receiving diuretic therapy. Use with caution in conjunction with medicinal products that can impact renal function. A single dose of Aclasta should not exceed 5mg and the duration of infusion should be at least 15 minutes. Pre-existing hypocalcaemia and other disturbances of mineral metabolism must be treated by adequate intake of calcium and vitamin D before initiating therapy with Aclasta. It is strongly advised that patients with Paget's disease receive supplemental calcium and vitamin D. Measurement of serum calcium before infusion is recommended for patients with Paget's disease. Severe and occasionally incapacitating bone, joint and/or muscle pain have been infrequently reported with bisphosphonate therapy. A patient being treated with Zometa should not be treated with Aclasta. As a precaution against osteonecrosis of the jaw (ONJ) a dental examination with appropriate preventive dentistry should be considered prior to treatment in patients with concomitant risk factors (e.g. cancer, chemotherapy, corticosteroids, poor oral hygiene). While on treatment, these patients should avoid invasive dental procedures if possible. For patients requiring dental procedures, there are no data available to suggest whether discontinuation of bisphosphonate treatment reduces the risk of osteonecrosis of the jaw. Aclasta is not recommended in women of childbearing potential. **INTERACTIONS:** Specific drug-drug interaction studies have not been conducted with zoledronic acid. Caution is recommended when Aclasta is used concomitantly with drugs that can significantly impact renal function, such as aminoglycosides and diuretics that can cause dehydration. In patients with renal impairment, the systemic exposure to concomitant medicinal products that are primarily excreted via the kidney may increase. **ADVERSE REACTIONS**: The incidence of adverse reactions (e.g. fever, myalgia, flu-like symptoms, arthralgia and headache) are greatest with the first infusion and decrease markedly with subsequent infusions. The majority of these reactions occur within the first three days and were mild to moderate and resolved within three days of the event onset. The incidence of these adverse reactions can be reduced with the administration of paracetamol or ibuprofen shortly following Aclasta administration. Very common: Fever. Common: Flu-like symptoms, chills, fatigue, pain, asthenia, malaise, arthralgia, myalgia, bone pain, back pain, pain in extremity, vomiting, nausea, headache, dizziness, atrial fibrillation, hypocalcaemia†, ocular hyperaemia, diarrhoea, increased C-reactive protein, infusion site reactions. Uncommon: Hypertension, flushing, palpitations and others. Not known: Scleritis, orbital inflammation, hypotension, renal impairment, osteonecrosis of the jaw, dehydration secondary to post dose symptoms, hypersensitivity reactions *† Common in Paget's disease only.* Please refer to SmPC for a full list of adverse events. PACK SIZE: Aclasta is supplied in packs containing one 100ml bottle **LEGAL CATEGORY:** POM. **MARKETING AUTHORISATION NUMBER:** EU/1/05/308/001. **MARKETING AUTHORISATION HOLDER**: Novartis Europharm Limited, Wimblehurst Road, Horsham, West Sussex, RH12 5AB, United Kingdom. Consult full Summary of Product Characteristics (SmPC) before prescribing. Full prescribing information is available upon request from: Novartis Pharma, P.O. Box 124, Valletta VLT 1000, Malta. Tel +356 22983217. (vsn 2010-MT-001 ACL 18-05-2010)

References: **1.** Aclasta SmPC. Novartis Europharm Ltd. **2.** Black DM, Delmas PD, Eastell R, et al; for the HORIZON Pivotal Fracture Trial. Once-yearly zoledronic acid for treatment of postmenopausal osteoporosis. N Engl J Med. 2007;356:1809-1822. **3.** Saag K, Lindsay R, Kriegman A, Beamer E, Zhou W. A single zoledronic acid infusion reduces bone resorption markers more rapidly than weekly oral alendronate in postmenopausal women with low bone mineral density. Bone. 2007;40:1238-1243. **4.** McClung M, Recker R, Miller P, et al. Intravenous zoledronic acid 5mg in the treatment of postmenopausal women with low bone density previously treated with alendronate. Bone. 2007;41:122-128.

NOVARTIS

Aclasta®
zoledronic acid 5 mg
solution for infusion
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ACL Ad 1 05/11 MT

Of Social Corporate Responsibilities

These last 2 months I have been suffering from bilateral arm noctural paresthesia. Probably it is carpal tunnel syndrome, they have told me, but I am awaiting for an EMG examination to check out matters. Not exactly what I have wished for in my New Year Resolution, so I took refuge yet again in one of Paolo Coelho books… The devil and Mrs Pyrm. For those of you who never heard of this Brazilian songwriter-turned-author (he also wrote The Alchemist, recently also translated in Maltese), they are missing much. His writings are a man's spiritual journey… the particular novel which I am currently reading explores the timeless struggle between good and evil, and brings to our everyday dilemmas a fresh perspective: how we can be incentived to master the fear that prevents us from following our dreams, from being different, from truly living.

Indeed as I read this book, I reflect, as I always do when I read Coelho's books. Indeed, as years are beginning to etch their markings on me, I am becoming more aware of how stupid we can be when our pursuit of money turns from simply a need to a want. We start to forget what we are and what being a human being really means. We may start to neglect our spouses, our children, our ethical standards… possibly because of money and lust. Indeed I strongly believe that we, as healthcare professionals, have an obligation towards others, not simply by offering a service for which we are paid for but also by offering our time and resources free of charge to help others and to pursue altruism. I admire mostly those healthcare professionals who involve themselves on a voluntary basis in patient support groups (obviously excluding those who do so to increase their clientele).

A recent group worth mentioning is the Professionals against Embryo Freezing. Obviously not all of you may agree with their agenda but everyone will agree that this group is indeed extraordinary. To put it simply, various professionals including doctors, pharmacists and dentists have joined their grey matter together, forming a group over a very short time (2 weeks) to pursue an ideal. And this is what I admire most of them. Not only because of their impeccable division of labour coordinated by Dr Miriam Sciberras. But because seeing this inter and intra-professional cooperation rekindles my hope that there are still healthcare professionals who indeed are willing to contribute part of their time free of charge to pursue altruism.

Hopefully we will see more of these professional groups pursuing more ideals… those very ideals which are the very foundations of our noble and respected medical professional including beneficence, non-maleficence and justice…

Over the past years The Synapse has offered free advertising space to various patient support groups. The latter have submitted articles on their terms of reference with some also advertising conferences and other fund raising events. However a recent tool introduced by The Synapse Website portal should be of particular benefit to them (and to other healthcare professionals practicing in other fields), namely these patient groups may directly reach their peers by uploading their events online - www.thesynapse.net/events/list.asp. And what is even more convenient is that this is also free of charge.

Ian C Ellul

a turning **point** for weight loss

real evidence – **alli** is orlistat 60 mg, the first and only EU-licensed non-prescription weight loss treatment.

real help – **alli** combines a capsule and a support programme to help users lose 50% more weight than by diet alone.[1]

real benefits – **alli** brings positive change to customers and the opportunity for you to recommend with confidence.

orlistat

start the conversation

find out more at www.**alli**.com.mt

Product Information. **alli** 60 mg hard capsules (orlistat). **Indication:** Weight loss in adults BMI ≥ 28. **Dosage:** Adults (18 or over): One capsule with each of three main meals. Max. 3 caps/day for up to 6 months. Use with mildly hypocaloric, lower-fat diet. If no weight loss within 12 weeks, refer to doctor or pharmacist. Diet and exercise should start prior to treatment. **Contraindications:** Hypersensitivity to ingredients; concurrent treatment with oral anticoagulants or ciclosporin; chronic malabsorption syndrome; cholestasis; pregnancy; breast-feeding. **Special warnings and precautions:** Talk to doctor before starting to take alli if taking amiodarone, a medicine for diabetes, epilepsy or hypothyroidism, or if patient has kidney disease. If taking a medicine for hypertension or hypercholesterolaemia, talk to doctor or pharmacist when taking alli. Risk of gastrointestinal (GI) symptoms increases with fat consumption. Take multivitamin at bedtime. See doctor if rectal bleeding occurs. Oral contraceptive efficacy may be reduced if severe diarrhoea occurs; use additional contraception. **Drug interactions:** Ciclosporin; oral anticoagulants; levothyroxine; antiepileptic medication; oral contraception; fat soluble vitamins; acarbose; amiodarone. **Pregnancy and lactation:** Do not use during pregnancy or lactation. **Side effects:** See SPC for full details. Predominantly GI e.g. oily stools, urgency; usually mild and transient, risk reduced by low fat consumption. Diverticulitis; pancreatitis; mild rectal bleeding; hepatitis; cholelithiasis; abnormal liver enzymes; anxiety; hypersensitivity reactions including anaphylaxis, bronchospasm, angioedema, pruritus, rash, and urticaria; bullous eruption. **Legal category:** Non-prescription. Marketing Authorisation Holder: Glaxo Group Limited, Greenford, Middlesex, UB6 0NN. **MA Number:** EU/1/07/401/007 - 010. Pack size 84s. **Last revised:** March 2010.

Dr Charmaine Gauci MD MSc Dip(Fit&Nut) PhD FRSPH FFPH is the Director of the Health Promotion and Disease Prevention Directorate. She is a senior lecturer with the University of Malta and delivers lectures in the field of public health with special interest in Epidemiology and Communicable Diseases. She is active in the field of public health and is currently also the President of the Malta Association of Public Health Medicine.

Karen Attard is a final year Pharmacy student. She has attended the Erasmus program in Germany where she worked on a research project on Kollidon® microparticles as sustained release preparations. The research was carried out under the supervision of Professor L. Azzopardi, Professor A. Serracino-Inglott and Dr. M. Zarb-Adami from the Department of Pharmacy.

Professor Kevin Cassar
MD(Malta) MMEd(Dundee) FRCS(Edin) MD(Aberdeen) FRCS(Intercoll)
is Consultant Vascular Surgeon at Mater Dei Hospital and Associate Professor at the University of Malta. He is the author of several peer reviewed articles and book chapters including the Peripheral Arterial Disease section of the BMJ Clinical Evidence. The co-author of the article is Dr Tonio Piscopo.

Professor Albert Cilia-Vincenti MD FRCPath is chairman of the Academy of Nutritional Medicine of UK, and a private surgical pathologist in Malta. He is a former pathology teacher at London and Malta universities, and pathology services director to the British and Maltese health services. He trained at London's Royal Marsden, Royal Free, St George's, Charing Cross and The Middlesex hospitals.

Professor Victor Grech MD PhD is a consultant paediatrician with a special interest in paediatric cardiology. He is also the creator and editor-in-chief of the journal Images in Paediatric Cardiology (www.impaedcard.com).

Dr Pierre Vassallo MD PhD FACA Artz fur Radiologie specialised in radiology at the Institute of Clinical Radiology at the University of Muenster, Germany and the Memorial Sloan-Kettering Cancer Center, New York, US. He is currently Consultant Radiologist and Managing Director at DaVinci Hospital, Malta.

contents

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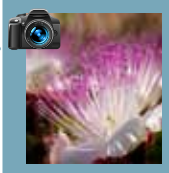


COVER: Capparis spinosa (Kappar, Caper)

Medicinal uses:
A perennial shrub growing on rocky soil, the buds of which are a common ingredient in Mediterranean cuisine. As a herbal tea or a compress made from its roots or young shoots, caper has been used medicinally to counter the pain of sciatica or gout.

Reference: Lanfranco G. Ħxejjex Mediċinali u ohrajn fil-gżejjer Maltin. Media Centre Print; Malta. 1993

Photography: Guido Bonett ARPS AMPS

The Malta Foundation Programme: One year on - Part II

KEVIN CASSAR
& TONIO PISCOPO

CONTINUED FROM ISSUE 2/11

3. Assessment

Assessment of trainees is another major change brought about by the foundation programme. Whereas prior to the introduction of the programme, trainees were given full registration with the Medical Council of Malta without any formal assessment, trainees are now assessed repeatedly during the two years using different assessment tools and by several different assessors. In order to implement these changes over 250 assessors received training in the assessment tools by the Malta Foundation School. The tools include mini-Clinical Examination (mini-CEX) which assesses the trainee's interaction with a patient, Direct Observation of Procedural Skills (DOPS) which assesses the trainee's competence in performing a procedure, Case-Based discussion (CBD) which assesses the trainee's management, documentation and professionalism, and multisource feedback (MSF) which is a 360 degree assessment by at least 10 individuals with whom the trainee works.

Trainees are obliged to complete at least 20 of these assessments during the year. Introducing this intensity of assessment was of course a major challenge and the considerable number of assessments raised some concerns about whether this was feasible, particularly as no formal assessments of trainees had been carried out in the past. The first year has shown us that our misgivings were unfounded. For 86 trainees, between July 2009 and July 2010, no less than 2317 MSFs, 516 CBDs, 1117 DOPS, and 501 mini-CEXs were carried out. These are huge numbers of assessments and achieving these numbers was only possible through the cooperation and efforts of a significant number of people, not least by the Consultant body. Indeed our records indicate that 72% of all CBDs and 23% of all mini-CEXs were carried out by consultants. The UK's Postgraduate Medical Education Training Board (PMETB) survey of 2009 reported that in the UK only 46% of CBDs are carried out by consultants. This indicates that consultant involvement in the assessment of our trainees is far higher than it is in the UK. It also indicates that consultants are making a very major contribution not only to the training of foundation doctors but also to their assessments.

THE ROLE OF THE TEAM SET UP LOCALLY IS TO ASSESS TRAINEES WHO ARE EXPERIENCING DIFFICULTIES TO TRY AND ESTABLISH THE CAUSE OF THE PROBLEMS AND TO PROVIDE THE SUPPORT REQUIRED

4. Trainee Support

A trainee support team (TST) has been set up within the Malta Foundation School under the direction of Dr Etienne Muscat. The aim of the TST is to provide junior doctors enrolled in the Foundation Programme with access to a system that can assist them with issues that are hindering them in their training and, by extrapolation, in their expected maturation into independent, reliable and safe doctors. The concerns raised with the TST may include deficiencies of knowledge, clinical skills, professionalism, behaviour, substance abuse, and mental health and may be raised by the doctor or supervisor. Prior to the setting up of this team, Dr Etienne Muscat visited the Trainee Support Unit at East Midlands Foundation Schools in the UK to witness first hand the functioning of the unit. The role of the team set up locally is to assess trainees who are experiencing difficulties to try and establish the cause of the problems and to provide the support required. During the first year of the foundation programme 11 trainees were assessed, 9 at FY1 and 2 at FY2 level. Interventions in these trainees included referral for clinical psychology evaluation, counselling therapy service, referral for independent psychiatric board evaluation, and referral for careers counselling.

5. Careers Advice

Dr Pierre Ellul is responsible for provision of careers advice to foundation doctors. The role of Careers advice is to organise careers workshops, to support the development of taster weeks, to provide doctors with careers information, and to hold careers planning meetings with trainees as required. Last year all FY2 trainees were offered Windmills Careers Day. Dr Pierre Ellul had received training in delivery of this careers workshop and delivered the workshops together with UK trainers. The feedback from our trainees on this workshop was excellent.

6. Feedback

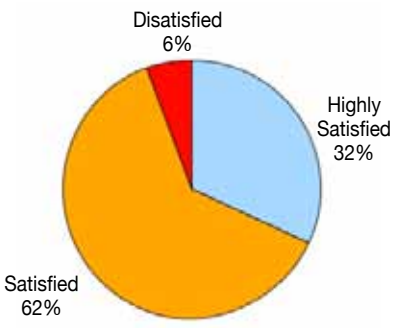
Throughout the year the trainees' feedback on various aspects of their training has been sought. This includes feedback about the lecture programme as well as their rotations. End-of-post questionnaires are conducted

Table 1: Number of doctors recruited into national health service

	2007	2008	2009	2010	2011
UOM final year student numbers	55	53	59	57	76
Final year students joining health service	35	38	47	48	68
% Joining health service	63.6	71.4	79.7	84.2	90
Total number recruited	35	38	50	54	88
% of final year numbers recruited	**63.6**	**71.4**	**84.7**	**94.7**	**115.7**

anonymously using an on-line survey. 94% of trainees stated that they were satisfied or highly satisfied with the clinical skills acquired during their assignment (Figure 1). 95% reported that they frequently, regularly or sometimes received feedback (Figure 2) which the majority (93%) found useful (Figure 3). Feedback from trainees also indicates that only a small minority of trainees were dissatisfied or very dissatisfied with the training provided by their clinical supervisor (15.9%) with the majority being very satisfied or satisfied.

Figure 1: Responses to question "Are you satisfied with the clinical skills acquired during this assignment?"



7. Recruitment

The second objective of the foundation programme was to improve the retention rate of medical graduates within the service. In 2007, only 63.6% of graduates from the University of Malta were recruited to the local health service. The figure in 2008 was slightly better at 71.4%. The introduction of the foundation programme resulted not only in an improvement in retention of local graduates but also attracted foreign graduates to join the programme. In 2010, 84.2% of University of Malta graduates joined the Malta foundation programme together with 8 foreign graduates. As a result the total number of doctors recruited in 2010 reached almost 95% of the number of students graduating from the University of Malta (Table 1). The application process for entry into the Foundation programme in July 2011 has been completed. For the first time the number of doctors recruited (88) exceeds the total number of final year medical students at the University of Malta (76). This indicates that this second objective has definitely been reached.

Conclusions

The setting up of the foundation programme has resulted in major changes in the training of 'houseofficers'. It has provided a structured programme with good quality training, supervision and assessment. The number of doctors recruited to the service has increased steadily and is expected to continue to increase. This will not only improve the service but also the quality of training through increased educational opportunities and better distribution of workload.

The results obtained however do not allow for complacency. There are major challenges ahead, not least the impending full implementation of the European Working Time Directive, increasing numbers of medical students at the University of Malta, increasing competition for posts from other EU nationals, increased demand on educational resources, and of course need for more basic specialist training posts for the increasing number of doctors.

The successful introduction of the Foundation programme in Malta is an example of how co-operation between all stakeholders together with the hard work of clinical and administrative staff can lead to major improvements in training standards and the rapid acquisition of a common goal.

Figure 2: Responses to "Did you receive feedback about your performance during this assignment?"

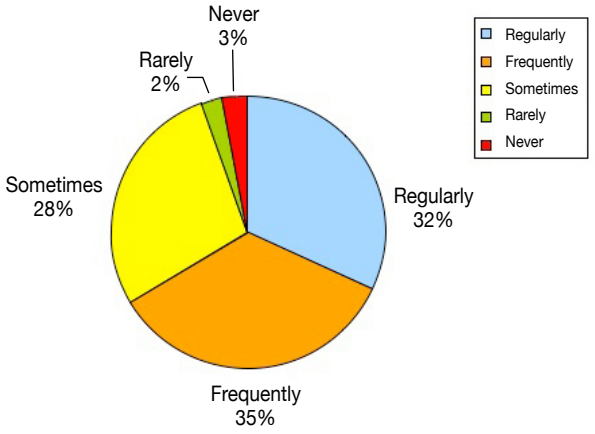
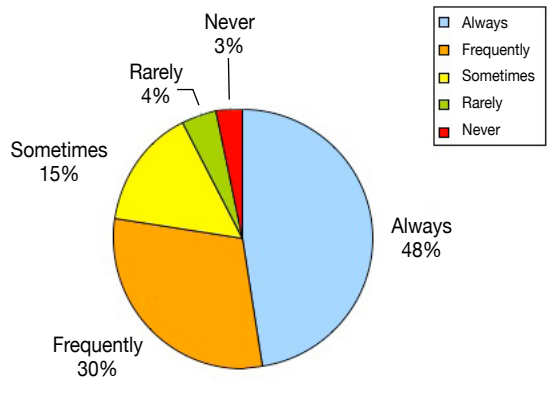


Figure 3: Responses to "Was the feedback you received useful?"



Reference: 1. Prolia® Summary of Product Characteristics, 2010.

Prolia® (denosumab) Brief Prescribing Information

Please refer to the SmPC (Summary of Product Characteristics) before prescribing Prolia®. **Pharmaceutical Form:** 1 ml solution for injection presented in pre-filled syringe containing 60 mg of denosumab. Contains sorbitol (E420). **Indications:** Treatment of osteoporosis in postmenopausal women at increased risk of fractures. Prolia® significantly reduces the risk of vertebral, non-vertebral and hip fractures. **Dosage and Administration:** Single subcutaneous injection of Prolia® 60 mg is given once every 6 months. No dose adjustment for renal impaired patients. Patients must be supplemented with calcium and vitamin D. Prolia® is not recommended in paediatric patients (age < 18). **Contraindications:** Hypocalcaemia. Hypersensitivity to the active substance or any of the excipients. **Special warnings and precautions for use:** Hypocalcaemia must be corrected by adequate intake of calcium and vitamin D before initiating therapy. Patients with severe renal impairment or receiving dialysis are at greater risk of hypocalcaemia. Clinical monitoring of calcium levels is recommended for patients predisposed to hypocalcaemia. Patients receiving Prolia® may develop skin infections (predominantly cellulitis) leading to hospitalisation and should contact a healthcare professional immediately if they develop signs or symptoms of cellulitis. Osteonecrosis of the jaw (ONJ) has been reported with denosumab and with bisphosphonates. ONJ has been reported rarely with Prolia® 60 mg every 6 months. A dental examination should be considered prior to treatment with Prolia® in patients with concomitant risk factors (refer to SmPC). While on treatment, these patients should avoid invasive dental procedures if possible. Good oral hygiene practices should be maintained during treatment with Prolia®. The needle cover of the syringe contains dry natural rubber (latex derivative), which may cause allergic reactions. Patients with rare hereditary problems of fructose intolerance should not use Prolia®. **Interactions:** No interaction studies have been performed. The potential for pharmacodynamic interactions with hormone replacement therapy (HRT) is considered to be low. **Pregnancy and lactation:** Prolia® is not recommended for use in pregnant women. A risk/benefit decision should be made in patients who are breast feeding. It is unknown whether Prolia® is excreted in human milk. No data are available on the effect of Prolia® on human fertility. **Undesirable effects:** Adverse reactions reported in placebo-controlled clinical studies in women with postmenopausal osteoporosis and breast or prostate cancer patients receiving hormone ablation: Common (> 1/100, < 1/10) Urinary tract infection, Upper respiratory tract infection, Sciatica, Cataracts, Constipation, Rash, Pain in extremity; Uncommon (> 1/1,000, < 1/100) Diverticulitis, Cellulitis, Ear infection, Eczema; Very Rare (< 1/10,000) Hypocalcaemia. In the osteoporosis clinical program ONJ has been reported rarely with Prolia®. Please consult the SmPC for a full description of side effects. **Pharmaceutical Precautions:** Do not mix with other medicinal products. Store in a refrigerator (2°C–8°C). Do not freeze. Keep the pre-filled syringe in the outer carton in order to protect from light. Do not shake excessively. Prolia® may be stored at room temperature (up to 25°C) for up to 30 days in the original container. Once removed from the refrigerator use within these 30 days. **Marketing authorisation holder:** Amgen Europe B.V., Minervum 7061, NL-4817 ZK Breda, The Netherlands. Further information is available from the SmPC. Date of PI preparation: May 2010. Adverse events should be reported. **Legal Category:** Medicinal product subject to medical prescription. **Marketing authorisation number:** EU/1/10/618/003.

To learn more, visit: www.prolia-international.com

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NP-AMG-547-2009
04.2010

What is on for the Health Promotion and Disease Prevention Directorate for summer?

CHARMAINE GAUCI

Excessive sun exposure can cause many different complications. Over-exposure to the sun can cause a sunburn and permanent damage to the skin. This can lead to the development of skin cancer. Adolescents and young children are at a greater risk of skin damage due to over-exposure of the sun. Other effects of sun exposure include actinic keratosis and spots. It is also evident that it can result in wrinkles and premature ageing of the skin.

The Health Promotion and Disease Prevention Directorate focuses on protection from sun exposure. Emphasis is made during summer however protection is important all year round in every setting.

Some tips for prevention recommended by the World Health Organisation include:

- **Limit time in the mid-day sun**
  The sun's UV rays are the strongest between 10 a.m. and 4 p.m. One should limit exposure to the sun during these hours.
- **Watch for the UV index**
  This important resource helps you plan your outdoor activities in ways that prevent over-exposure to the sun's rays. While you should always take precautions against over-exposure, take special care to adopt sun safety practices when the UV Index predicts exposure levels of moderate or above levels.
- **Use shade wisely**
  Seek shade when UV rays are the most intense, but keep in mind that shade structures such as trees, umbrellas or canopies do not offer complete sun protection. Remember the shadow rule: "Watch your shadow – Short shadow, seek shade!"
- **Wear protective clothing**
  A hat with a wide brim offers good sun protection for your eyes, ears, face, and the back or your neck. Sunglasses that provide 99 to 100 percent UV-A and UV-B protection will greatly reduce eye damage from sun exposure. Tightly woven, loose-fitting clothes will provide additional protection from the sun.
- **Use sunscreen**
  Apply a broad-spectrum sunscreen of SPF 15+ liberally and re-apply every two hours, or after working, swimming, playing or exercising outdoors.
- **Avoid sunlamps and tanning parlours**
  Sunbeds damage the skin and unprotected eyes and are best avoided.

Secondary prevention in raising awareness about identification of early stages of skin cancer is important. Melanoma is the most serious form of skin cancer in terms of mortality. It may develop anywhere on the skin, and within a pre-existing mole in 30 to 50% of cases. The commonest sites are the trunk in men, and the legs and trunk in women however it can develop spontaneously. Hence clinicians should:

- **Be aware that fair-skinned men and women aged 65 and older,** and people with atypical moles or with more than 50 moles, are at greater risk for developing melanoma.
- **Remain alert for skin abnormalities when conducting physical examinations for other purposes.** The A-B-C-D-E rule can be useful in making an early diagnosis ie if a mole is assymetrical (A); has no distinct border (B); if its colour changes (C); if it is larger than 5mm in diameter (D); evolution (E), such as changes in color, shape, size, elevation, skin surface, and symptoms such as itching or bleeding of a lesion are a hallmark sign of malignancy.

VICTOR GRECH

Lydgate, brain drain and the Maltese medical profession

Globalisation causes the migration of all types of workers, including healthcare professionals, who may opt to seek richer pastures in the form of better paid and pensionable positions in countries other than their own. Dr Tertius Lydate in Eliot's 19th century novel *Middlemarch*, while starting out with lofty ideals, rapidly became mired in financial difficulties and was constrained to seek more lucrative pastures outside Middlemarch. Maltese doctors are also poorly paid, and unless the local authorities ameliorate working conditions, the ongoing medical brain drain will worse with catastrophic consequences for the local NHS.

Globalisation is fashioning a workforce resettlement that also encompasses the medical profession, and Maltese doctors are no exception to these migrations. We shall briefly review Tertius Lydgate, a medical character in George Eliot's *Middlemarch*, a protagonist who even in the 19th century, clearly demonstrated the possibilities and implications of such migrations.[1]

However, we shall first briefly review the background to doctors in English literature up to Eliot's period. Medics in English literature were initially viewed with irony and treated with disdain, and one of the earliest such characters is Chaucer's 'Doctour of Phisik' in his 14th century *Canterbury Tales*, a knowledgeable man who is depicted as avaricious and in league with apothecaries who overcharge patients for cheap medicines. By the time we reach William Shakespeare's period (1564-1616), attitudes had somewhat improved, despite the chaotic mess that medical regulatory affairs found themselves in, example, quacks and empirics practiced widely and unsafely, the distinction between physicians and surgeons was blurred, the Physicians Act of 1540 defined medicine as also encompassing surgery, giving the physicians the right to operate, and a Guild of Surgeons had existed since 1369 while an older Guild of Barbers included members who practiced either exclusively as surgeons and tooth-drawers or only shaving and hairdressing. Moreover, apothecaries were members of the Grocers' Company. This tripartite system of medical practice in Tudor England was evidently highly confusing and a 1512 Act of Parliament had acknowledged that a vast number of untrained individuals were practicing medicine, stating that none could practice medicine in London or within a seven-mile radius unless graduates of Oxford or Cambridge or upon having passed an examination by the Bishop of London or the Dean of St Paul's Church.[2]

Overall, Shakespeare appears to have thought highly of physicians who are mentioned as learned doctors, while viewing surgeons with a jaundiced eye, with, for example Dick Surgeon in *Twelfth Night* discovered in a state of drunken stupor when most needed. By the beginning of the 19th century, the traditional medical responsibilities of physicians, surgeons, and apothecaries were being replaced by new and well-schooled practitioners who could perform all of these roles. George Eliot's fictional Dr. Lydgate is one of these novel medical practitioners, and is one of Middlemarch's protagonists. His dilemmas, at work and at home, are used to illuminate social, psychological, professional and moral problems. Lydgate is first mentioned well into the novel, in chapter 10, and although an aristocrat, is poor, ambitious and somewhat arrogant.

The noble doctor had deliberately kept away from London's big city intrigues, jealousies, social jockeying and the jostle for celebrity status. He starts off with lofty ideals that include the running of a fever hospital in rural Middlemarch for free and the performance of medical research into the causes of fever and other illnesses. This causes the town's medical establishment to treat him with jealousy and suspicion and Lydgate's practice consequently develops very slowly. While Lydgate is a moral man, like us all, he suffers from a number of small prejudices and moral failings that are related to the necessity of balancing self-interest with that of other individuals and patients.[3]

Lydgate's downfall occurs when he falls in love with, and marries, a pretty and highly decorative but thoroughly impractical woman who is used to a rich lifestyle. She quickly depletes his savings and goes on to mire him in dire financial straits, dragging him progressively deeper into debt. Lydgate finds himself eventually implicated in malpractice during the death throes of one of his patients due to a potential conflict of interest that would have yielded him substantial financial benefit, releasing him from debt.

The eventual victory of society, personified by his wife Rosamond, over Lydgate's integrity is inescapable. Lydgate is forced to seek more lucrative pastures than Middlemarch among London's high society, abandoning his high ideals; a perfect Aristotelian tragic hero.[4]

Modern doctors are highly trained professionals, and expect to live reasonably comfortably. Furthermore, the inevitable contacts with peers in private practice, and fêting by drug and medical companies, suggests certain expectations of medical life. Pressures on the home front are equally unavoidable, with soaring property prices, and costs of maintaining a household with dependants that may comprise a wife and several children, including the latter's schooling costs.

All of these are exacerbated by the poor Maltese NHS pay scale. This situation has come about partly because the Maltese socialist administrations in the 1970s and 1980s regarded China, North Korea and Libya as ideal role-models, hence civil service pay scales were reduced and percentage wage increases were replaced by cost of living wage increases across the board, significantly lowering salaries and pensions of some of the best trained professionals in the country. Unfortunately, despite many years of non-socialist administration, pay scales have often failed to retain brain power that is highly appreciated and even actively head-hunted by medical agencies.[5] This also results in a significant financial loss to the country since the local authorities themselves have estimated that a medical students costs at least Euro 95,000 to train in tertiary education expenditures alone.[5]

Also in UK NHS style, Maltese NHS salaries have traditionally been supplemented by private practice, and therefore specialities which attract little or no private practice tend to have difficulty recruiting trainees and specialists who prefer to move overseas in far better salaried and pensioned posts.[6]

Several solutions are available, and some are inherently unacceptable to the medical profession, including a lowering of future prospects that may, perhaps, be inculcated at the training level, a disingenuous expectation. First rate professionals cannot be expected for work for second rate salaries and the choices are stark. The danger of such deals was aptly highlighted by an eminent local retired pathology and ethics professor who pointed out the possibility that Maltese doctors may decide to take it upon themselves to decide what fraction of the 40-hour NHS week amounts to their salary, since an employee who believes he or she is being defrauded by one's employer is not morally wrong to diminish the work commitment to that employer, and that this would not be an unethical stance.[7]

This is probably more acceptable to individual doctors than the drastic lowering of one's standard of living or running up ruinous debts. The final alternative is emigration as clearly shown by Balzan et al. with 50% of medical graduates leaving the island to continue studying or work abroad but only 7.5% return.[8] The current Maltese administration has accepted the reality of this brain drain,[5] but the response to train much larger numbers of doctors is hardly likely to solve the brain drain problem as this will further exacerbate the local brain drain and contribute to the influx of well trained doctors to richer countries, particularly the United Kingdom (English is Malta's second language).

The Medical Association of Malta has proposed a three point plan to the government in order to encourage local doctors to remain and practice: an increase in basic salary in order to offset loss of income due to the introduction of the European working time directive,[6] the implementation of structured postgraduate training programmes in as many specialties as can be supported by the local infrastructure and a gradual expansion in the consultant grade in order to improve junior doctors' long term career prospects.

Middlemarch's Lydgate died when he was only fifty, leaving his wife and children provided for by a heavy life insurance. He had gained an excellent practice, alternating, between London and a Continental bathing-place by season and wrote a treatise on gout, a disease of the wealthy. And while he regarded himself as a failure as he failed to do what he had set out to do, Lydgate, ironically, was considered a successful man.

There is no easy solution to the problem of good doctors leaving state and academic service in poorer countries in favour of better renumerated employment with more favourable career prospects in both European and non-European countries.[9] The problem must be adequately, competently and urgently addressed by the local health authorities, by schemes such as the consolidation of the current Foundation program along with other encouragements and inducements that will persuade Maltese doctors who go abroad to train to return to their homeland. S

Acknowledgements

Drs. Ivan Callus and Claire Thake for their help and support in my ongoing work in English Literature in general.

References

1. George Eliot. Middlemarch, a Study of Provincial Life, London: William Blackwood and Sons, 1871.
2. K.T. Fu. The healing hand in literature: Shakespeare and surgery, *Hong Kong Med* J; 1998; 4:77-88.
3. A.T. Westwood. Lifestyle, Lydgate and the late twentieth century. *J R Soc Med*. 1997; 90:42-3.
4. D. Daiches. George Eliot's Dr Lydgate. *Proc R Soc Med.* 1971; 64:723-4.
5. F. Galea-Debono. Time for major investment in cancer equipment, Times of Malta; 2007.
6. D. P. Sandhu. Current dilemmas in overseas doctors' training. *Postgrad Med J.* 2005; 81:79-82.
7. A. Cilia-Vincenti. Medical brain drain (Talking Point). Times of Malta; 2006.
8. J. Ameen. Half of graduate doctors leave to work abroad – MAM study, Malta Independent; 2007.
9. I. Vlad. European views about accession. *BMJ Career Focus.* 2004; 328:99.

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Rare: Angioedema, haemoglobin decreased, haematocrit decreased, blood creatinine increased. Laboratory values: decrease in haemoglobin and haematocrit, increase in serum potassium. Frequency not known: peripheral oedema. **For the hydrochlorothiazide component,** other reported adverse reactions include: Aplastic anaemia, bone marrow depression, neutropenia/agranulocytosis, haemolytic anaemia, leucopenia, thrombocytopenia, depression, sleep disturbances, restlessness, light-headedness, vertigo, paraesthesia, dizziness, transient blurred vision, xanthopsia, cardiac arrhythmias, postural hypotension, respiratory distress (including pneumonitis and pulmonary oedema), pancreatitis, anorexia, diarrhoea, constipation, gastric irritation, sialadenitis, loss of appetite, jaundice (intrahepatic cholestatic jaundice), anaphylactic reactions, toxic epidermal necrolysis, necrotising angiitis, (vasculitis, cutaneous vasculitis), cutaneous lupus erythematosus-like reactions, reactivation of cutaneous lupus erythematosus, photosensitivity reactions, rash, urticaria, weakness, muscle spasm, interstitial nephritis, renal dysfunction, fever. 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References : 1. Palatini P, Jung W, Shlyakhto E, et al. *J Hum Hypertens* 2010; 24:93-103; published online 21 May 2009 2. Villamil A, Chrysant SG, Calhoun D, et al. *J Hypertens*. 2007; 25:217-226

RAS Ad1 05/11 MT

ALBERT CILIA-VINCENTI

THE SERIES

Healing & Disease Reversal

This series reviews Dean Ornish's evidence-based claims of healing & disease reversal by dietary and lifestyle changes. He is a California University Professor of Medicine in San Francisco. This instalment discusses "bad" fats.

Trans-fatty acids, partially hydrogenated fats and saturated fats ("bad fats") should be avoided. Many food manufacturers continue to use them because they increase their products' shelf-life, even though they may decrease the "shelf-life" of the people who consume them.

Saturated fats are found mainly in animal fats – in meats (including chicken and other poultry), full-fat dairy produce (milk, cream, cheese and ice-cream), egg yolk and (to a lesser extent) seafood. Some plant foods, such as coconut and palm oils, are also rich in saturated fats.

When vegetable oils are heated in the presence of hydrogen, both partially hydrogenated and trans-fatty acids are produced. Partially hydrogenated fats are as disease-promoting as saturated fats.

Trans-fatty acids are especially bad for health. They are found predominantly in commercially prepared baked foods, margarines, snacks, fast foods, processed and fried foods. Trans-fatty acids are probably worse for cholesterol levels than saturated fats because they raise bad LDL and lower good HDL. It's wise to avoid both saturated fats and trans-fatty acids.

Besides raising total and LDL cholesterol levels, saturated, partially hydrogenated fats and trans-fatty acids promote inflammation and are strongly linked with increased risk of coronary heart disease, stroke, diabetes, many types of cancer, and other chronic diseases.

A recent scientific presentation[1] also claimed that diets rich in trans-fatty acids may cause a redistribution of fatty tissue to the abdomen (the worst place to store fat for both health and appearance) and lead to a higher body weight, even when total calorie intake is the same.

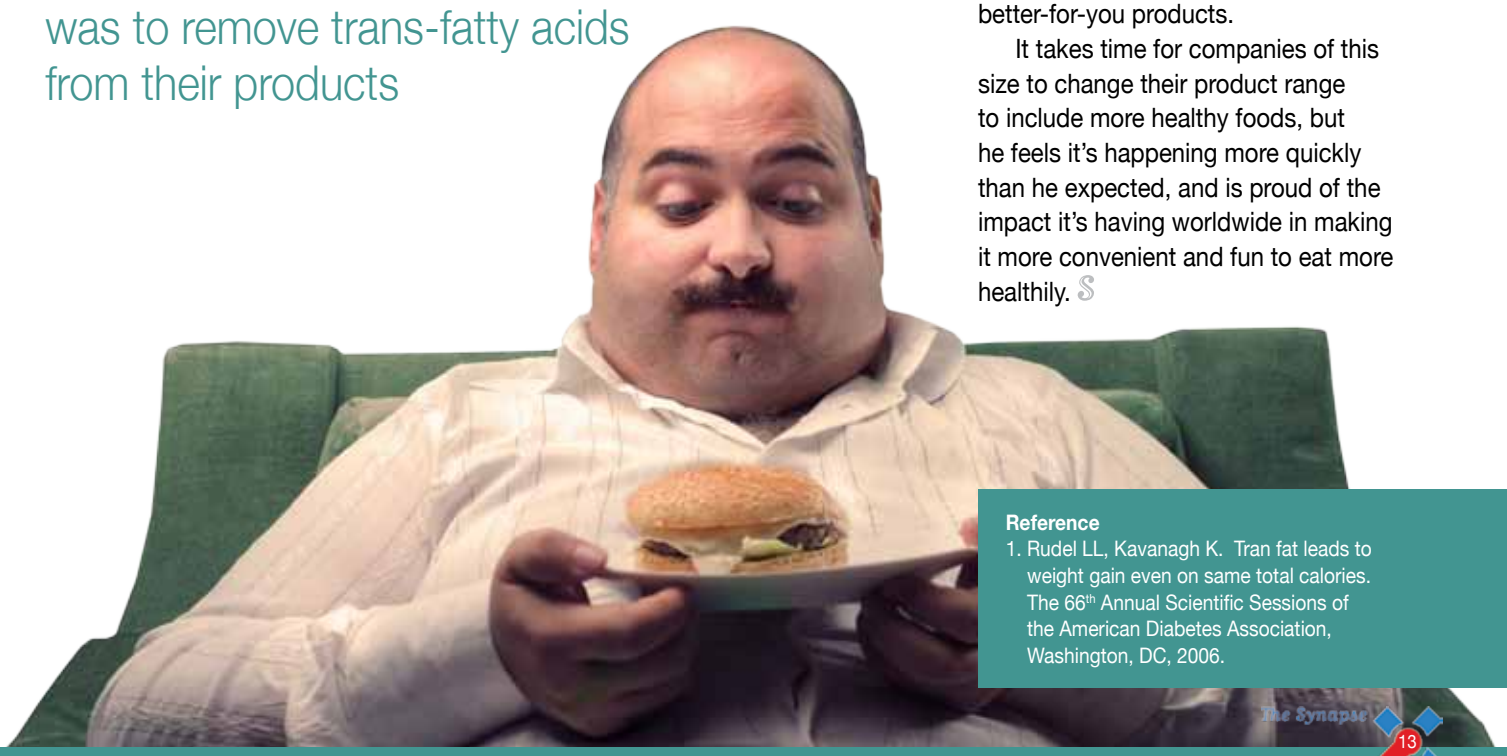
Processed food labels now list both saturated and trans-fatty acids. Also, the more hydrogenated an oil is, the harder it will be at room temperature. Soft tub margarines usually have less hydrogenated fats and trans-fatty acids than harder margarines that come in bars.

Professor Ornish began consulting with McDonald's in 1999, to help them develop more healthy foods. His first recommendation was to remove trans-fatty acids from their products. This was quite a challenge for McDonald's to preserve the flavour and texture of its French fries, but they found a way to do it. He then helped them develop a Fruit & Walnut Salad, containing apple, grapes, walnuts and low-fat yogurt – McDonald's is now the largest purchaser of apples in the world. He also helped them develop an Asian Salad, containing sixteen types of greens, soybeans, almonds, mandarin oranges, peas and red bell peppers.

He has also helped PepsiCo and Safeway Supermarkets, and is pleased that when making more healthy foods becomes good business, it becomes sustainable. At PepsiCo, for example, more than two thirds of revenue growth now comes from its good-for-you and better-for-you products.

It takes time for companies of this size to change their product range to include more healthy foods, but he feels it's happening more quickly than he expected, and is proud of the impact it's having worldwide in making it more convenient and fun to eat more healthily.

Professor Ornish began consulting with McDonald's in 1999, to help them develop more healthy foods. His first recommendation was to remove trans-fatty acids from their products



Reference

1. Rudel LL, Kavanagh K. Tran fat leads to weight gain even on same total calories. The 66th Annual Scientific Sessions of the American Diabetes Association, Washington, DC, 2006.

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References: 1.Mancia G, Laurent S, et al. *Blood Pressure* 2009;18:308–347. 2.Calhoun DA, Lacourcière Y, Chiang YT, Glazer RD. *Hypertension* 2009;54:32–39. 3.Lacourcière Y, Glazer R, Crikelair N, Yen J, Calhoun D. Poster presented at: 19th Scientific Meeting of the ESH; 12-16 June 2009; Milan, Italy. 4.Lacourcière Y, Glazer R, Yen J, Calhoun D. Poster presented at: 19th Scientific Meeting of the ESH; 12-16 June 2009; Milan, Italy.

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DOSAGE: One tablet of Exforge HCT 10/160/25 mg or 10/320/25 mg daily **CONTRAINDICATIONS:** ♦ Known hypersensitivity to the active substances, to other sulfonamides, to dihydropyridine derivatives, or to any of the excipients ♦ Second and third trimesters of pregnancy ♦ Hepatic impairment, biliary cirrhosis or cholestasis ♦ Severe renal impairment (creatinine clearance < 30 mL/min) ♦ Anuria ♦ patients undergoing dialysis ♦ Refractory hypokalaemia ♦ Hyponatraemia ♦ Hypercalcaemia ♦ Symptomatic hyperuricaemia. **WARNINGS/PRECAUTIONS:** ♦ Risk of hypotension in sodium- and/or volume-depleted patients (correction is recommended prior to administration of Exforge HCT). ♦ Caution is advised when administering Exforge HCT to patients with renal impairment or systemic lupus erythematosus. ♦ No data available in patients with unilateral or bilateral renal artery stenosis, stenosis to a solitary kidney or after recent kidney transplantation ♦ Disturbance of serum electrolyte balance (monitoring recommended), glucose tolerance and serum levels of cholesterol, tryglicerides and uric acid. ♦ Not recommended in patients below 18 years of age and in patients with primary hyperaldosteronism ♦ Beta-blocker withdrawal should be gradual. ♦ Caution in elderly and in patients with hepatic impairment or biliary obstructive disorders. ♦ Caution in patients with heart failure and coronary artery disease ♦ As with all other vasodilators, special caution in patients suffering from aortic or mitral stenosis, or obstructive hypertrophic cardiomyopathy. ♦ If a photosensitivity reaction occurs during treatment, it is recommended to stop the treatment. ♦ Not recommended during the first trimester of pregnancy. Avoid use in women planning to become pregnant and while breast-feeding. ♦ Caution when driving or using machinery. **INTERACTIONS:** ♦ Monitoring recommended when used concomitantly with lithium. ♦ Caution when used concomitantly with drugs that may increase potassium levels. ♦ Caution if combined with other antihypertensives, curare derivatives, NSAIDs, corticosteroids, ACTH, amphotericin, carbenoxolone, Penicillin G, salicylic acid derivatives, digoxin, CYP3A4 inhibitors and inducers, antidiabetic agents, allopurinol, probenecid, sulfinpyrazone, pressor amines, amantadine, diazoxide, cytotoxic drugs, anticholinergic agents, methyldopa, cholestyramine, cholestipol resins, vitamin D, calcium salts, carbamazepine and ciclosporin, alcohol, anaesthetics and sedatives. **ADVERSE REACTIONS:** ♦ Exforge HCT (amlodipine/valsartan/HCT): Common: hypokalaemia, headache, dizziness, hypotension, dyspepsia, pollakiuria, oedema, fatigue. Uncommon: anorexia, hypercalcaemia, hyperlipidaemia, hyperuricaemia, hyponatraemia, insomnia/sleep disturbances, abnormal coordination, postural and exertional dizziness, dysgeusia, lethargy, paraesthesia, peripheral neuropathy, neuropathy, somnolence, syncope, visual disturbance, vertigo, tachycardia, orthostatic hypotension, phlebitis, thrombophlebitis, cough, dyspnoea, throat irritation, abdominal discomfort, upper abdominal pain, breath odour, diarrhoea, dry mouth, nausea, vomiting, hyperhidrosis, pruritus, back pain, joint swelling, muscle spasm, muscular weakness, myalgia, pain in extremity, elevation of serum creatinine, acute renal failure, erectile dysfunction, abasia, gait disturbance, asthenia, discomfort, malaise, non cardiac chest pain, increased blood urea nitrogen, increased blood uric acid, decreased serum potassium, weight increase. ♦ Additional adverse reactions with amlodipine monotherapy: Common: palpitations, flushing. Uncommon: mood swings, tremor, tinnitus, rhinitis, change of bowel habit, alopecia, exanthema, purpura, skin discoloration, arthralgia, micturition disorder, nocturia, gynaecomastia, pain, weight decrease. ♦ Additional adverse reactions with HCT monotherapy: Common: increased lipids. Uncommon: hypomagnesaemia, decreased appetite, urticaria. Rare: thrombocytopenia, hyperglycaemia, depression, arrhythmia (including bradycardia, ventricular tachycardia and atrial fibrillation), constipation, intrahepatic cholestasis, jaundice, photosensitivity reaction, renal failure and impairment, glycosuria. LEGAL CATEGORY: POM **PACK SIZES:** Packs of 28 film-coated tablets **MARKETING AUTHORISATION HOLDER:** Novartis Europharm Limited, Wimblehurst Road, Horsham, West Sussex, RH12 5AB, United Kingdom. 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Errata Corrige 2/11
The article by Prof Albert Cilia-Vincenti should have included the following reference:
Ebbeling CB, Leidig M, Feldman H, Lovesky M and Ludwig D. Effects of a low-glycemic load vs low-fat diet in obese young adults.
J Am Med Ass 2007: 297 (19): 2092.
The error is regretted.

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KAREN ATTARD
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ANTHONY SERRACINO-INGLOTT

Management of consumers' pharmaceutical waste in a pharmacy setting - Part I

The management of pharmaceutical waste is increasingly becoming of great concern to our society since no official program currently exists. This study proposes a management plan for consumer's pharmaceutical waste in a pharmacy setting in Malta. It involves disposing of unwanted solid dosage-forms in their original packaging in waste containers which will be installed in front of pharmacies, and returning hazardous medicines and other dosage-forms directly to the pharmacist to reduce hazards from mixing incompatible products.

Key words

Pharmaceutical waste management; pharmacy; consumers; waste containers.

Introduction

Ever since joining the European Union, Malta has been trying extensively to conform to European standards as requested by legislation. Improvements have been registered in several sectors; however the research in the management of waste pharmaceuticals has so far remained lacking.[1]

Aims

This report draws findings of a scientific study that has been undertaken by the authors and aims to provide a programme and a guidance proposal plan for the management and disposal of pharmaceutical waste produced by consumers. The process of designing and implementing a successful pharmaceutical waste management program, being highly interdisciplinary, has to be acceptable for pharmacies, competent authorities and consumers alike.[2]

Educational programs

Educational programs should be set up to educate consumers on the threats resulting from the irresponsible disposal of pharmaceutical waste. The proposed programs should educate users on new, well thought-out and science-founded procedures.[3] The benefits should be highlighted to encourage people to make an effort to abide by these guidelines.

Such educational programs include:

- Promoting the campaign on television programs including waste management 'spots' on TV;
- Advertisements on published media;
- Distribution of leaflets from community pharmacies;
- Other advertising materials including banners and posters.

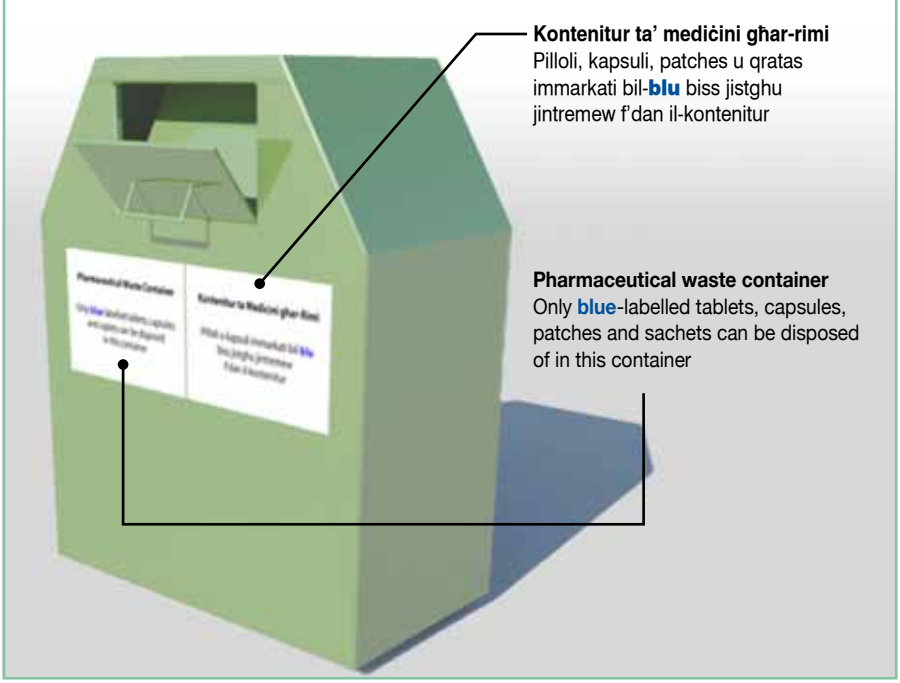
Consumers' pharmaceutical waste

Examples of consumers' pharmaceutical waste include:

- Expired medicines in households;
- Medicines discontinued by manufacturers due to a negative risk-benefit ratio;
- Medicines not consumed by patients;
- Medicines discontinued because the doctor prescribed new medication;
- Medicines of deceased patients.

Since pharmaceutical waste production in nursing homes is significantly higher than in households, this scheme is not applicable. In this setting, clinical waste is also produced and thus nursing homes should contract a private waste management company to manage their pharmaceutical and clinical waste. Hospitals have their in-house waste management procedures.

Figure 1: Open Pharmaceutical Waste Container



Household waste medicines are found in various dosage forms; the most common being tablets, capsules, caplets, syrups, suspensions, inhalers, suppositories, pessaries, creams, ointments, sprays, drops, powder for oral constitution and patches.[4]

Syringes are not included in this scheme. Yellow UN approved containers should be distributed to frequent syringe users from healthcare centres. When the yellow bin is full, consumers should return the bin to the centre and they are given an empty one. The bins are then collected from the healthcare centres by waste carriers.

Hazardous waste

Section 4(2) of the Waste Management Act of 2001 defines Hazardous Waste as having certain properties which can be harmful to human health and the environment. "These properties are corrosive, explosive, toxic, flammable, oxidizing, irritant, harmful, carcinogenic, infectious, teratogenic, mutagenic and ecotoxic."[5]

Medicines may have a range of hazardous properties, but only those with one of the hazardous properties denoted by "H codes" will be classified as a hazardous waste.[5] Other medicines are not hazardous within the meaning of the legislation, but they are hazardous if released in the environment.

Hazardous medicines

The European Waste Catalogue[5] lists wastes from human healthcare in Chapter 18. Medicines consisting of or containing dangerous substances together with cytotoxic and cytostatic medicines are considered to be hazardous. Hazardous medicines include chemotherapeutic agents, antivirals, hormones and some bioengineered medicines.[6] Most of the medicines available in community pharmacies are fairly inert and pose no particular danger to staff or waste carriers who collect the waste. This is because most medicines are individually packed tablets or capsules. The packaging provides satisfactory protection for anyone handling the container. However if the solid formulation is altered by, for example, being crushed, they could pose a risk. Blister packaging also protects against mixing incompatible products and they do not pose a risk to the environment provided that they are incinerated properly. [2]

Pharmacies should develop a list of hazardous medicines that are found in the pharmacy, including medicines available from the Pharmacy of Your Choice (POYC Scheme) so as to be aware of any risks involved during collection.

Table 1 is a short template of a list of medicines available in pharmacies which are considered to be hazardous, that was compiled as part of the scientific study undertaken. This list should be modified according to what is available at each respective pharmacy. cont in issue 4/11

Table 1: Hazardous medicines available in pharmacies (Source: Malta Medicines List)
This table is only a summary of the full version which is part of the scientific study entitled 'Waste Management in Pharmacy'

Anti-acne preparations		
Active ingredient	**Trade Name**	**Formulation**
Clindamycin 10mg/ml	Dalacin T	Topical solution
Isotretinoin 10mg, 20mg	Decutan	Capsule, Soft
Anti-bacterials for systemic use		
Clavulanic Acid 125mg; Amoxicillin 500mg	Augmentin-Duo 500mg/125mg	Film-Coated Tablet
Cefaclor 500mg	Ceclor	MR tablets
Antibiotics and chemotherapeutics for dermatological use		
Retampulin	Altargo	Ointment
Mupirocin 2% w/w	Bactroban	Topical ointment
Intestinal anti-inflammatory and anti-infective agents		
Mesalazine 400mg	Pentacol	Gastro Resistant Tablet
Sulfasalazine 500mg	Salazopyrin	Suppositories
Anti-gout preparation		
Allopurinol 100mg	Allopurinol	Tablet
Colchicine 500mcg	Colchicine	Tablet
Anti-neoplastic agents		
Methotrexate 2.5mg	Methotrexate	Film-Coated Tablet
Imatinib 100mg	Imatinib	Tablets
Endocrine therapy		
Letrozole 2.5mg	Femara	Tablet
Tamoxifen 20mg	Nolvadex D	Film-Coated Tablet
Ophtalmologicals		
Tobramycin 3mg/ml	Tobrex	Eye Drops, Solution
Aciclovir 3% w/w	Zovirax	Eye Ointment
Sex hormones and modulators of the genital system		
Estradiol 25mcg	Vagifem	Vaginal Tablet
Ethinylestradiol 0.03mg, Drospirenone 3mg	Yasmin	Film-Coated Tablet
Thyroid therapy		
Levothyroxine Sodium 100mcg	Eltroxin	Tablet
Carbimazole 5mg	NeoMercazole 5	Tablet

MARIKA AZZOPARDI

Becoming a dentist in the 50s

She was not quite convinced she really wanted to do the interview. "I've been through the story so many times... isn't it a bit boring?" I admitted I had never heard it before, so at least, for my sake, it was worth re-telling once again. Carmen Joslin, very pragmatically tells me she was the first female dentist in Malta and shrugs it off as nothing special. After I hear her story, I'm not so convinced.

Mrs Joslin or rather Dr Joslin nee Attard, graduated in 1960 but her introduction to the possibility of studying dentistry actually began way before that. As a child she was born in in the then simple quiet village of Balzan, just a few years before World War II broke out. "I was born in 1938 and my sister and I were sent to school in Valletta to St Joseph High School. My parents were not wealthy but they both instilled in us the early encouraging notion of going to University. You have to understand that back then, University was not free as it is today and it was expensive for that time. Moreover, nobody really encouraged daughters to go to University, as it was only the boys who were considered in that regard. It was a new thing to have a girl go for a university education and in that sense I still marvel at how avant-garde my parents were in their thinking."

Another unique habit for the times was that as part of her parents' resolve to keep the daughters' teeth as healthy as possible, annual check-ups at the dentist were the norm. It was during one of these routine visits that Carmen Joslin became fascinated with the idea of dentistry. "I was sitting on the dentist's chair with my mouth wide open, when my father flippantly mentioned that we (my sister and myself) wanted to go to university and asked for the dentist's advice in this regard. It was his and my mother's conviction in the first place, but anyway, that is beside the point. As part of his reply, the late Dr Tony Demajo who was our dentist at the time commented that there were no female dentists and this comment remained ingrained in my head. One of my characteristics as a person is that I don't want to be herded with the rest – I prefer doing my own thing, and the notion of being a first or at least one of the first, enticed me. From that day onwards, the thought never left my mind. There were some hurdles I had to over come. An 'O' level pass in Matriculation Maltese was a requirement for entry to university. Maltese was never taught at my school and so I had to study it privately after school hours."

Even whilst the mention of university study was frequent, Carmen Joslin admits she did not really know what university was all about, didn't even know where the building proper was situated. But by the time she was

through her 'O'Levels and ready to start attending the university which was in Valletta at the time, she found she had to first attend a two year course in Science and Art, topics not taught by the nuns. The two years meant to give her and others grounding in the basic notions of the sciences and other subjects. It was a day and age when youngsters had no real knowledge of science, unlike today when most know at least the basic way their body functions and something about the organs it includes. As Dr Joslin succinctly puts it, "We didn't even know we had ovaries, let alone the rest of it."

This was in 1954 when the total intake at university for the year was very small and very few of these were females. It was considered a waste of time and money to educate females to that educational level as they would be getting married in a few years time anyway.

"The first two years I spent at University were very different to my school days. We girls felt like birds that had been given their freedom. When the two years were over I applied for the four year course leading to a degree in Dental surgery, the only

...married women were not accepted as employees of [St Luke's] hospital

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woman who did so. I must admit that throughout all of my studies, I never found one single professor or anybody else for that matter, who discouraged me. My teachers were Professor Edigio Lapira, and Professor Joseph Mangion, besides many others."

The first two years were spent studying anatomy, physiology, bacteriology amongst other subjects. The last two years were intensive. Dental surgery, pathology .and conservative dentistry were two subjects and they also studied general medicine and general surgery apart from others. Carmen Joslin still marvels at how people believe a dentist is just somebody who pulls out teeth. It was an exciting time for her – and at the end of it, only seven students had passed in her course.

Post graduation photo who graduated in 1960. From left to right - Drs Herbert Messina Ferrante, Victor Demicoli, George Otinbah (Nigerian), Carmen Joslin, Joe Bartolo, Ronald Delia. Professor George Zarb was also part of my group but had already left for Canada to start his post-graduate studies

She placed third in the course and remained the only lady on board, sharing graduation with other dental surgeons – Dr Herbert Messina Ferrante, Dr Victor Demicoli, Dr George Otibah (Nigerian), Dr Joe Bartolo, Dr Ronald Delia and Dr (now Professor) George Zarb.

In the meantime, she had met the young man who would become her husband – Sidney Joslin. "We met at university and had been seeing each other for some four years when I graduated. It was not done at the time. People who became engaged, were married off soon afterwards. But Sidney went to the UK to study and we initially planned that we would marry and I would join him and continue working as a dentist there. It never materialised as he came back to Malta and we settled on the island. But in the meantime, once I finished university which had been one of the most enjoyable periods of my life... problems started in earnest."

Her first dismay was to find that women received only three quarters of what their male counterparts received in terms of salary

Her first dismay was to find that women received only three quarters of what their male counterparts received in terms of salary. This was already a major let-down for her. Her first employment was within St Luke's Hospital where she spent a relatively short period of time. She formed part of a team and had the benefit of being able to consult with others where difficult cases were concerned. Whilst that lasted it was good. But once word transpired that she planned to get married, she was asked to present herself to administration. "They politely but matter-of-factly suggested I present a letter of resignation, telling me that married women were not accepted as employees of the hospital. I was appalled. It was news to me and I refused to resign, telling them that if they didn't want me there anymore, it was up to them to fire me. They eventually did so by means of a letter diplomatically telling me my services were no longer required. I was dismayed and utterly appalled by the discrimination of it all."

Dr Joslin did not give up but went into private practise with the very same dental surgeon who had seen her teeth as a child – Dr Demajo. However she never took to the private practise scenario much, missing the teamwork experienced previously. Once the babies were born, she started working on reduced hours, drastically diminishing the time spent at the dental clinic. "With three babies on board, I opted out. Babies and small children require a mother's attention continuously. Eventually when the policies at St Luke's Hospital changed, I was invited to resume my work there, but by that time quite some years had elapsed and I did not feel up to it. Mostly because I felt I was not up to date with the latest techniques, and dentistry being the practical profession that it is, you cannot rely on theory only."

Today Dr Joslin is mother of four adult siblings and grandmother of five and keeps busy with her garden, reading and spending time with animals which are another love of her life. She has also discovered the thrills of computing and admits she spends many interesting hours engrossed in the effort. "Those who know me as Dr Joslin still refer to me that way but most people know me simply as Dr Joslin and that suits me just fine. It seems a long time ago but what I trained for has certainly stood me in good stead – the formation you get at university is important. I would have probably kept my job at the hospital had I been allowed to do so. But that was the way things worked out back then..." S

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What is Doppler ultrasound?

PIERRE VASSALLO

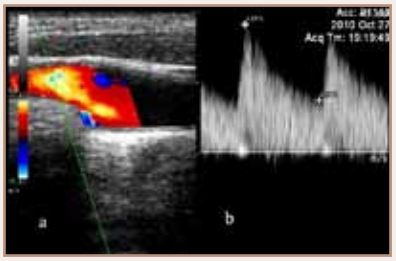


Figure 1: Normal common carotid arterial Doppler ultrasound showing a colour Doppler image (a) and a spectral Doppler depiction (b).

The term *Doppler* should be capitalized because it refers to Christian Johann Doppler, an Austrian physicist (1803–1853). He described a phenomenon whereby the frequency of sound changes when it is reflected off a moving object. If the object is moving towards the observer, reflected sound frequency is increased (blue shift), while if the reflecting object is moving away from the observer, the sound frequency decreases (red shift). This is analogous to a moving ambulance with its siren on; the siren pitch increases as ambulance approaches and decreases as it receeds.

The Doppler Effect may be used also in ultrasound. With normal grey scale ultrasound we rely on amplitude of reflected sound waves and the reflectivity of anatomic structures is proportional to the intensity (or amplitude) of the reflected sound and hence brightness on the scanner display. If frequency (rather than amplitude) is analysed, one can detect motion on the basis of Doppler shifts. These frequency shifts can be quantified reasonably accurately according to direction, velocity and also acceleration, all of which provide specific signatures that help identify both normal and diseased blood vessels.

Frequency shifts in ultrasound may be displayed in two fashions; they may be presented on a graphical plot showing velocity on the y axis and time on the x axis, this is called spectral Doppler ultrasound, or they may be colour coded with blue or red indicating direction of flow towards or away from the ultrasound probe and colour intensity being proportional to flow velocity, this is called Colour Doppler ultrasound. Spectral Doppler is a valuable tool to evaluate blood flow patterns quantitatively whereas Colour Doppler provides a more graphical depiction of vascular anatomy similar to an X-ray angiogram (Figure 1).

There is a third mode of presentation is a variation on the Colour Doppler technique called Power Doppler ultrasound, whereby the colour intensity does not reflect the mean flow velocity at each point in time but all flow velocities summated; this provides less indication about the character of the blood flow but is much more sensitive to small vessels and slow blood flow (Figure 2).

Figure 2: Power Doppler ultrasound is used to detect slow flow in small vessels; this image of the testis shows the presence of venous and arterial blood flow and therefore excludes the possibility of testicular torsion.

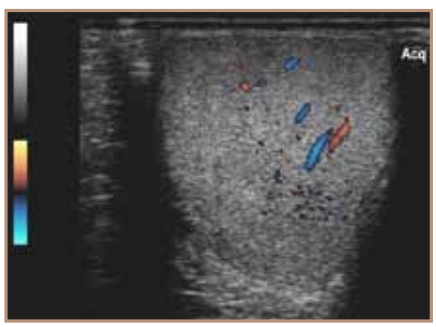


Figure 3: Normal triphasic pattern of peripheral arterial spectral Doppler: (a) corresponds to cardiac systole and (b) and (c) represent vascular recoil.

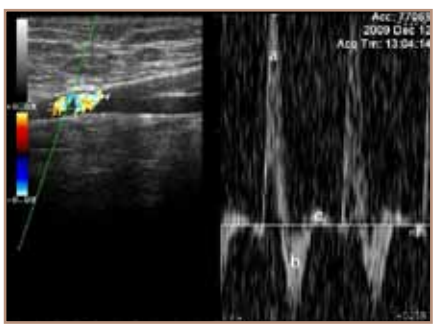
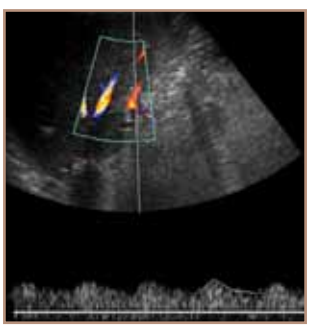


Figure 4: The pre-stenotic tardus parvus waveform results from dampening and delaying of flow caused by the resistance induced by an on-coming stenosis in this case in the hepatic artery.



(a) shows superior meseteric artery stenosis

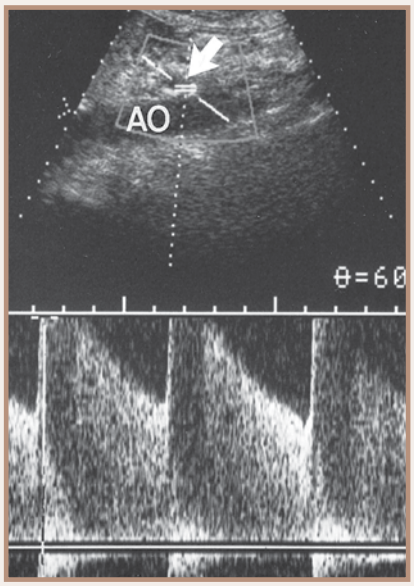


Figure 5: Flow acceleration accurs within a blood vessel at the site of stenosis with increased systolic and diastolic velocities:

(b) high grade superior mesenteric artery stenosis with flow velocities >260cm/s.

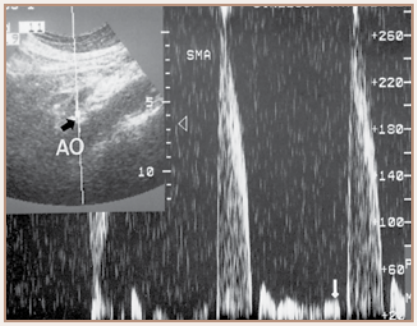
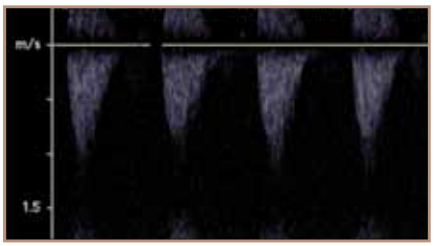


Figure 6: Post stenotic waveforms show increased systolic velocity but reduced or no diastolic velocity/flow; note that flow below the base line may not indicate reversed flow as it depends on the orientation of the probe angle to the direction of flow.



Arterial Spectral Waveforms

Spectral Doppler waveforms can be used to identify blood vessels ("vascular signatures"). Classical peripheral arterial flow has a triphasic pattern (Figure 3) with the first phase (largest wave) reflecting cardiac systole and the subsequent two phases correlating to healthy arterial wall recoil. Loss of the second and third phases resulting in a biphasic or monophasic pattern indicates loss of arterial wall elasticity that results from atherosclerosis.

Loss of wave amplitude and a delayed peak are the results of arterial stenosis located distally; this is referred to as a tardus parvus waveform (latin translation for late and low) (Figure 4). High wave amplitude means that there is acceleration of blood flow; this occurs at the site of vascular stenosis (Figure 5). This phenomenon can be reproduced by pinching the end of your garden hose; this will obtain a more powerful jet to transmit water to farther corners of your garden. Both peak systolic and end diastolic flow velocities are increased at the site of stenosis. Distal to an arterial stenosis, peak systolic flow velocity is still increased but to a lesser extent while end diastolic flow velocity is diminished or absent (Figure 6).

Distal to an arterial occlusion there is no flow; this is termed an aphasic flow pattern (in distinction to mono-, di- and triphasic flow patterns described earlier.

In a normal healthy state, arterioles have the capacity to change their resistance to divert flow toward the organs that need it most. Organs that need to be "on" have their arterioles relaxed so that they are appropriately perfused. When an organ is on "power save" mode, its arterioles constrict and flow is diverted to other organs. The brain, the liver, the kidneys and the gonads need to be "on" at all times, so its arterioles are relaxed. During rest, skeletal muscles are on "power save" mode so their arterioles are constricted. The same can be said for intestinal vessels in a fasting state (which is the case during most abdominal ultrasound examinations). During active physical exercise, skeletal muscle arterioles relax to allow delivery of more oxygenated blood to those tissues. The same holds true for intestinal arterioles in the post-prandial state. Arteriolar tone can be analysed with spectral Doppler imaging by observing the relationship of peak systolic and end diastolic flow velocities; when the arterioles are open end diastolic flow is high, while when they are closed it is low. Peak systolic flow is essentially constant in both states.

The factor most commonly used to assess arteriolar tone (and hence organ activity) is the Resistive Index, which is calculated as follows:

RI = (peak systolic velocity – end diastolic velocity) / peak systolic velocity

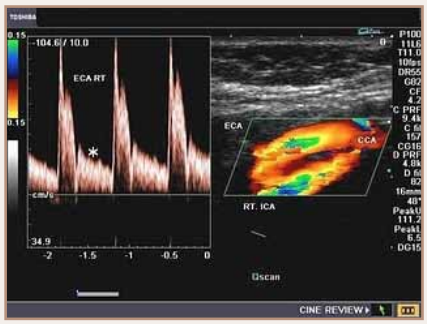
A high RI (>0.7) occurs when an organ is in "power save" mode, while a low RI (0.55-0.7) is seen when the organ is "on". RIs outside of the range expected for the organ's state usually indicate disease. In the hepatic artery, a high RI may indicate a post prandial state (ie patient did not fast) or diffuse distal microvascular disease as seen in chronic liver disease such as cirrhosis or chronic hepatitis. A low RI in the hepatic artery is more indicative of disease and may occur with proximal arterial stenosis or distal arteriovenous or arterioportal shunting as may occur in severe cirrhosis.

Other indices besides RI that are used to assess arteriolar tone are systolic-diastolic ratio (PSV/EDV) and pulsatility index (PI =(PSV-EDV)/V_{mean}).

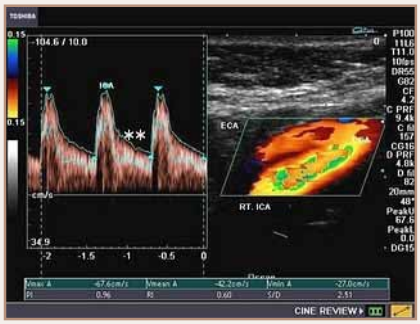
Central arteries have a monophasic pattern with only antegrade flow unlike peripheral arteries that show recoil. This is due to low arteriolar tone that ensures

A persistently high hepatic arterial RI may be seen in patients of advanced age and diffuse peripheral microvascular (arteriolar) compression or disease

Figure 7: "Power-save" flow mode in the external artery



(a) with low diastolic flow velocity (*) compared to "always on" flow mode in the interal carotid artery



(b) with high diastolic flow velocity (**); consequently high RI in the ECA and low RI in the ICA.

delivery of blood to central organs at all times. RI will however differ depending or organ requirements with the internal carotid and hepatic arteries having a lower RI (RI 0.55-0.7) than the external carotid and renal arteries (RI > 0.7) (Figure 7). RI values also change with organ state; the hepatic arterial RI in the fasting state is higher (>0.7) than that in the post prandial state (0.55-0.7).

A persistently high hepatic arterial RI may be seen in patients of advanced age and diffuse peripheral microvascular (arteriolar) compression or disease, as seen in chronic hepatocellular disease (including cirrhosis), hepatic venous congestion, cold ischemia (post-transplantation), and any stage of transplant rejection. Low hepatic arterial RI may occur with proximal arterial narrowing (transplant hepatic artery stenosis, atherosclerotic disease [celiac or hepatic], arcuate ligament syndrome) and distal (peripheral) vascular shunts (post-traumatic or iatrogenic arteriovenous fistulas, cirrhosis with portal hypertension and associated arteriovenous or arterioportal shunts, Osler-Weber-Rendu syndrome with arteriovenous fistulas).

Venous Spectral Waveforms

Venous Spectral Waveforms normally show less pulsatility than arterial ones. Since the sysetmic venous system is returning blood to the heart, the flow direction is resversed compared to arterial flow. Also since blood is being transfered to the chest, changes in intrathoracic pressure will affect flow velocity with increased flow during inspiration (due to negative intrathoracic pressure) (Figure 8).

When evaluating flow pattern in systemic veins that are closer to the heart (eg jugular and hepatic veins), changes in right atrial pressure also influence flow. Thus an ASVD waveform similar to that seen in the both jugular and hepatic veins (Figure 9 ASCD in hepatic veins) with an upward A wave corresponding to right atrial contraction, a downward S wave resulting from antrio-ventricular spetal traction caused by ventricular contraction that reduces intra-atrial pressure, a V wave that correlates with right atrial filling, and a D wave correlating with opening of the tricuspid valve. Thus an abnormal tricuspid valve (stenosis or reguritation), right heart failure or a cardiac septal defect will result in abnormal hepatic venous flow waveforms.

The portal venous waveform differs from systemic ones in that changes in intrathoracic and right atrial pressures have less of an influence on flow due to the intervening liver. The normal portal venous waveform should gently undulate and always remain above the baseline. The peak portal velocity (V_1) corresponds to systole, and the trough velocity (V_2) corresponds to end diastole (Figure 10). Abnormally high pulsatility in the portal vein may be due to cardiac causes as is seen in tricuspid regurgitation and right-sided CHF or due to arteriovenous shunting (as seen in severe cirrhosis) or arteriovenous fistulas (as seen in hereditary hemorrhagic telangiectasia). Normal flow velocity in the portal vein is

Figure 8: Phasicity in peripheral venous blood flow is the result of changes in intrathoracic and intra-right –atrial pressures.

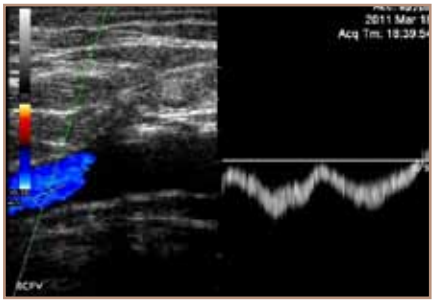


Figure 9: Hepatic vein ASCD waveform.

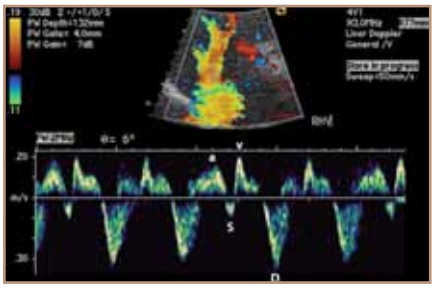
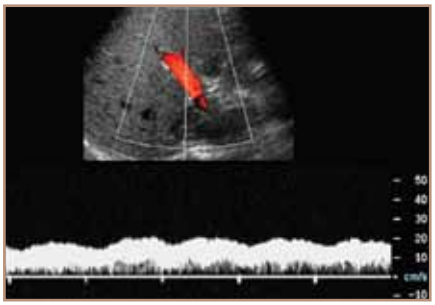


Figure 10: Portal vein phasicity is low amplitude indirectly reflecting changes in central venous pressure.



16-40cm/s. Slow flow (<10cm/s) is seen in the portal vein in cases of cirrhosis with portal hypertension with no flow or flow reversal developing in severe cases. Note however that portal venous thrombosis (eg idiopathic or secondary to malignant disease) would also result in absent flow.

As is evident from the above data, Doppler ultrasound is a powerful tool that can help diagnose disease and also follow disease progression. Combining flow information with grey scale ultrasound findings can provide information that is unmatched by other imaging modalities. New flow encoding modatlities and more sensitive and low interference technologies have made Doppler ultrasound an indispensible tool in the diagnostic imaging department.

NEW INDICATION

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CHANGE HISTORY...

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IN CONJUNCTION WITH CORRECTION OF HIS OTHER RISK FACTORS*

† NOTE: JUPITER used CRESTOR 20mg. The recommended start dose for hypercholesterolaemia is 5 or 10mg (refer to SPC).

* modifiable risk factors include smoking cessation, exercise, weight loss and diet

Abbreviated Prescribing Information CRESTOR® Refer to the full Summary of Product Characteristics (SPC) before prescribing **Presentation:** Film-coated tablets containing 5mg, 10mg, 20mg or 40mg of rosuvastatin. **Indications:** In patients unresponsive to diet and other non-pharmacological measures, CRESTOR is indicated for primary hypercholesterolaemia (including heterozygous familial hypercholesterolaemia), homozygous familial hypercholesterolaemia, or mixed dyslipidaemia. Prevention of cardiovascular events in patients who are estimated to have a high risk for a first cardiovascular event as an adjunct to correction of other risk factors. **Dosage:** Treatment of hypercholesterolaemia: the recommended start dose is 5 or 10 mg daily (including those being switched from other statins). Choice of start dose should take into account the individual patient's cholesterol level and future cardiovascular risk and potential risk for adverse reactions. A dose adjustment to the next dose level can be made after 4 weeks, if necessary. Maximum daily dose is 40mg. A final titration to the maximum dose of 40 mg should only be considered in patients with severe hypercholesterolaemia at high cardiovascular risk (in particular those with familial hypercholesterolaemia), who do not achieve their treatment goal on 20 mg, and in whom routine follow-up will be performed. Specialist supervision is recommended when the 40 mg dose is initiated – refer to SPC. Dose may be given at any time of the day with or without food. Elderly: A start dose of 5 mg is recommended in patients ≥70 years. No other dose adjustment is necessary in relation to age. Dosage in patients with renal insufficiency: Recommended start dose is 5 mg in patients with moderate renal impairment (creatinine clearance ≥60 ml/min). The 40 mg dose is contraindicated in patients with moderate renal impairment. The use of CRESTOR in patients with severe renal impairment is contraindicated for all doses. Children and adolescents: 10-17 years of age: Paediatric use should only be carried out by specialists – refer to SPC. In heterozygous familial hypercholesterolaemia, the usual start dose is 5mg daily, usual dose range is 5-20mg daily. The 40mg dose is not suitable for paediatric patients. Children under 10 years: Safety and efficacy not established. Dose increased systemic exposure in Asian subjects. Recommended starting dose 5mg. CRESTOR 40mg is contraindicated in such patients. Dosage in patients with predisposing factors for myopathy: The recommended start dose is 5 mg in these patients. The 40 mg dose is contraindicated in some of these patients (see Contraindications). Prevention of cardiovascular events: the dose used in the cardiovascular events risk reduction study was 20mg. **Contra-indications:** Hypersensitivity to any of the ingredients; active liver disease or unexplained persistent elevations in serum transaminases and any serum transaminase > 3 x upper limit of normal; severe renal impairment; myopathy; concomitant ciclosporin; pregnancy and breast-feeding; women of child-bearing potential not using contraception. In addition CRESTOR 40mg is contraindicated with concomitant fibrates, and in patients with predisposing factors for myopathy/rhabdomyolysis including patients of Asian origin (refer to SPC for more information). **Warnings and precautions:** Renal effects: Proteinuria, which in most cases is transient or intermittent, has been observed. Assessment of renal function should be considered during routine follow-up of patients treated with CRESTOR 40 mg. Muscle effects: Patients with signs and symptoms of myopathy should be asked to report these symptoms immediately and should have their creatine kinase (CK) levels monitored. CRESTOR should be discontinued if CK levels are markedly elevated or, if muscle symptoms are severe and cause daily discomfort. Risk of myositis and myopathy may increase when administered with certain other drugs (refer to SPC), combination of CRESTOR with gemfibrozil is not recommended but if it is deemed and the benefit versus risk considered when combining CRESTOR with fibrates and niacin. Very rare cases of rhabdomyolysis have been reported with the use of ezetimibe and HMG-CoA reductase inhibitors. CRESTOR, as with other HMG-CoA reductase inhibitors, should be prescribed with caution in patients with pre-disposing factors for myopathy or rhabdomyolysis (see SPC), and if CK levels are significantly elevated at baseline, treatment should not be started. CRESTOR should not be used in patients with an acute, serious condition suggestive of myopathy or predisposing to the development of renal failure secondary to rhabdomyolysis. Rarely, rhabdomyolysis, occasionally associated with impairment of renal function has been reported with all doses and in particular doses >20mg. Liver effects: CRESTOR should be used with caution in patients with a history of liver disease and/or alcoholism. Liver function tests should be carried out, prior to and 3 months following the initiation of treatment. CRESTOR should be discontinued or the dose reduced if the level of serum transaminases is greater than 3 times the upper limit of normal. The incidence rate of serious hepatic events is higher at the 40mg dose. Interstitial lung disease: Exceptional cases have been reported with some statins, if it is suspected that a patient has developed interstitial lung disease, statin therapy should be discontinued. Diabetes Mellitus: In Patients with fasting glucose 5.6 to 6.9 mmol/L, treatment with Crestor has been associated with an increased risk of diabetes mellitus. The concomitant use of rosuvastatin in HIV patients receiving protease inhibitors is not recommended. Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine. **Pregnancy and lactation:** See contra-indication. **Drug interactions:** Also refer to contraindications. CRESTOR is neither an inhibitor nor inducer of cytochrome P450 isoenzymes. CRESTOR may potentiate the anticoagulants effect of Vitamin K antagonists (e.g. warfarin). Decrease in CRESTOR levels seen when co-administered with erythromycin or antacids containing aluminium and magnesium hydroxide. In none or oral contraceptive level and hormone replacement therapy level is seen when co-administered with CRESTOR. Concomitant use of CRESTOR and ezetimibe resulted in no change in AUC or Cmax for either drug. However a pharmacodynamic interaction in terms of adverse events cannot be ruled out. Protease inhibitors. **Undesirable effects:** Common: headache, dizziness, constipation, nausea, abdominal pain, myalgia, asthenia and followed in patients with fasting glucose 5.6 to 6.9mmol/L. Uncommon: pruritus, rash and urticaria. Rare: myopathy (including myositis), rhabdomyolysis, hypersensitivity reactions including angioedema, jaundice, hepatitis, haematuria, polyneuropathy and memory loss and amnesia. Other causally thrombocytopenia side effects elevation in CK levels, proteinuria. Other adverse events noted as anaemia, dizziness, insomnia, cough and dyspnoea. The following adverse events have been reported with some statins: depression, sleep disturbances including insomnia and nightmares, sexual dysfunction and exceptional cases of interstitial lung disease, especially with long term therapy. **Legal Category:** POM. **Marketing Authorisation Number (s):** PA 970/57/1-4. **Marketing Authorisation Holder:** AstraZeneca UK Ltd, 600 Capability Green, Luton, LU1 3LU, UK. Further information is available on request from: AstraZeneca Pharmaceuticals (Ireland) Ltd, College Park House, 20 Nassau Street, Dublin 2 Telephone: (01) 6097700 (Option) 06/10 CRESTOR is a trademark of the AstraZeneca group of companies. Licensed from Shionogi & Co Ltd, Osaka, Japan. **Date of preparation:** July 2010. **UBN:** 16032(2).

References: 1. Crestor SmPC. 2. Jones PH, Davidson MH, Stein EA et al. Am J Cardiol 2003; 92 (2): 152-160. 3. Schuster H, Barter P, Dobnig S et al. Am Heart J 2004; 147 (4): 705-712. 4. Ballantyne C et al. Am Heart J 2006; 151 (5):975.e1-975.e8. 5. Kastelein JJ et al. Atheroscler Suppl 2006; 7(3):43-48. doi: 10.1016/j.atherosclerosissup.2006.04.004. 6. Cleeman JI et al. Atheroscler Suppl 2005; 6(2): 57-76. 7. Luirink IA et al. Eur Heart Journal 2005; 26(13):1287-94. doi: 10.1093/eurheartj/ehi217. 8. Blumenthal RS, Brewer HB, Stein EA, Brown WV et al. Am J Cardiol 2004; 91(Suppl): 3C-11C.

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