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Obesity

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50% of Gout Patients on ULT and 69% of Gout & CKD Patients Can't Meet sUA Target Level in the U.S. [6]

Abbreviations: CKD, chronic kidney disease; ULT, urate-lowering therapy;sUA, serum uric acid.

Reference :
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Abbreviated prescribing information of Feburic© film-coated tablets

Version: 003 PI version: Oct 2015 **Composition:** Febuxostat **Indications:** FEBURIC is indicated for the treatment of chronic hyperuricaemia in conditions where urate deposition has already occurred (including a history, or presence of, tophus and/or gouty arthritis). FEBURIC 120 mg is also indicated for the prevention and treatment of hyperuricaemia in adult patients undergoing chemotherapy for haematologic malignancies at intermediate to high risk of Tumor Lysis Syndrome (TLS). FEBURIC is indicated in adults. **Dosage: Gout** 80 mg once daily. **TLS** 120mg once daily; start 2 days before the beginning of cytotoxic therapy and continue for a minimum of 7 days. **Administration:** May be taken by mouth w/o regard to food. **Contraindications:** Hypersensitivity to the active substance or to any of the excipients. **Special warnings and precautions for use:** ***Cardio-vascular disorders*** *Treatment of chronic hyperuricaemia* : Treatment with febuxostat in patients with ischaemic heart disease or congestive heart failure is not recommended. A numerical greater incidence of investigator-reported cardiovascular APTC events (defined endpoints from the Anti-Platelet Trialists' Collaboration (APTC) including cardiovascular death, non-fatal myocardial infarction, non-fatal stroke) was observed in the febuxostat total group compared to the allopurinol group in the APEX and FACT studies (1.3 vs. 0.3 events per 100 Patient Years (PYs)), but not in the CONFIRMS study. The incidence of investigator-reported cardiovascular APTC events in the combined Phase 3 studies (APEX, FACT and CONFIRMS studies) was 0.7 vs. 0.6 events per 100 PYs. In the long-term extension studies the incidences of investigator-reported APTC events were 1.2 and 0.6 events per 100 PYs for febuxostat and allopurinol, respectively. No statistically significant differences were found and no causal relationship with febuxostat was established. Identified risk factors among these patients were a medical history of atherosclerotic disease and/or myocardial infarction, or of congestive heart failure. *Prevention and treatment of hyperuricaemia in patients at risk of TLS*. Patients undergoing chemotherapy for haematologic malignancies at intermediate to high risk of Tumor Lysis Syndrome treated with FEBURIC should be under cardiac monitoring as clinically appropriate. ***Medicinal product allergy/hypersensitivity***. Rare reports of serious allergic/hypersensitivity reactions, including life-threatening Stevens-Johnson Syndrome, Toxic epidermal necrolysis and acute anaphylactic reaction/shock, have been collected in the post-marketing experience. In most cases, these reactions occurred during the first month of therapy with febuxostat. Some, but not all of these patients reported renal impairment and/or previous hypersensitivity to allopurinol. Severe hypersensitivity reactions, including Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) were associated with fever, haematological, renal or hepatic involvement in some cases. Patients should be advised of the signs and symptoms and monitored closely for symptoms of allergic/hypersensitivity reactions. Febuxostat treatment should be immediately stopped if serious allergic/hypersensitivity reactions, including Stevens-Johnson Syndrome, occur since early withdrawal is associated with a better prognosis. If patient has developed allergic/hypersensitivity reactions including Stevens-Johnson Syndrome and acute anaphylactic reaction/shock, febuxostat must not be re-started in this patient at any time. ***Acute gouty attacks (gout flare)*** Febuxostat treatment should not be started until an acute attack of gout has completely subsided. Gout flares may occur during initiation of treatment due to changing serum uric acid levels resulting in mobilization of urate from tissue deposits. At treatment initiation with febuxostat flare prophylaxis for at least 6 months with an NSAID or colchicine is recommended. If a gout flare occurs during febuxostat treatment, it should not be discontinued. The gout flare should be managed concurrently as appropriate for the individual patient. Continuous treatment with febuxostat decreases frequency and intensity of gout flares. ***Xanthine deposition*** In patients in whom the rate of urate formation is greatly increased (e.g. malignant disease and its treatment, Lesch-Nyhan syndrome) the absolute concentration of xanthine in urine could, in rare cases, rise sufficiently to allow deposition in the urinary tract. This has not been observed in the pivotal clinical study with FEBURIC in the Tumor Lysis Syndrome. As there has been no experience with febuxostat, its use in patients with Lesch-Nyhan Syndrome is not recommended. ***Mercaptopurine/azathioprine*** Febuxostat use is not recommended in patients concomitantly treated with mercaptopurine/azathioprine. Where the combination cannot be avoided patients should be closely monitored. A reduction of dosage of mercaptopurine or azathioprine is recommended in order to avoid possible haematological effects. ***Organ transplant recipients*** As there has been no experience in organ transplant recipients, the use of febuxostat in such patients is not recommended.***Theophylline*** Co-administration of febuxostat 80 mg and theophylline 400 mg single dose in healthy subjects showed absence of any pharmacokinetic interaction. Febuxostat 80 mg can be used in patients concomitantly treated with theophylline without risk of increasing theophylline plasma levels. No data is available for febuxostat 120 mg. ***Liver disorders*** During the combined phase 3 clinical studies, mild liver function test abnormalities were observed in patients treated with febuxostat (5.0%). Liver function test is recommended prior to the initiation of therapy with febuxostat and periodically thereafter based on clinical judgment. ***Thyroid disorders*** Increased TSH values (> 5.5 µIU/mL) were observed in patients on long-term treatment with febuxostat (5.5%) in the long term open label extension studies. Caution is required when febuxostat is used in patients with alteration of thyroid function. ***Lactose*** Febuxostat tablets contain lactose. Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine. **Undesirable effects:** *Summary of the safety profile* - The most commonly reported adverse reactions in clinical trials (4,072 subjects treated at least with a dose from 10 mg to 300 mg) and post-marketing experience in gout patients are gout flares, liver function abnormalities, diarrhoea, nausea, headache, rash and oedema. These adverse reactions were mostly mild or moderate in severity. Rare serious hypersensitivity reactions to febuxostat, some of which were associated to systemic symptoms, have occurred in the post-marketing experience. *List of adverse reactions* - Common (≥ 1/100 to < 1/10), uncommon (≥ 1/1,000 to < 1/100) and rare (≥ 1/10,000 to < 1/1,000) adverse reactions occurring in patients treated with febuxostat are listed below. The frequencies are based on studies and post-marketing experience in gout patients. Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness. Adverse reactions in combined phase 3, long-term extension studies and post-marketing experience in gout patients. **Blood and lymphatic system disorders:** Rare: Pancytopenia, thrombocytopenia. **Immune system disorders:** Rare: Anaphylactic reaction*, drug hypersensitivity*. **Endocrine disorders:** Uncommon: Blood thyroid stimulating hormone increased. **Eye disorders:** Rare: Blurred vision.**Metabolism and nutrition disorders:** Common**;**: Gout flares. Uncommon: Diabetes mellitus, hyperlipidemia, decrease appetite, weight increase. Rare: Weight decrease, increase appetite, anorexia. **Psychiatric disorders:** Uncommon: Libido decreased, insomnia. Rare: Nervousness. **Nervous system disorders:** Common: Headache. Uncommon: Dizziness, paraesthesia, hemiparesis, somnolence, altered taste, hypoaesthesia, hyposmia. **Ear and labyrinth disorders:** Rare: Tinnitus. **Cardiac disorders:** Uncommon: Atrial fibrillation, palpitations, ECG abnormal, left bundle branch block (see section Tumor Lysis Syndrome), sinus tachycardia (see section Tumor Lysis Syndrome). **Vascular disorders:** Uncommon: Hypertension, flushing, hot flush, haemorrhage (see section Tumor Lysis Syndrome). **Respiratory system disorders:** Uncommon: Dyspnoea, bronchitis, upper respiratory tract infection, cough **Gastrointestinal disorders:** Common: Diarrhoea**; nausea. Uncommon: Abdominal pain, abdominal distension, gastro-oesophageal reflux disease, vomiting, dry mouth, dyspepsia, constipation, frequent stools, flatulence, gastrointestinal discomfort. Rare: Pancreatitis, mouth ulceration. Hepato-biliary disorders: Common: Liver function abnormalities**. Uncommon: Cholelithiasis. Rare: Hepatitis, jaundice*, liver injury*.**Skin and subcutaneous tissue disorders**: Common: Rash (including various types of rash reported with lower frequencies, see below). Uncommon: Dermatitis, urticaria, pruritus, skin discolouration, skin lesion, petechiae, rash macular, rash maculopapular, rash popular. Rare: Toxic epidermal necrolysis*, Stevens-Johnson Syndrome*, angioedema*, drug reaction with eosinophilia and systemic symptoms*, generalized rash (serious)*, erythema, exfoliative rash, rash follicular, rash vesicular, rash pustular, rash pruritic*, rash erythematous, rash morbilliform, alopecia, hyperhidrosis. **Musculoskeletal and connective tissue disorders:** Uncommon: Arthralgia, arthritis, myalgia, musculoskeletal pain, muscle weakness, muscle spasm, muscle tightness, bursitis. Rare: Rhabdomyolysis*, joint stiffness, musculoskeletal stiffness. **Renal and urinary disorders:** Uncommon: Renal failure, nephrolithiasis, haematuria, pollakiuria, proteinuria. Rare: Tubulointerstitial nephritis*, micturition urgency. **Reproductive system and breast disorder:** Uncommon: Erectile dysfunction. **General disorders and administration site conditions:** Common: Oedema. Uncommon: Fatigue, chest pain, chest discomfort. Rare: Thirst.**Investigations:** Uncommon: Blood amylase increase, platelet count decrease, WBC decrease, lymphocyte count decrease, blood creatine increase, blood creatinine increase, haemoglobin decrease, blood urea increase, blood triglycerides increase, blood cholesterol increase, haematocritic decrease, blood lactate dehydrogenase increased, blood potassium increase. Rare: Blood glucose increase, activated partial thromboplastin time prolonged, red blood cell count decrease, blood alkaline phosphatase increase.* Adverse reactions coming from post-marketing experience.** Treatment-emergent non-infective diarrhoea and abnormal liver function tests in the combined Phase 3 studies are more frequent in patients concomitantly treated with colchicine. *** See full prescribing information for incidences of gout flares in the individual Phase 3 randomized controlled studies. *Description of selected adverse reactions*- Rare serious hypersensitivity reactions to febuxostat, including Stevens-Johnson Syndrome, Toxic epidermal necrolysis and anaphylactic reaction/shock, have occurred in the post-marketing experience. Stevens-Johnson Syndrome and Toxic epidermal necrolysis are characterised by progressive skin rashes associated with blisters or mucosal lesions and eye irritation. Hypersensitivity reactions to febuxostat can be associated to the following symptoms: skin reactions characterised by infiltrated maculopapular eruption, generalised or exfoliative rashes, but also skin lesions, facial oedema, fever, haematologic abnormalities such as thrombocytopenia and eosinophilia, and single or multiple organ involvement (liver and kidney including tubulointerstitial nephritis). Gout flares were commonly observed soon after the start of treatment and during the first months. Thereafter, the frequency of gout flare decreases in a time-dependent manner. Gout flare prophylaxis is recommended. Tumor Lysis Syndrome- *Summary of the safety profile*- In the randomized, double-blind, Phase 3 pivotal FLORENCE (FLO-01) study comparing febuxostat with allopurinol (346 patients undergoing chemotherapy for haematologic malignancies and at intermediate-to-high risk of TLS), only 22 (6.4%) patients overall experienced adverse reactions, namely 11 (6.4%) patients in each treatment group. The majority of adverse reactions were either mild or moderate. Overall, the FLORENCE trial did not highlight any particular safety concern in addition to the previous experience with FEBURIC in gout, with the exception of the following three adverse reactions. Cardiac disorders: Uncommon: Left bundle branch block, sinus tachycardia. Vascular disorders: Uncommon: haemorrhage **Full prescribing information is available upon request.**

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The Cover Shot

This is a photo of the Boston Common, the oldest public park in the United States, taken in 2015 during the heaviest snowfall recorded in history for the city. Besides being home to the oldest public park, Boston has witnessed many other beginnings in human history, including the first vaccination in 1721, the first anesthesia in 1846 and the first telephone in 1875. The field of Obesity Medicine also had its beginning in Boston when Dr. George L. Blackburn, the mentor of my mentor, pioneered the field. The Blackburn Course in Obesity Medicine, a Harvard Medical School CME course, is now held yearly in his honour.

Dr Michele YUEN

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Opening Letter from Editor-in-Chief

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Editor-in-Chief

Dr Jane Chun-kwong CHAN

It gives me great honour and pleasure to greet readers of the Hong Kong Medical Diary as the newly appointed Editor-in-Chief. I must thank the President Dr. Mario Chak, as well as our immediate past President Dr. Raymond Lo, and members in the Executive Council of the Federation of Medical Societies of Hong Kong for their vote of confidence in allowing me to step into the shoes of this challenging post, as this publication is the proud face of the FMSHK, through which the FMSHK has been able to reach out to nearly 10,000 healthcare professionals in Hong Kong every month. I feel highly privileged to be a facilitator in the wish of the FMSHK in the propagation and dissemination of medical knowledge to healthcare colleagues in the territory, and in the foreseeable future, in the Bay Area of Southern China.

From its inception in 1996 to the present, the Hong Kong Medical Diary could not have enjoyed the popularity as an all-rounded local CME journal without the dedication and hard work of the forerunners acting in the capacity Editor-in-Chief for this publication. These forerunners include, in successive order, Dr. Ka-ho Chan, Dr Timothy F.H. Poon, Dr Chi-kuen Chan, Dr Tin-fook Kwok, Dr Wai-hung Lau, Dr Walter King and last but not the least, Dr Chun-on Mok, the immediate past Editor-in-Chief. Under Dr. Mok's insightful leadership of over a decade, we witness the rapid transformation of the publication, from earlier issues wholly dedicated to specialties, then to subspecialties, and to cross-specialty topics, and at times down to one disease. Such transformation reflects the steady growth of subspecialties and the willingness of the editorial board in embracing new ideas and frontiers in medicine.

The front cover of the Medical Diary has also livened up over time. Presented in monotonous yet pure elegant colours in the 1990s and 2000s, the front cover has become a platform for showcasing a most beautiful or unique capture of the camera, so called the "cover shot", this transformation having been masterminded by Dr Chun-on Mok and company. I well remember that very first "cover shot" in black and white contributed by Dr. Dawson Fong, then President of the FMSHK in 2009, showing the secluded serenity in a Victorian sitting room lined by beautiful 19th century antique furniture. Since that issue, the Medical Diary has become a much welcome publication our reader would look forward to receiving, for viewing the beauty of the "cover shot" if not for reading up the medical contents.

I well remember a comment made by our very dear professor the late Professor Sir David Todd, who once commented positively on a photo which I contributed to the HK Medical Diary as "cover shot" for an issue on "Airway Diseases" with Dr. C. K. Ng being the issue editor. It was a shot taken from family travels deep into Greater China, showing a major westmost tributary of the Yangtze River, the Tiger Leaping Gorge (虎跳峡). The late Professor Sir David Todd was an avid lover of Chinese geographic beauties and was delighted at the sight of that scenic photo on the cover of HK Medical Diary. I thought to myself then that Wow this publication reaches far and wide and even our dear Professor in his 80s would still be reading it!

Given such broad and wide readership, the Executive Council of the FMSHK much values the HK Medical Diary, and would strive for excellence in the production of this publication. The Council has given the Editorial Board the following guideposts for "upkeeping" the HK Medical Diary:

1. Active listening to ensure matching of our publication with the interests of our member societies/readers at large,
2. Upholding the role of the Editorial Board in ensuring the quality of the HK Medical Diary as well as ensuring that the CME contents reflect advancing knowledge and discovery in medicine, and
3. Working closely with the issue editors in the organization of medical content and in securing commercial sponsorship for each particular issue.

It is by steering close to these guideposts that the Medical Diary will continue to be a leader in CME publication in Hong Kong. This month's issue led by Dr. Michele Yuen nicely exemplifies how the HK Medical Diary serves as the fertile soil for cross-disciplinary exploration of a certain disease entity. Hearty congratulations to the issue editor Dr. Michele Yuen and her team for their stellar efforts!

On behalf of the Editorial Board, I wish you all every happiness and success in the Year of the Dog and always!

Jane C. K. Chan
Editor-in-Chief

Editorial

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Editor

Dr Michele YUEN

Obesity is an epidemic that is increasingly acknowledged around the world. Treating obesity had been an arduous deed, mainly due to an incomplete understanding of the biology behind weight gain and a general reluctance to recognise this condition as a disease. In addition, the complete adversity of excess adiposity had not been mapped out, hindering the full appreciation of the health impact of obesity. The last decade has witnessed steady advancement in the field of Obesity Medicine. Many doctors now recognise obesity as a disease, and are much more open-minded about addressing this issue in clinical practice. In this issue of the Medical Diary, we have the honour of having experts from multiple specialties to discuss the impact of obesity in their field of practice.

The first article in this issue, which I have the honour to write, gives an overview of the contemporary state of Obesity Medicine in Hong Kong, and the challenges and opportunities that can be derived from the current resources and limitations. Both the medical and social aspects of treating obesity are explored, and a brief summary of currently available treatment is touched upon. The article also includes an in-depth discussion of the current state of pharmacotherapeutics in the world and in Hong Kong.

Obesity is commonly associated with diabetes, but the wider health effects of obesity are often overlooked. To address this knowledge gap, experts in respiratory medicine, cardiology and nephrology will discuss how obesity affects health in their respective field of practice. These three specialties represent a substantial proportion of patients in both the public and private sectors. Dr Terence Tam has elegantly outlined the role of obesity in various respiratory conditions in addition to obstructive sleep apnoea. Dr Jo Jo Hai has deftly delineated the impact of obesity in cardiovascular health, especially in the context of physical activity. Dr Desmond Yap has provided a graceful discussion of the independent effect of adiposity on the kidneys.

The gut and its respective hormones are important players in appetite regulation and the full spectrum of anti-obesity treatment includes endoscopic and surgical procedures that target the gastrointestinal tract. Dr Kevin Liu has innovatively highlighted the state-of-the-art endoscopic treatment for obesity in his article and the possibilities these treatment can bring to the field. Last and most definitely not least, Dr Daniel Tong has provided a comprehensive deliberation of the development and current status of metabolic and bariatric surgery in the world and in Hong Kong. In his article, Dr Tong has also kindly shared his own personal experiences with surgical treatment of obesity, and the successes and side effects experienced by local patients.

The gestalt of specialists involved in obesity is far from the above. A comprehensive review of the science, impact and treatment of obesity will require many more issues of the Medical Diary to cover. For now, I wish that all readers will enjoy the sharing in this particular issue. My heartfelt gratitude goes to all the authors for their generous time and support in making this issue possible.

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The only GLP-1 analogue that is EMA approved for weight management as an adjunct to diet and exercise[1]

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If escalation to the next dose step is not tolerated for two consecutive weeks, consider discontinuing treatment. Daily doses higher than 3.0 mg are not recommended. Saxenda® is administered once daily at any time, independent of meals, subcutaneously injected in the abdomen, thigh or upper arm, preferably around the same time every day. Saxenda® must not be administered intravenously or intramuscularly. Patients with type 2 diabetes mellitus receiving liraglutide in combination with a sulphonylurea may have an increased risk of hypoglycaemia. The risk of hypoglycaemia may be lowered by a reduction in the dose of sulphonylurea. Saxenda® should not be used in combination with other Glucagon-like Peptide-1 (GLP-1) receptor agonist. The addition of Saxenda® in patients with type 2 diabetes mellitus treated with insulin has not been evaluated. This medicinal product is not recommended for use in paediatric patients. **Contraindications:** Hypersensitivity to liraglutide or to any of the excipients. **Special warnings and precautions:** In patients with diabetes mellitus liraglutide must not be used as a substitute for insulin. There is limited experience in patients with congestive heart failure New York Heart Association (NYHA) class I-II and liraglutide should therefore be used with caution. There is no experience in patients with congestive heart failure NYHA class III-IV and liraglutide is therefore not recommended in these patients. Due to limited experience, Saxenda® is not recommended in patients with inflammatory bowel disease or diabetic gastroparesis. Saxenda® is not recommended in patients: aged 75 years or more, treated with other products for weight management, with obesity secondary to endocrinological or eating disorders or to treatment with medicinal products that may cause weight gain, with severe renal impairment, with severe hepatic impairment. Saxenda® must be used with caution in patients with mild or moderate hepatic impairment. Use of GLP-1 receptor agonists has been associated with the risk of developing acute pancreatitis. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, liraglutide should be discontinued; if acute pancreatitis is confirmed, liraglutide should not be restarted. Caution should be exercised in patients with a history of pancreatitis. In clinical trials for weight management, a higher rate of cholelithiasis and cholecystitis was observed in patients treated with liraglutide than in patients on placebo. Patients should be informed of the characteristic symptoms of cholelithiasis and cholecystitis. In clinical trials in type 2 diabetes, thyroid adverse events, including increased blood calcitonin, goitre and thyroid neoplasm have been reported in particular in patients with pre-existing thyroid disease. Cases of increased blood calcitonin were also observed in the weight management clinical trials. An increase in heart rate was observed with liraglutide in clinical trials. Heart rate should be monitored at regular intervals consistent with usual clinical practice. Patients should be informed of the symptoms of increased heart rate (palpitations or feelings of a racing heartbeat while at rest). For patients who experience a clinically relevant sustained increase in resting heart rate, treatment with liraglutide should be discontinued. Patients treated with liraglutide should be advised of the potential risk of dehydration in relation to gastrointestinal side effects and take precautions to avoid fluid depletion. **Pregnancy and lactation:** Saxenda® should not be used in women who are pregnant, who wish to become pregnant, or who are breastfeeding. **Undesirable effects:** The most frequently reported adverse reactions in patients treated with Saxenda® are nausea, vomiting, diarrhoea and constipation. Less common adverse reactions include dyspepsia, upper abdominal pain, gastritis, flatulence, abdominal distension, gastroesophageal reflux, eructation, dry mouth, dizziness, dysgeusia, insomnia, fatigue, asthenia, injection site reactions, malaise, tachycardia, urticaria, pancreatitis, cholelithiasis, cholecystitis, hypoglycaemia, anaphylactic reaction, dehydration, acute renal failure and renal impairment. **Overdose:** From clinical trials and marketed use overdoses have been reported up to 72 mg (24 times the recommended maintenance dose). Events reported included severe nausea and severe vomiting which are also the expected symptoms of an overdose with liraglutide. None of the reports included severe hypoglycaemia. All patients recovered without complications. In the event of overdose, appropriate supportive treatment should be initiated according to the patient's clinical signs and symptoms. The patient should be observed for clinical signs of dehydration and blood glucose should be monitored.

References: 1. Saxenda® [summary of product characteristics]. Hong Kong; Aug-2015.
2. Pi-Sunyer X, Astrup A, Fujioka K, et al. Liraglutide in weight management: a double-blind randomized controlled trial.

Further Information is available from
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The Challenges and Opportunities for Treating Obesity (and Diabesity) in Hong Kong

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 30 April 2018.

Obesity is a chronic disease that is increasingly affecting different populations worldwide. The Non-Communicable Disease Risk Factor Collaboration (NCD-RisC) 2016 report revealed that the number of men and women suffering from obesity had increased several folds from 34 and 71 million in 1975 to 266 and 375 million in 2014 respectively[1]. For comparison, the Population Reference Bureau estimated that the world's population only grew by about 30% during this same time period[2]. A surprising finding in the NCD-RisC report was that China, which had traditionally been regarded as an underweight rather than obese nation, had surpassed the United States in 2014 as the country with the highest number of men and women with obesity (43.2 and 46.4 million respectively)[1]. Hong Kong is also suffering from the obesity epidemic, with the prevalence of overweight and obesity soaring from 36% in 2005[3] to 50% in 2017[4]. Obesity is associated with many comorbidities that can negatively impact on health and quality of life. With these alarming statistics, a more concerted effort is called for to combat obesity. The field of Obesity Medicine has matured considerably in the United States in the recent decade, providing a convenient framework for the development of clinical approaches in other parts of the world[5,6]. In this review, the challenges and opportunities for treating obesity and diabesity in Hong Kong will be discussed.

Challenges in Treating Obesity

Despite growing recognition that obesity is associated with serious health consequences, the inertia among physicians and patients to properly address and treat obesity is still strong[7]. Obesity is often reduced to a lifestyle choice where patients bear the sole responsibility for any failure or success in weight control[7]. In addition, controversy still exists over the utility of the body mass index (BMI) as a measure of adiposity[8], causing confusion to physicians in the clinical setting. Furthermore, strong stigmatisation exists against both patients with obesity and anti-obesity treatment, causing even more difficulty to initiate conversations relating to weight management. An improved understanding of the pathophysiology of obesity, clarification of the clinical measures of adiposity, and overcoming the stigma associated with weight management are among the most important challenges that need to be tackled in treating obesity.

Understanding Obesity – the Body Fat Mass Set Point

Obesity is generally defined as the excessive accumulation of adipose tissue that has the potential to negatively affect health[9]. Energy is dysregulated in obesity, and the "body fat mass set point" is abnormally high[10]. The body fat mass set point results from interactions between adipose tissue, through adipokines such as leptin, and the appetite and energy expenditure control centres in the brain[11]. Appetite or the metabolic rate is adjusted in response to these signals, which function to maintain the fat mass at a set point in the adult body[10]. The body fat mass set point is determined by genetics[12], eating habits[13], physical activity level[14,15], stress[15], circadian rhythm[16], and use of weight gain-promoting medications[17]. A successful treatment for obesity requires addressing abnormalities in the body fat mass set point.

Diagnosing Obesity - Agreeing on a Definition

The body mass index (BMI) is the most widely accepted measure of obesity, but the cut-offs for overweight and obesity, and hence the threshold for starting treatment, has been a topic of debate. The international cut-offs of 25 kg/m^2 for overweight and 30 kg/m^2 for obesity reflect points at which the risks of type 2 diabetes and cardiovascular diseases are increased[18]. Compared to Caucasians, Asians have a higher percentage of body fat and a greater incidence of type 2 diabetes and cardiovascular diseases at the same age, gender and BMI[18,19]. The BMI cut-offs for observed and high risks in different Asian populations varied from 22-25 kg/m^2 and 26-31 kg/m^2 respectively[18]. For Hong Kong Chinese, it was noted that lowering the cut-off values by 3 units seemed appropriate[18]. As such, the 2004 World Health Organization (WHO) consultation[18] suggested aditional action points of 23 kg/m^2 and 27.5 kg/m^2 for intervention in Asians. These action points had been proposed by some international management guidelines as cut-offs for overweight and obesity respectively[19]. The BMI cut-off points adopted by the Department of Health in Hong Kong in population surveys were based on a WHO consultation from 2000, which quoted 23 kg/m^2 and 25 kg/m^2 for overweight and obesity respectively[20]. Despite the discrepancy, treatment for obesity should no doubt be considered for those with BMI at or above 27.5 kg/m^2 and with obesity-associated comorbidities.

BMI has often been criticised for its inability to distinguish between fat and the fat-free mass[8]. Other measures of obesity have been proposed to compensate for this limitation. The waist circumference is a surrogate for central obesity[21], and the optimal range for Asian

men and women are < 90cm and < 80cm respectively[22]. A body composition analysis by bioelectric impedance[23] or quantification of adipose tissue using dual-energy X-ray absorptiometry (DXA)[24] gives an estimate of the total fat volume in the body. Although these measures are not included in treatment guidelines, they provide additional dimensions to the assessment of adiposity and can be used in conjunction with BMI to stratify risks in patients suffering from overweight and obesity.

Stigmatisation in Obesity Treatment

Perhaps one of the greatest hurdles in tackling obesity is stigmatisation. Obesity has been widely associated with lack of motivation and self-discipline[7]. While these factors may be contributory in some patients, the belief that they are the main cause for obesity has prompted physicians to transfer treatment responsibility completely to the patients[25,26]. Patients often feel embarrassed to talk about weight management due to the stigmatisation, and obesity is often not properly addressed in the clinical setting[7]. In addition, the unfortunate history of anti-obesity drugs with successive withdrawals of fenfluramine and sibutramine due to cardiovascular side effects[27,28], and rimonabant due to psychiatric side effects[29] has kindled the belief that anti-obesity medications, as a group, are unsafe. The negative attitudes towards both the disease and its treatment has created a general hesitation towards treating obesity.

Opportunities for Treating Obesity (and Diabesity) in Hong Kong

Obesity has been recognised in Hong Kong for well over 15 years, but a comprehensive approach to the problem, now known as "Obesity Medicine", is still lacking[30-32]. The main treatment for obesity in Hong Kong for years had been centred around bariatric surgery, with supportive medical and dietary treatment from endocrinologists and dietitians respectively[32]. While this approach had helped many, patients who prefer a non-surgical approach are left with close to no treatment options.

Going Slow – Treating Diabesity

Diabetes mellitus, in contrast to obesity, is a well-recognised disease that many physicians are comfortable in treating. Eighty percent of those suffering from diabetes also suffer from obesity, and the term "diabesity" has been increasingly alluded to in recent years to refer to the coexistence of these conditions[33,34]. Treatment for diabesity revolves around selecting oral-hypoglycaemic agents that concomitantly lower glucose and weight. Metformin is the first of these drugs. The mean weight reduction is approximately 2% of the original body weight if added to diet and exercise[35]. Sodium-glucose co-transporter 2 inhibitors (SGLT2i) (e.g. dapagliflozin) and glucagon-like peptide 1 agonists (GLP1a) (e.g. liraglutide) are new classes of drugs for diabesity. The mean weight reduction with SGLT2i is 2 kg and a dose-dependent response has been observed with dapagliflozin[36]. For GLP1a, liraglutide is the only drug with separate indications for diabetes and obesity (a higher dosage is used for obesity, further details below). The mean weight reduction for dosages of GLP1a used in type 2 diabetes is 1.5 kg[37].

New Generation of Anti-Obesity Medications

The magnitude of the effect from weight-loss inducing oral-hypoglycaemic agents is insufficient for patients with severe obesity. In recent years, several new anti-obesity drugs that combined greater efficacy with better safety profile (due to more stringent approval processes) and more extensive clinical experience (as individual components of some combination drugs, e.g. Contrave® (bupropion / naltrexone) and Qysmia® (topiramate / phentermine), have been used extensively in other conditions before being explored in obesity) were introduced[38]. Most of these newer drugs target appetite and the energy expenditure pathways, and work to lower the body fat mass set point. A summary of currently available FDA approved weight reduction medications is as follows[6]:

1. Phentermine:

Action(s): amphetamine-like appetite suppressant

Mean weight loss at 2-24 weeks: 3.6 kg

Limitations: Only approved for short-term use (3 months)

Major contraindications: Anxiety disorder, history of drug abuse, heart disease, uncontrolled hypertension, seizure disorder

2. Orlistat:

Action(s): Pancreatic and gastric lipase inhibitor, inhibits fat absorption from the intestine

Mean weight loss at 1 year: 2.9-3.4%

Limitations: Intolerable side effects in some patients, including flatulence and faecal incontinence

Major contraindications: Pre-existing malabsorption syndrome, cholestasis and concomitant use of thyroxine, warfarin, cyclosporine, anti-epileptic drugs

3. Qysmia® (Phentermine / topiramate)

Action(s): For phentermine, see above. Topiramate modulates the γ-aminobutyric acid (GABA) receptor. The combination is believed to have synergistic effect on appetite suppression.

Mean weight loss at 1 year: 6.6% (recommended dose) to 8.6% (high dose)

Limitations: Insomnia, dry mouth, constipation, paraesthesia, dizziness, dysgeusia

Major contraindications: Hyperthyroidism, glaucoma, concomitant use of monoamine oxidase (MAO) inhibitors or sympathomimetic amines

4. Contrave® (Naltrexone / bupropion)

Action(s): Naltrexone is an opioid antagonist. Bupropion is a reuptake inhibitor of dopamine and norepinephrine. The combination is believed to have synergistic effect on appetite suppression.

Mean weight loss at 1 year: 4.8%

Limitations: Nausea, constipation, headache, vomiting, dizziness

Major contraindications: Uncontrolled hypertension, seizure disorders, anorexia nervosa or bulimia, drug or alcohol withdrawal, MAO inhibitors

5. Liraglutide (at 3.0mg)

Action(s): Glucagon-like peptide 1, suppresses appetite and improves glycaemic control.

Mean weight loss at 1 year: 5.8%

Limitations: Requires injection

Major contraindications: Medullary thyroid cancer history, multiple endocrine neoplasia type 2 history

6. Lorcaserin

Action(s): 5-hydroxytryptamine 2c receptor agonist

Mean weight loss at 1 year: 3.6%

Limitations: Headache, nausea, dry mouth, dizziness, fatigue, constipation

Major contraindications: Use with caution in the concomitant use of other selective serotonin reuptake inhibitors (SSRI), selective norepinephrine reuptake inhibitor (SNRI) or MAOI, St. John's wort, triptans, buproprion, dextromethorphan.

The currently registered anti-obesity drugs in Hong Kong include phentermine, orlistat and liraglutide[39]. Other drugs such as Contrave® can be used under a named patient programme. There is insufficient evidence on the safety of these drugs in pregnancy or breastfeeding. Female patients of the child-bearing age should be well-informed of the risks before starting these agents. Despite their limitations, these drugs open up a whole new horizon in the field of Obesity Medicine.

Diet and Exercise for Treatment of Obesity

Diet and exercise form the basis for all obesity treatments[6]. Effectiveness of these approaches, however, is limited by adherence. An individualised approach is the key to success of these treatments.

Dietary Treatment

Different dietary approaches have been proposed. Four of the most well-known are:

1. Low carbohydrate, high protein and fat diet (e.g. Atkin's diet), which includes as little as 20 grammes of carbohydrates per day[40].
2. Low fat diet (e.g. Ornish diet), which advocates lowering fat intake to 10 to 20% of total daily calories and increasing intake of plant-based food including grains, fruits and vegetables[41].
3. The Mediterranean diet, which encourages a higher intake of unsaturated fats such as olive oil, nuts, and fish, in lieu of saturated fats (e.g. red meat and butter), and intake of fruits, vegetables and whole grains[42].
4. Low-glycaemic load diets, which suggest consumption of foods with a lower glycaemic load[43].

Portion-controlled diets, as represented by meal replacements (e.g. pre-packaged liquid diet that aims to replace meals) and intermittent fasting are further approaches that have been studied[44,45]. All of these dietary approaches have similar short- and long-term safety and, with the exception of caloric restriction by portion-controlled diets which can induce significant weight loss, produce similar mild reductions in body weight (in the range of 5-10% of the initial weight)[46]. The main inhibitory factor is long-term compliance and weight regain after stopping the dietary approach. Nonetheless, choosing one of the dietary approaches above with consideration of the patient's preference should be considered as part of a holistic obesity management.

Exercise

In weight control, multiple brief bouts of moderately intense activities, as brief as 10 minutes, seem to be as effective as one long bout of activity lasting 40 minutes or more[47]. There is also evidence that increasing the energy expenditure of any sort throughout the day, without concern for the intensity or duration of the activity, is as effective for weight control as more traditional programmed activities (such as jogging, swimming or biking)[48]. Some investigators suggest that addition of resistance training (e.g. 20-minute sessions of resistance training 2-3 times per week) to aerobic exercises helps to maintain the muscle mass and improves sustained weight reduction[49]. Like dietary approaches, exercise requires adherence, and on its own is of limited benefit in inducing weight loss[50]. Nonetheless, encouragement to perform physical activities and exercise prescription should be included as part of a holistic obesity management.

The Role of Bariatric Surgery

The current understanding of the pathophysiology of obesity has also changed the way we understand bariatric surgery, mainly sleeve gastrectomy and roux-en-Y gastric bypass[51]. It is now known that one of the principal mechanisms of these surgeries lies in the alteration of the levels of orexigenic (appetite-inducing) and anorexigenic (appetite-suppressing) hormones in the body, thereby controlling the hunger signal and food craving[52]. Bariatric surgery also changes the gut microbiome, which is the collective term used to describe the micro-organisms residing in our intestine. Gut microbiome has been implicated extensively in various diseases, including overweight and obesity[13]. Bariatric surgery has been demonstrated to promote changes in gut microbiome that would favour weight reduction[53].

The Way Forward - Management of Obesity by a Dedicated Multidisciplinary Team

Large inter-individual variabilities in response to various anti-obesity treatments have been demonstrated in diet[54], exercise[55], weight reduction medications[56] and bariatric surgery[57,58]. There is currently no clear cut algorithm that reliably predicts an individual's response to a particular therapy. In the use of weight reduction medications, the only reliable predictor of sustained response is early response within the first three months[59,60]. To increase complexity, some anti-obesity treatments have been found to be synergistic to one another in some individuals (e.g. combination of diet and exercise is more effective than diet alone in weight reduction[61]), while some patients respond poorly even to bariatric surgery and may require revision surgery or post-surgery anti-obesity medications. These observations highlight the importance of a specialised multidisciplinary team approach in tackling obesity[62].

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "The Challenges and Opportunities for Treating Obesity (and Diabesity) in Hong Kong" by Dr Michele YUEN and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 30 April 2018 Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. The increase in the prevalence of obesity has surpassed that of the global population growth.
2. The prevalence rate of overweight and obesity in Hong Kong is 50% in 2017.
3. Obesity is a lifestyle choice.
4. Fat is simply a storage vehicle for excess energy, and it is very easy to lose weight and fat if we balance energy intake and output.
5. A lower BMI cut-off for overweight and obesity is set for Asians because Asians tend to have more metabolic comorbidities at lower BMI.
6. "Diabesity" is the concomitant existence of type 1 diabetes with obesity.
7. There are currently 3 drugs registered for weight reduction in Hong Kong.
8. Weight loss medication and bariatric surgery are alternative treatment options for patients who do not like to exercise or eat a healthy diet.
9. The response to weight reduction treatment varies between different individuals, but the only way to tell which patient responds to which treatment is by trial-and-error.
10. Treatment of obesity is best done by a multidisciplinary team.

ANSWER SHEET FOR APRIL 2018

Please return the completed answer sheet to the Federation Secretariat on or before 30 April 2018 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

The Challenges and Opportunities for Treating Obesity (and Diabesity) in Hong Kong

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1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

Name (block letters):_____ HKMA No.: _____ CDSHK No.: _____

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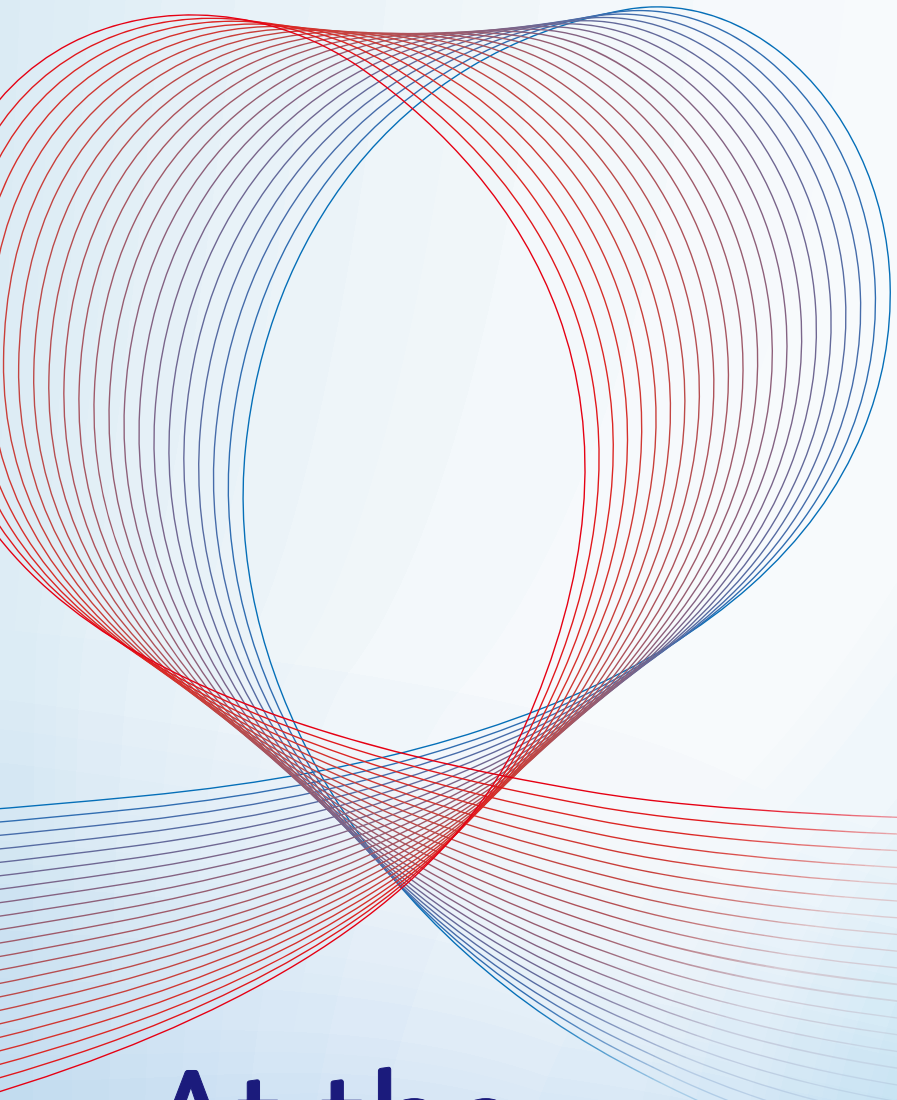
Contact Tel No.:_____ MCHK No.: _____ (for reference only)

Answers to March 2018 Issue

Updates on Treatment Options for Keratoconus

1. F **2.** F **3.** T **4.** T **5.** T **6.** T **7.** T **8.** T **9.** F **10.** T



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Obesity and Respiratory Diseases

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Obesity has long been recognised as having significant effects on respiratory functions. Obese patients tend to have higher respiratory rates, lower tidal volumes and lower expiratory reserve volumes, and some patients may be mildly hypoxaemic at rest (mainly due to ventilation-perfusion mismatching at the lung base secondary to micro-atelectasis). Weight loss leads to a reversal of these changes[1]. Beyond physiologic changes, there are important clinical association with both asthma[2] and chronic obstructive pulmonary disease (COPD). However, perhaps the most apparent link between obesity with the respiratory system is through obstructive sleep apnoea (OSA) and obesity hypoventilation syndrome (OHS); these two entities will be reviewed here.

Obstructive sleep apnoea

OSA is a sleep disorder that involves cessation or significant decrease in airflow in the presence of breathing effort. It is the most common type of sleep-disordered breathing and is characterised by recurrent episodes of upper airway collapse during sleep[3]. Patients with OSA are at increased risk for poor neurocognitive performance and adverse medical outcomes due to repeated arousals and/or hypoxaemia during sleep over months to years[4], and severe untreated OSA has been associated with increased all-cause and cardiovascular mortality.

In both males and females, the strongest risk factor for OSA is obesity. The prevalence of OSA progressively increases as the body mass index (BMI) and associated markers (e.g. neck circumference, waist-to-hip ratio) increase[5]. In adult males, the estimated prevalence of OSA rose from 11 to 14% over the span of two decades; in adult females the prevalence rose from 4 to 5%[6]. The relationship between obesity and OSA is in fact bidirectional; for example, a person who experiences daytime sleepiness may be less active and therefore at greater risk for weight gain[7].

The most common and effective treatment for OSA is continuous positive airway pressure (CPAP). It is effective in 90% of sleep apnoeics[8], but up to 40% of patients decline CPAP use[9] as a result of intolerance to the pressure required to abolish the apnoea episodes. CPAP pressure can often be reduced when there is significant weight loss; in fact, a meta-analysis of four randomised-controlled trials (RCTs) showed that weight reduction of 14 kg was associated with a fall in Apnoea-Hypopnoea Index (AHI; a measure of the severity of OSA) of 16/hour and a rise in nadir SpO2 of 14%[10-11]. This reduction in AHI may convert some patients from non-positional to positional (i.e. supine only) OSA in addition to a reduction in the CPAP pressure required to treat the OSA.

Obesity Hypoventilation Syndrome (OHS)

Obesity, particularly when severe (BMI ≥40 kg/m^2), is also a risk factor for concomitant obesity hypoventilation syndrome (OHS), a condition which is defined as the presence of awake alveolar hypoventilation (raised $PaCO_2$) in an obese individual which cannot be attributed to other conditions (e.g. pulmonary parenchymal disease, skeletal restriction, neuromuscular weakness, hypothyroidism, or pleural pathology)[12]. Ninety percent of OHS patients have coexisting OSA, which is often severe. The relationship between OHS, OSA and obesity is perhaps best illustrated in Fig. 1.

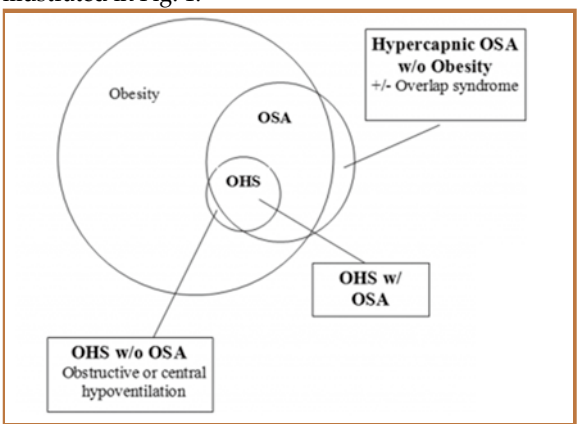

Fig. 1 – OHS has been documented in 10 - 20% of patients with OSA in most series. 85-90% of OHS patients have OSA, the remainder do not have classic discrete obstructive events during sleep but usually have obstructive or central hypoventilation. Adopted from D Naim et al. Obesity Hypoventilation Syndrome. The Internet Journal of Pulmonary Medicine Volume 12 Number 1

While many patients present with chronic stable symptoms or chronic hypercapnic respiratory failure, about one-third of patients present with acute-on-chronic respiratory failure prompting hospital admission[13]. Such patients are often misdiagnosed as having COPD or asthma despite an absence of obstruction on pulmonary function testing[14]. Other manifestations of end-stage disease including right heart failure from pulmonary hypertension (dyspnoea

on exertion, elevated jugular venous pressure, hepatomegaly, and pedal oedema) and polycythaemia. Individuals with OHS have considerably worse health status and access more health care resources compared to the general population[15].

Weight loss remains the mainstay of treatment as it improves alveolar ventilation (sometimes normalising the awake hypercapnia and hypoxaemia), reduces the risk of cardiorespiratory complications, improves nocturnal desaturation, decreases the frequency of hypopnoeas during sleep if the patient has coexisting OSA, and improves pulmonary function[16]. These benefits appear to occur regardless of whether the weight loss was due to lifestyle modification (i.e. diet, exercise) or surgery[17].

Non-invasive positive airway pressure (PAP) therapy during sleep is recommended in order to improve symptoms and parameters of awake ventilation (i.e. $PaCO_2$). In those with concomitant OSA, a trial of CPAP is reasonable[18]. On occasion, despite relief of obstructive events, residual oxyhaemoglobin desaturation persists suggesting persistent hypoventilation that requires additional inspiratory pressure support; in such instance bi-level positive airway pressure (BPAP) needs to be considered[19]. On the other hand, for patients with OHS and predominant sleep-related hypoventilation (i.e. few obstructive events during sleep), BPAP is also the initial mode of choice. Finally, for those who fail or do not tolerate BPAP, a hybrid mode (average volume-assured pressure support) or, less commonly, volume-cycled ventilation may occasionally be considered[20].

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Contents: Metformin HCl **Indications:** Treatment of type 2 DM in adults as an adjunct to adequate diet & exercise. Monotherapy or in combination w/ other oral antidiabetic medicines or insulin. **Dosage:** ***Adult*** Initially 1 tab daily w/ evening meal. After 10-15 days, may increase at increments of 500 or 750 mg depending on blood glucose measurements. Max: Four 500-mg tab or two 750-mg tab or two 1,000-mg tab daily. ***Patients with renal impairment*** Patients with moderate renal impairment, stage 3a ([CrCl] or [eGFR] 45 – 59 ml/min/1.73m^2) only in the absence of other conditions that may increase the risk of lactic acidosis, the starting dose is 500 mg or 750 mg metformin hydrochloride, once daily. The maximum dose is 1000mg daily. The renal function should be closely monitored (every 3-6 months). Should be given alone or w/ insulin. **Pre- & Post-Prandial Advice:** Swallow whole, do not chew/crush. **Contraindications:** Ketoacidosis or pre-coma, moderate (stage 3b) and severe renal or hepatic insufficiency, infectious diseases, following an IV urography or angiography, heart failure, recent MI, resp. insufficiency, shock, persistent or severe diarrhoea, recurrent vomiting, alcoholism. Lactation. **Special Precautions:** Regular renal & blood sugar monitoring. Suspend therapy during surgery & clinical investigations. May impair ability to drive or operate machinery in combination w/ other antidiabetic agents. Pregnancy. **Adverse Reactions:** GI & taste disturbances. **Interactions:** Iodinated contrast agents, corticosteroids, NSAIDs, ACE inhibitors, diuretics, β_2-agonists, alcohol. **Presentations:** XR tab 500 mg x 60's. 750 mg x 30's. 1,000 mg x 60's. **Date of version:** Sep 2016

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Obesity and the Kidney Disorders – A Growing Yet Preventable Health Problem

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Introduction

Obesity is a growing health problem which affects adults and children worldwide. It is estimated that over 640 million individuals are obese[1] and the presence of obesity affects different organ systems. In this context, obesity exerts both direct and indirect detrimental effects on the kidneys and is a robust risk factor for renal disorders. While obesity contributes to the development of kidney disease, one should appreciate that obesity-related chronic kidney diseases (CKD) are largely amenable to interventions. Enhanced awareness of obesity via public education and aggressive lifestyle and risk factor modifications can substantially attenuate the deleterious effects of obesity on the kidneys and renal health. This review will highlight the epidemiology, associations, putative pathogenic mechanisms and potential interventions of obesity-related kidney disorders.

Epidemiology of Obesity in Adults and Children

Due to the higher percentage of body fat and greater incidence of type 2 diabetes and cardiovascular diseases at the same age, gender and BMI in Asians, a lower BMI cut-off is used in defining obesity in the local population. The BMI cut-offs in different Asian populations vary from 22-25 kg/m^2 and 26-31 kg/m^2 for observed and high risks respectively2. For Hong Kong Chinese, the 2004 World Health Organization (WHO) consultation suggested to lower cut-off values by 3 units[2]. The BMI cut-off points adopted by the Department of Health in Hong Kong in population surveys were based on a WHO consultation from 2000, which quoted 23 kg/m^2 and 25 kg/m^2 for overweight and obesity respectively[3].

The incidence and prevalence of overweight and obese adults have grown considerably over the past few decades. In the United States, the age-adjusted prevalence of obesity in 2013-2014 was 35% and 40% among men and women respectively. As for children aged between 2 to 19 years of age, the prevalence for obesity and extreme obesity were 17% and 5.8% respectively in the U. S. A. in 2011-2014. In Hong Kong, the prevalence of overweight and obesity in adults has risen from 36% in 2005[4] to 50% in 2017[5]. The rate of obesity in primary school children has fallen slightly from 21.3% in 2007/8 to 17.6% in 2016/17, but the rate of obesity in secondary school students increased from 17.0% in 2007/8 to 19.9% in 2016/17[6]. In both primary and secondary school students, the rate of obesity in boys was consistently higher than in girls.

Association of Obesity with Kidney Diseases

The association between obesity and kidney diseases had been demonstrated in various population-based studies. An increased body mass index (BMI) is associated with the presence and development of proteinuria in individuals without prior kidney disease. Indeed, obesity has been denoted as one important cause of secondary focal segmental glomerulosclerosis (FSGS), a glomerular disease which typically presents with heavy proteinuria and progressive renal failure. Other investigators have reported that obesity was associated with the presence and development of reduced glomerular filtration rates (GFR), with more rapid decline in the renal function and excessive risks of end-stage renal disease(ESRD)[7-10]. Various studies have also highlighted the correlations between obesity indicators (e.g. waist-hip ratio or waist circumference) and renal disorders (e.g. albuminuria or progression of CKD). Increased visceral adipose tissue measured by computer tomography was shown to be related to the prevalence of proteinuria in men. BMI-dependent correlation between abdominal obesity and unfavourable renal outcomes had been observed in relationship with mortality in ESRD and kidney transplant patients, suggesting a direct role of visceral adiposity[11]. Furthermore, obesity is associated with increased incidence and prevalence of ESRD, as well as allograft loss in renal transplant recipients. Other important associations of obesity and renal pathologies include escalated risk of renal cell carcinoma and nephrolithiasis. In a population-based study in the United Kingdom, an increase of 5 kg/m^2 was associated an 25% increased risk of kidney cancers, with 10% of all kidney cancers attributed to overweight[12]. One meta-analysis which included 221 studies (of which 17 examined kidney cancers) further demonstrated that such relationship between obesity and kidney cancers was consistent across gender and localities[13].

Putative Mechanisms of Renal Injury resulting from Obesity

Obesity exerts direct haemodynamic effects on the kidney which include increased effective plasma flow, glomerular filtration and albumin excretion. Obesity can also confer renal structural changes, including increased kidney weight and glomerular planar surface, mesangial expansion and podocyte injury. These haemodynamic and structural changes contribute to pathological lesions such as glomerulomegaly,

glomerulosclerosis and obesity-related glomerulopathy. These kidney pathologies will manifest as early onset of kidney disease, proteinuria and progression to renal failure. Obesity can also lead to CKD via indirect mechanisms such as its link with diabetes mellitus, hypertension and other cardiovascular risk factors. Previous studies have suggested that adiposity will lead to reduction in adiponectin coupled with increased leptin, resistin and vistatin[14]. These perturbations in "adipokines" contribute to increased insulin resistance, renin-angiotensin system (RAS) activation, excessive inflammation and oxidative stress and abnormal lipid metabolisms, which will in turn cause direct renal insults or indirect kidney damage via heightened incidence/prevalence of diabetes mellitus (DM) and hypertension (HT).

Potential Interventions for Obesity-related Kidney Diseases

Clinicians should appreciate that obesity-related kidney disorders are readily amenable to interventions. The battle on obesity-related kidney diseases should begin in the population level, through enhanced patient awareness and better public education. The prevention of obesity and its related kidney disorders has been advocated by severe international renal associations including the International Society of Nephrology (ISN), International Federation of the Kidney Foundation (IFKF), and the European Renal Association (ERA) as well as local societies such as the Hong Kong Obesity Society (HKOS) and the Hong Kong Society of Nephrology (HKSN). In this context, the theme of the 2017 World Kidney Day has focused on obesity and kidney diseases, and has included various public events and media engagement to promote this clinical entity. Lifestyle and risk factor modifications remain the cornerstones to prevent and retard obesity-related kidney disorders. Weight management comprises both lifestyle medications, medical and surgical treatment. In this regard, the Hong Kong Obesity Society has organised training programmes to engage obese patients in distance running. There is also evidence to suggest that bariatric surgery may be of benefit in selected CKD or ESRD patients who are waitlisted for renal transplantation. Furthermore, the use of RAS blockade can potentially exert specific antagonistic effects on adipokines-related RAS activation, and also enjoys robust efficacy data on proteinuria reduction and retarding renal function deterioration. The optimal control of other related risk factors such as DM and HT will also contribute to the prevention of the development and progression of CKD.

In DM patients, several glucose-lowering agents have been shown to have renoprotective effects independent of HbA1c improvement. In the EMPA-REG trial, for example, empagliflozin, a sodium-glucose co-transporter 2 inhibitor, has been shown to reduce the risk of incident or progression of nephropathy (as defined by progression to macroalbuminuria, doubling of serum creatinine and initiation of renal-replacement therapy) by 39%[15]. Similar results were observed in the LEADER trial with liraglutide, a glucagon-like peptide 1 receptor agonist, with a risk reduction of 22%[16]. Trials involving other drugs of the same classes are underway and the results will provide further insight into whether the observed benefits are drug-specific or class-specific.

Conclusions

Obesity has important direct and indirect adverse effects on the kidneys and confers unfavourable renal outcomes. The pathogenesis of obesity-related kidney disorders remains elusive and further studies are warranted to elucidate its underlying mechanisms. Increased public awareness and education, appropriate lifestyle and risk factor modifications, as well as the optimal institution of medical or surgical treatments will significantly improve the outlook of patients with obesity-related kidney disorders.

Table 1. Factsheet for Obesity and Kidney diseases

Latest Definition of Obesity in Asians & Hong Kong

- BMI cut-off points adopted by the Department of Health in Hong Kong in population surveys were based on a WHO consultation from 2000:
- Overweight: >23 kg/m^2
- Obesity: >25 kg/m^2

Epidemiology of Obesity and Kidney Disease in Hong Kong

- In Hong Kong, the prevalence of overweight and obesity in adults has risen from 36% in 2005 to 50% in 2017.
- The rate of obesity in primary school children has fallen slightly from 21.3% in 2007/2008 to 17.6% in 2016/2017, but the rate of obesity in secondary school students increased from 17.0% in 2007/2008 to 19.9% in 2016/2017.
- In both groups, the rate of obesity in boys was consistently higher than in girls.

Association of Obesity and Kidney Diseases

- Population-based studies have demonstrated the association between obesity, proteinuria and reduced GFR
- Other studies have shown the relationship of obesity and early onset of kidney disease, proteinuria and progression of renal failure
- Obesity → ↑incidence/prevalence of ESRD & graft loss in renal transplant recipients

Putative Pathogenic Mechanisms of Obesity-related Kidney Disorders

Direct haemodynamic effects:

- ↑Effective plasma flow, glomerular filtration and albumin excretion
- Structural changes (e.g. ↑kidney weight and glomerular planar surface, mesangial expansion and podocyte injury resulting in glomerulomegaly, glomerulosclerosis and obesity-related glomerulopathy.

Indirect effects:

- ↑ risk of DM & HT leading to nephropathy
- Adiposity will also result in:
- ↓ adiponectin; increased leptin, resistin & visfatin
- ↑ Insulin resistance, RAS activation, inflammation & oxidative stress, abnormal lipid metabolism

Potential interventions of Obesity-related Kidney Disorders

- Increased public awareness and education on obesity-related kidney disorders
- Lifestyle modifications and weight management in at-risk patients
- Use of RAS blockade in obese CKD patients
- Control of other CVS risk factors including DM, HT & dyslipidaemia
- Bariatric surgery may be considered in ESRD patients enlisted for transplant

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Introduction

Obesity is a major global health concern as the worldwide prevalence of obesity has tripled since 1975, involving 13% of the world's adult population[1]. The problem of obesity is no longer confined to the affluent countries, it is also affecting the developing countries and across all age groups. The situation in Hong Kong is of no exception – half of the population is classified as overweight or obese according to the latest population health survey, compared to only 38.9% a decade ago[2]. A recent meta-analysis of more than 10 million participants demonstrated a positive association between body mass index (BMI) and all-cause mortality. The hazard ratio (HR) increased in a near log-linear fashion from minimal overweight (BMI 25 - <27kg/m^2; HR 1.07; 95%CI 1.07-1.08) to grade 3 obesity (BMI 40 - <60kg/m^2; HR 2.76; 95%CI 2.60-2.92)[3]. Therefore, improving the efficacy of treatment is paramount. Current treatment options recommended by the international guidelines include lifestyle intervention, pharmacotherapy and bariatric surgery[4,5]. Lifestyle intervention is the mainstay treatment to all overweight or obese patients. However, the amount of weight loss was only modest ranging from 7% to 12% with lifestyle intervention as a standalone treatment[6]. The degree of weight loss in real life is likely to be lower and patients usually regain some of the weight as time passes. Bariatric surgeries, on the other hand, are effective in inducing and maintaining weight loss at around 15 to 30% of total body weight loss (TBWL)[7] and are recommended to patients with BMI ≥40kg/m^2 (or ≥ 35kg/m^2 with co-morbidities). There is an important gap in managing patients with mild to moderate obesity (BMI 30-40 kg/m^2) as they are not qualified for the bariatric surgeries and the lifestyle intervention is simply not effective to bring down substantial weight loss. With the advancement of technologies, a number of endoscopic bariatric therapies are developed to fill in the gap and are supported by various national societies and federal agencies[8].

Endoscopic Weight Reduction Devices

Endoscopic bariatric therapies can generally be divided into 4 classes (Table 1): 1) gastric space-occupying devices; 2) gastric restrictive procedures; 3) duodenal bypass liners; 4) aspiration therapy. Appropriate selection of candidates for the endoscopic bariatric procedure is important for the success and safety of the procedure. In general, the patients should have a BMI of 30 to 40 kg/m^2, unable to achieve weight loss through lifestyle intervention +/- pharmacotherapy and without previous gastro-oesophageal surgery, large hiatus hernia or gastro-intestinal motility disorder. Each of the procedures has its own merit and will be discussed briefly.

Table 1 Categories of endoscopic bariatric therapies

Device/procedure type	Examples
Gastric space-occupying device	Orbera*
	ReShape Duo*
	Obalon*
	Spatz
Gastric restrictive procedure	Endoscopic sleeve gastroplasty
	Primary obesity surgery endoluminal
	Transoral gastroplasty device
	Articulating circular endoscopic device
Duodenal bypass liner	EndoBarrier
Aspiration device	AspireAssist*

* = FDA approved device

Intragastric Balloons

There are 3 FDA-approved intragastric balloons [Obera (Apollo EndoSurgery, Austin, TX, USA), ReShape Duo (ReShape Medical, San Clemente, CA, USA) and Obalon (Obalon Therapeurtics, Inc, Carlsbad, CA, USA)]. The characteristics of each balloon system are summarised in Table 2. Two recent meta-analyses supported the efficacy of the intragastric balloons with %TBWL ranged from 4.09% to 5.9%[9,10]. In addition, there were significant reductions in fasting blood glucose, HbA1c and diastolic blood pressure with the intragastric balloons.

The adverse events reported were common with nausea experienced in up to 25% of patients, followed by abdominal pain (13.9%), gastric ulcers (12.5%) and flatulence (8.8%). Serious adverse events were seen in 1.3% of the cases including small bowel obstruction, grade D oesophagitis and gastric perforations resulting in 2 deaths. The gastric perforations all occurred in patients with previous gastric surgeries[11].

Table 2 Intragastric balloons characteristics

Name	No. of balloons	Volume per balloon	Placement method	Removal method	Duration
Obera	1	500-750mL (saline)	Endoscopic	Endoscopic	6 months
ReShape Duo	2	450mL (saline)	Endoscopic	Endoscopic	6 months
Obalon	1-3	250mL (air)	Fluoroscopy confirm placement	Endoscopic	6 months

Endoscopic Gastric Restrictive Procedures

Endoscopic sleeve gastroplasty is a procedure that uses a commercially available suturing device called OverStitch (Apollo Endosurgery, Autsin, TX) to reduce the gastric volume by 70%. Full thickness sutures are applied systematically from the incisura to within 1cm of the gastro-oesophageal junction along the greater curvature of the stomach. There are a few disadvantages of endoscopic sleeve gastroplasty over the intragastric balloons namely, longer procedural time, technically more demanding and patients need to undergo general anaesthesia. On the other hand, the results from 2 multicentre studies performed recently showed encouraging results with 14.9% - 15.2% TBWL at 6 months and 18.6% at 24 months[12,13]. Despite the complexity of the procedure, patients were able to be discharged on the day of the procedure. Nausea, vomiting and abdominal pain post-procedure were common but self-limiting. Serious adverse events occurred in 0.9 to 2% of the cases including perigastric fluid collections requiring drainage, upper gastrointestinal (GI) bleeding from gastric ulcers, extragastric haemorrhage requiring blood transfusion, pulmonary embolism and pneumoperitoneum and pneumothorax. Although all of the patients recovered uneventfully, careful follow-up post procedure is recommended.

There are other similar incisionless gastroplasty devices in development e.g. primary obesity surgery endoluminal (POSE) using an Incisionless Operating Platform, transoral gastroplasty and articulating circular endoscopic device uses endoscopic stapling device. All of the devices, including the endoscopic sleeve gastroplasty discussed have not been approved by FDA yet.

Duodenal Bypass Liners

EndoBarrier (Endobarrier GI dynamics, Lexington, MA, USA) is a Teflon-coated tube placed endoscopically to cover the duodenum and first part of jejunum. It is anchored in the duodenal bulb with the nitinol anchoring system. It mimics a Roux-en-Y gastric bypass surgery where undigested food only mixes with the pancreatobiliary juices in the jejunum after ingestion. At the end of a 12-month period, a custom device is used to explant the sleeve. The initial results were promising with 35.3% excess weight loss (%EWL) at 12 months, in addition to a significant decrease of HbA1c of 1.5%[14]. Unfortunately, the randomised, double-blind pivotal prospective trial in the USA was terminated early due to an unexpected high frequency of hepatic abscess (3.5%) in the EndoBarrier arm[15]. Further long-term safety data regarding EndoBarrier were published recently showing a high frequency (68%) of severe adverse events, including 3 liver abscess (3.75%), upper GI bleeding (5%), cholangitis (1.25%) and acute pancreatitis (1.25%)[16]. The company is currently working on the improvement of the EndoBarrier system.

Aspiration Therapy

AspireAssist (Aspire Bariatrics, King of Prussia, PA) is the latest FDA approved device for the treatment of obesity. It involves aspiration of part of the gastric contents after each meal through an A-Tube, which is similar to a percutaneous endoscopic gastrostomy (PEG) tube. The A-Tube is made of silicone and is inserted in a similar fashion as a PEG tube using a pull technique. Unlike the normal PEG tube, the intragastric portion of the A-tube is longer (15cm) with fenestrations to facilitate drainage of gastric contents. After 1-2 weeks of insertion, the external portion of the A-Tube is trimmed to skin level and fitted with a skin port which is used to attach the aspiration device. As a safety measure, there is a counter to prevent the patient from overusing the aspiration device.

In the pivotal, multicentre, randomised controlled trial, the AspireAssist group had a greater mean %TBWL than in the control group (14.2% vs 4.9%; P<0.01) at week 52. The AspireAssist group also had significant improvements in HbA1c (-0.36%), triglycerides (-9.9%) and high-density lipoprotein cholesterol (+8.1%). Mild adverse events were common including peristomal granulation (40.5%), peri-procedural abdominal pain (37.8%), nausea/vomiting (17.1%), peristomal irritation (17.1%). Serious adverse events were uncommon with 1 case of peritonitis (0.9%), 1 case of severe abdominal pain (0.9%) and 1 case of gastric ulcer (0.9%)[17].

Excellent long term safety data were reported from a multicentre, post-market European registry study. Almost all are related to the known complications of longstanding PEG placement such as gastric leakage (0.04 events per patient-year), stomal granulation tissue (0.033 events per patient-year) and buried bumper (0.027 events per patient-year)[18].

Summary

The development of the endoscopic bariatric devices partially fulfils the unmet needs of treatments in patients with mild to moderate obesity. Each of the devices mentioned has its own advantages and risks. With further understanding of gastric functions and hormonal changes with these devices, safer and more effective devices can be made leading to more significant weight loss and improvement in the cardiometabolic parameters in the future.

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Society News

The Hong Kong Obesity Society (HKOS) was founded in April 2016 to raise awareness of obesity in Hong Kong. The society serves as a local platform to connect doctors and allied health professionals involved in the management of obesity and its related disorders, and as a bridge between the local and international professional communities in the field of obesity medicine. The founding council members are from different sub-specialities, each contributing uniquely to the society. The diversity of the council reflects the pervasiveness of obesity as a disease, and reminds us constantly that a concerted effort is needed to combat this epidemic. The HKOS welcome healthcare professionals who are involved in the management of obesity to join as its members. For more information, please refer to our website: https://www.hkobesity.com.

Council Members 2016-2018 and their sub-specialties (in alphabetical order by last name)

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Dr. Chi Wai CHEUNG (Anaesthesiology)
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Exercise in Obesity: Friend or Foe?

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The prevalence of overweight and obesity is on a rising trend worldwide. According to data from the World Health Organization, over one-third of the adults were overweight in 2016, and 13% were obese.[1] Each year, 28 million people die of overweight- or obesity-related complications.[1] Overweight and obesity are associated with the development of cardiovascular risk factors, coronary artery disease, heart failure and subsequent increase in the all-cause mortality.[2] Physical activity has been shown to effectively induce weight loss, especially when coupled with energy restriction.[3-6] Studies have shown that a modest amount of physical activity such as walking around the house for two hours per day is associated with an 9% reduction in obesity.[6] Furthermore, even with minimal weight loss, regular exercise has been shown to reduce cardiovascular risk factors.[6] More importantly, this is translated into a reduction in major cardiovascular events, as well as the all-cause mortality.[7] On this basis, the American College of Sports Medicine recommends overweight and obese individuals to participate in at least 150 minutes per week of moderate-intensity physical activity to elicit a modest reduction in the body weight.[6]

There is a dose effect of physical activity on weight loss.[6] Nevertheless, acute and intensive physical exertion is also a well-recognised trigger of fatal and non-fatal cardiovascular events.[8] In the Physicians' Health Study, the risk of sudden cardiac death was 16.9 times higher during vigorous exercise than during light exercise or at rest.[8] Besides, evidence has suggested that a U-shaped relationship exists between exercise and cardiac morbidity and mortality.[9] However, the safe maximal dose of exercise for weight reduction among overweight or obese individuals remains undetermined.

Studies showed that the majority of sports-related cardiovascular events occurred among individuals ≥35 of age and during recreational sport activities.[10-12] Among them, coronary artery disease was the most common identifiable aetiology.[10-12] Current guidelines recommend screening for coronary artery disease in middle-aged or senior athletes prior to participation in moderate to intensive exercise. Nevertheless, overweight or obese individuals could have developed multiple comorbid conditions in their young adulthood.[2] Whether this group of patients should receive systematic screening for coronary artery disease prior to participation in an exercise programme remains unknown.

The appropriate instrument for screening is also debatable. Current guidelines recommend a two-staged protocol to screen for clinically relevant coronary artery disease.[13-15] In brief, candidates are assessed for their risk profiles based on a thorough medical history, physical examination and cardiovascular risk score calculation.[13-15] Those who are at high cardiovascular risk will be subjected to maximal-stress exercise stress testing.[13-15] The conventional 2-staged screening protocol has not been substantiated. In addition, most established clinical scoring systems perform poorly in our population[16, 17], and hamper our ability to identify at-risk individuals. One study has also shown that an exercise stress test is of limited sensitivity in predicting cardiovascular events during strenuous exercise[18]. For example, there is a sudden surge in cardiac output from 4 - 5 L/min to 20 – 25 L/min during long-distance running. This extreme environment results in myocardial ischaemia that is not reproduced by an exercise stress test. On the other hand, musculoskeletal constraints such as arthritis of the knees or hips frequently exist among overweight or obese individuals, limiting their performance on traditional treadmill or bicycle exercise tests. Consequently the results may not be able to reflect the actual cardiovascular stress during other types of exercise, such as swimming, in this group of patients.

The CT coronary calcium score has emerged as a powerful tool to stratify cardiovascular risks in symptomatic and asymptomatic populations.[19-23] The presence of coronary calcification indicates the site of a plaque, and its extension reflects the severity of coronary stenosis. A calcium score of zero Agatston units (AU) has been shown to confidently exclude obstructive coronary artery disease in both asymptomatic and low-/intermediate-risk symptomatic populations,[19, 21] whereas a higher calcium score has been found to increase specificity for discriminating obstructive coronary artery disease.[24, 25] Studies have consistently shown that CT coronary calcium score outperforms clinical scoring systems in predicting cardiovascular events in the general population.[19, 22] Importantly, prior studies have shown that treatment of patients who have a coronary calcium score >100 AU with a statin significantly reduces cardiac morbidity, with a 5-year number needed to treat to prevent one cardiovascular event of 24.[26-28] For patients whose low-density lipoprotein (LDL) cholesterol is suboptimally controlled with maximally tolerated statin, addition of a proprotein convertase subtilisin-kexin type 9 (PCSK9) inhibitor has been shown to provide further LDL reduction and cardiovascular event reduction.[29] A similar analysis on the 5-year number needed to treat the number for aspirin is 92.[30] Nevertheless, the accuracy of the CT coronary calcium score among overweight or obese

individuals is also questionable. One study has shown that CT coronary calcium scores are systematically underestimated in those with large chest sizes.[31] While the clinical relevance of this underestimation remains unknown, this makes non-invasive screening of asymptomatic obese subjects prior to participation an exercise programme with CT coronary calcium scores controversial.

To conclude, moderate exercise is recommended for overweight and obese individuals for both weight reduction and improvement of health risks. Nevertheless, whether more intense exercise outweighs the risk of exercise-related cardiovascular events remains uncertain. Although pre-participation screening for coronary artery disease appears reasonable for this group of patients, one should understand the limitation of current screening modalities. Finally, patients should be warned to report any cardiovascular symptoms during exercise and prompt investigations prior to continuation of the exercise programme is advisable.

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Repatha® (Evolocumab) Abbreviated Prescribing Information
Repatha® (Evolocumab) Solution for Injection in Pre-filled Syringe/ Autoinjector 140mg
INDICATIONS: Repatha® Solution for Injection in Pre-filled Syringe/Autoinjector 140 mg is indicated as an adjunct to diet and maximally tolerated statin therapy for the treatment of adults with heterozygous familial hypercholesterolemia (HeFH) or clinical atherosclerotic cardiovascular disease (CVD), who require additional lowering of low density lipoprotein cholesterol (LDL-C). It is also indicated as an adjunct to diet and other LDL-lowering therapies (e.g., statins, ezetimibe, LDL apheresis) for the treatment of patients with homozygous familial hypercholesterolemia (HoFH) who require additional lowering of LDL-C. **DOSAGE AND ADMINISTRATION**: The recommended subcutaneous dosage of Repatha in patients with HeFH or patients with primary hyperlipidemia with established clinical atherosclerotic CVD is either 140 mg every 2 weeks OR 420 mg once monthly. The recommended subcutaneous dosage of Repatha in patients with HoFH is 420 mg once monthly. To administer 420 mg, give 3 Repatha injections consecutively within 30 minutes. **CONTRAINDICATIONS**: Repatha is contraindicated in patients with a history of a serious hypersensitivity reaction to Repatha. **SPECIAL WARNINGS AND PRECAUTIONS FOR USE**: Allergic Reactions: Rash and urticaria have occurred. If signs or symptoms of serious allergic reactions occur, discontinue treatment with Repatha, treat according to the standard of care, and monitor until signs and symptoms resolve. **ADVERSE REACTIONS**: Common adverse reactions in clinical trials (>5% of patients treated with Repatha and occurring more frequently than placebo): nasopharyngitis, upper respiratory tract infection, influenza, back pain, and injection site reactions. Immunogenicity: As with all therapeutic proteins, there is potential for immunogenicity. There was no evidence that the presence of anti-drug binding antibodies impacted the pharmacokinetic profile, clinical response, or safety of Repatha, but the long-term consequences of continuing Repatha treatment in the presence of anti-drug binding antibodies are unknown. **INTERACTIONS**: An approximately 20% decrease in the Cmax and AUC of evolocumab was observed in patients co-administered with a high-intensity statin regimen. This difference is not clinically meaningful and does not impact dosing recommendations. **PREGNANCY AND LACTATION**: Pregnancy: There are no data available on use of Repatha in pregnant women to inform a drug-associated risk. Breast-feeding: There is no information regarding the presence of evolocumab in human milk, the effects on the breastfed infant, or the effects on milk production. **PEDIATRIC, GERIATRIC, RENAL IMPAIRMENT AND HEPATIC IMPAIRMENT**: Pediatric: The safety and effectiveness of Repatha have not been established in pediatric patients with HoFH who are younger than 13 years old, and in pediatric patients with primary hyperlipidemia or HeFH. Geriatric: In controlled studies, 1420 patients treated with Repatha were ≥ 65 years old and 171 were ≥ 75 years old. No overall differences in safety or effectiveness were observed between these patients and younger patients, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out. Renal Impairment: No dose adjustment is needed in patients with mild to moderate renal impairment. No data are available in patients with severe renal impairment. Hepatic Impairment: No dose adjustment is needed in patients with mild to moderate hepatic impairment (Child-Pugh A or B). No data are available in patients with severe hepatic impairment.

Abbreviated Prescribing Information Version: HKPI20150007API
Please read the full prescribing information prior to administration and full prescribing information is available upon request.

HK-00333-REP-2017-Jul

AMGEN®

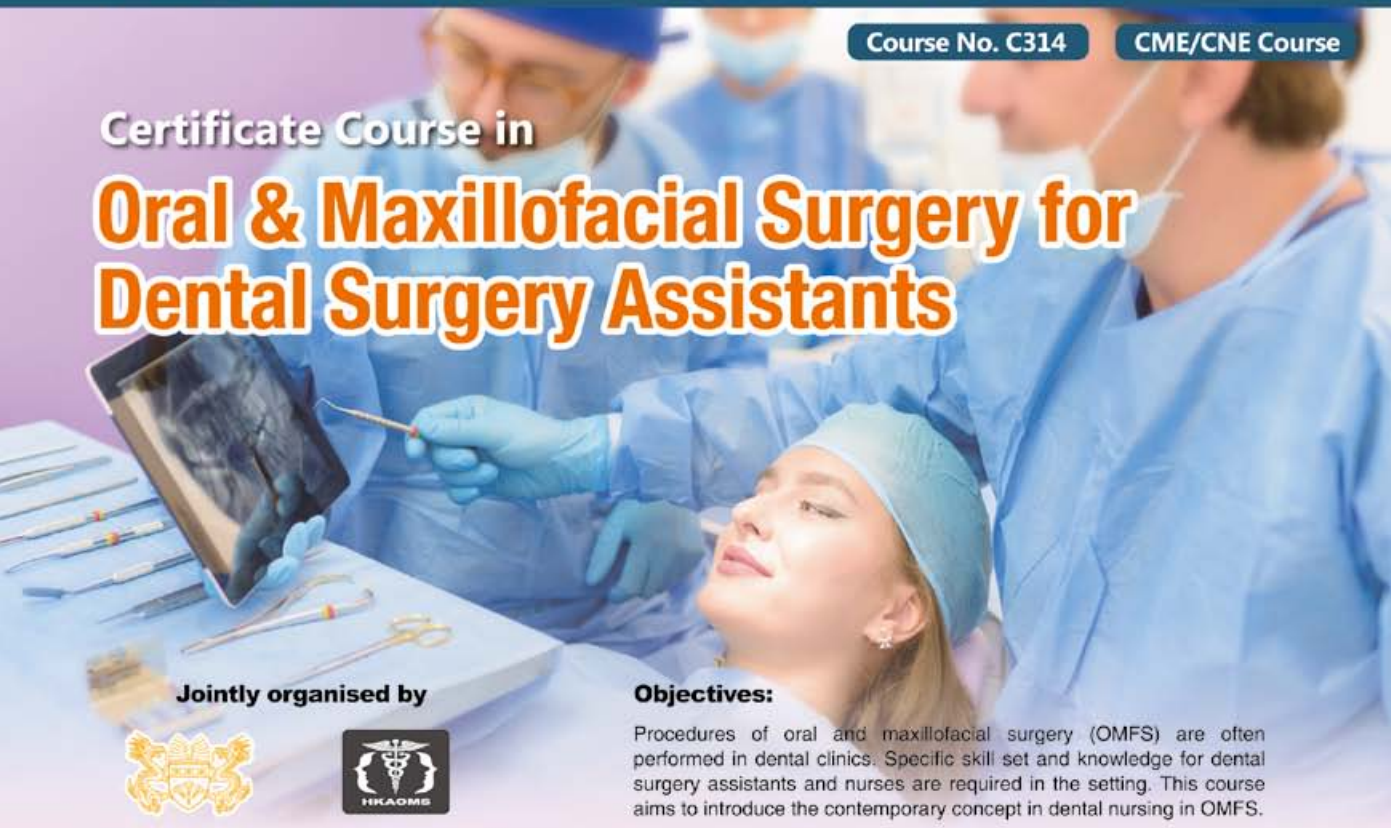
Amgen Asia Holding Limited
Suites 408-12, 4/F, One Island East, 18 Westlands Road, Island East, Hong Kong
Tel: (+852) 2808 3988 Fax: (+852) 2808 2626

Certificate Course for Dental Assistant, Dental Nurses and Healthcare Professionals

Course No. C314 | CME/CNE Course

Certificate Course in

Oral & Maxillofacial Surgery for Dental Surgery Assistants



Jointly organised by

The Federation of Medical Societies of Hong Kong

The Hong Kong Association of Oral and Maxillofacial Surgeons Ltd.

Objectives:

Procedures of oral and maxillofacial surgery (OMFS) are often performed in dental clinics. Specific skill set and knowledge for dental surgery assistants and nurses are required in the setting. This course aims to introduce the contemporary concept in dental nursing in OMFS.

Date	Topics	Speakers
7 May	Introduction to OMFS	Dr. Mike Yiu-yan LEUNG Clinical Associate Professor Oral and Maxillofacial Surgery The University of Hong Kong
14 May	Introduction of Dental Implant Treatment	Dr. Raymond Lop-keung CHOW Specialist in Oral and Maxillofacial Surgery Private Practice
21 May	Minor Oral Surgery in Dental Office	Dr. Julianna Cho-hwei LIEW Specialist in Oral and Maxillofacial Surgery Department of Health
28 May	Peri-operative Nursing Care in Dental Office	Ms. Ruth Lu-tak CHAN Registered Nurse Private Practice
4 Jun	Sedation in Dental Office	Dr. Eric Pak-wai LAU Specialist in Anaesthesiology Private Practice
11 Jun	Medical Emergency in Dental Office	Dr. Miko Ching-man LO Specialist in Oral and Maxillofacial Surgery Department of Health

Date : 7, 14, 21, 28 May & 4, 11 June, 2018 (Every Monday)
Time : 7:00 p.m. – 8:30 p.m.
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Language Media : Cantonese (Supplemented with English)
Course Fee : HK$750 (6 sessions)
Certificate : Awarded to participants with a minimum attendance of 70%
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel.: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

CME/CNE/CPD Accreditation in application
Application from can be downloaded from website : http://www.fmshk.org

Surgical Treatment for Obesity, Metabolic Syndrome and Diabetes

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Epidemiology and Paradigm Shift of Obesity

Historically, obesity has been perceived as a cosmetic issue. Recently, obesity has become a global epidemic. Worldwide obesity has tripled since 1975. In 2016, more than 1.9 billion were overweight (Body Mass Index >25kg/m^2 for Caucasians, >23kg/m^2 for Asians), of these, over 650 million were obese, (BMI >30kg/m^2 for Caucasians, >25kg/m^2 for Asians)[1,2]. Hong Kong is no exception in this epidemic. According to a press release in 2017 from the Centre for Health Protection, Department of Health, Hong Kong Special Administrative Region, 57% of men and 43.6% of women of the population are overweight or obese in Hong Kong. The situation is expected to deteriorate and the morbidity and mortality caused by overweight and obesity will surpass that caused by malnutrition. Obesity and the metabolic syndrome are closely interrelated especially with diabetes, thus a term "diabesity" is recently coined. The prevalence rate of type 2 diabetes is 9.8% in Hong Kong[3]. Diabetes tends to develop in Asians at a younger age and lower BMI[3]. Half of the patients with diabetes are diagnosed in their middle age in Hong Kong. According to the Hong Kong Diabetes Registry, during 1995-2008, cardiovascular diseases accounted for 50% of deaths in diabetic patients. Fifty-five percent of Asian patients with diabetes develop albuminuria and most of them end up in end-stage renal failures that require dialysis or renal transplantation. Obesity is no longer a simple cosmetic issue but a major health problem. It should be regarded as an energy regulation disorder that poses unprecedented challenges to our health care system. Recognition of the magnitude and impact of this epidemic by medical doctors, health policy makers and the general population is the foundation for the success in combating obesity and the associated comorbidities.

Treatment Options: Conventional versus Interventional Therapy

Diet and lifestyle modification were once regarded as the mainstay of treatment for obesity and also a crucial component for patients with diabetes. However, the effectiveness for weight loss is limited when the BMI is beyond certain levels. Randomised controlled trials demonstrated that a 5% loss of the total body weight is possible in primary care practice or under professional supervision programmes[4,5]. A large-scale study (The Look AHEAD Study) with long term follow up (8 years) showed that intensive lifestyle intervention can achieved a 4.7% loss of body weight compared to 2.1% in the usual care group in obese patients with type 2 diabetes (T2DM), p<0.016. An important finding of the study is that intensive lifestyle intervention is unable to reduce the cardiovascular effects resulting from T2DM[7].

Pories et al. published the landmark study entitled "Who would have thought it?" in 1995[8]. This study aroused the awareness of the efficacy of surgery on obesity and the metabolic syndrome. More than 600 patients followed up for 14 years showed a loss of one third of their initial body weight and 82.9% of T2DM patients and 98.7% of patients with impaired glucose tolerance had remained in in remission from their disease for more than 10 years. Other comorbidities of the metabolic syndrome including hypertension, hyperlipidaemia and obstructive sleep apnoea also had significantly improved. Since then, numerous studies including randomised controlled trials and meta-analyses have proven the superiority of surgery in terms of effectiveness and duration in body weight control and diabetic remission[9-12]. A recently published study demonstrated that T2DM patients treated by surgery had significantly less microvascular complications compared to the control group[13]. This implies surgery can effectively reduce nephropathy, stroke and cardiovascular diseases resulting from T2DM.

Formulating the most appropriate therapeutic strategy requires an individual consideration on various factors including the pre-morbid status and different prognostic factors. BMI is one of most commonly used instruments to stratify patients for diet and lifestyle modification, pharmacotherapy or interventional treatment. The cut off values of BMI for different treatments are detailed in the practice guidelines section.

Bariatric Surgery or Metabolic Surgery?

In Greek, "Baros" means weight or burden[14]. Bariatric surgery means the use of gastrointestinal surgery to induce weight loss. With the robust effect of bariatric surgery to ameliorate or even to cure metabolic disorders, the term metabolic surgery was coined. It is defined as the use of gastrointestinal surgery with the intent to treat T2DM and obesity. Conceptually, gastrointestinal surgery with the purposes of treating any component of the metabolic syndrome deserves the nomenclature of metabolic surgery.

Practice Guidelines

The body mass index (BMI) is the most commonly used factor to stratify patients for different therapeutic strategies. However, the cut-off values of therapeutic action points are different in different ethnic groups. This is because beyond certain values of BMI, the risks of development of obesity-related comorbidities are different between ethnic groups. For instance, Asians tend to develop T2DM and cardiovascular diseases at a lower BMI level when compared to Caucasians. Therefore, the definition of therapeutic action points from the World Health Organization (WHO) is different between the East and West populations. The WHO expert consultation identified potential public health action points for Asians as: 23.0, 27.5, 32.5 and 37.5 kg/m^2 which are different from the universal action points for the Western population as: 25, 30, 35 and 40 kg/m^2, Table 1 and Table 2[2]. In general, Asians have BMI reference level that is 2.5kg/m^2 lower when compared to that of Caucasians. Hence, practice guidelines based on BMI vary slightly in different countries.

Table 1. Classification of BMI for the Western Population

Classification	BMI (kg/m^2)	Disease risk*
Underweight	<18.5	---
Normal	18.5-24.9	---
Overweight	25.0-29.9	Increased
Obesity (I)	30.0-34.9	High
Moderate obesity (II)	35-39.9	Very high
Extreme obesity (III)	>/=40	Extremely high

* Disease risk for type 2 diabetes, hypertension, and cardiovascular disease, relative to normal weight and waist circumference

Table 2. Classification of BMI for the Eastern population

Classification	BMI (kg/m^2)	Risk of comorbidities	
----		Waist circumference	
		<90cm (M)	>90cm (M)
		<80cm (F)	>80cm (F)
Normal weight	18.0-22.9	Average	Increased
Overweight	>/=23		
At risk	23-24.9	Increased	Moderate
Obese I	25-29.9	Moderate	Severe
Obese II	>/=30	Severe	Very Severe

The practice guidelines on obesity management continue to be refined. A consensus conference of the National Institutes of Health (NIH) of the United States held in 1978 stated that jejunoileal bypass was a primary surgical procedure for obesity[15,16]. The procedure was gradually abandoned due to substantial side effects. Various surgical procedures evolved with accumulation of scientific evidence in the subsequent 10 to 15 years. In 1991, NIH launched another consensus development conference statement to recommend gastrointestinal surgery for severe obesity such as those with BMI >40 kg/m^2 or with BMI >35 kg/m^2 and with presence of comorbidities[17]. In 2000, The Practice Guide published by NIH categorised different treatment modalities using BMI as a stratification factor as listed in Table 3[18]. Similar practice guidelines on interventional therapy for obesity were recently published in the United Kingdom[19] and Europe[20].

For Asians, the consensus on the indication of interventional treatment for obesity and metabolic disorders is defined by the Asia Pacific Chapter Consensus Statement of the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) in 2011[21]. It states that patients with BMI >35 kg/m^2 regardless of presence of comorbidity or patients with BMI ≥ 30 kg/m^2 and with unsatisfactory control of T2DM or the metabolic syndrome by lifestyle modification and medical treatment should be treated by surgery. Any interventional treatment for patients with BMI less than 30 kg/m^2 should be limited to clinical trials with approval by research ethics committee under individual institutional review boards.

Table 3. The Practice Guide from National Institutes of Health published in 2000

	BMI category (kg/m^2)				
Treatment	25-26.9	27-29.9	30-34.9	35-39.9	>40
Diet, lifestyle modification	+	+	+	+	+
Drug			With comorbidities	+	+
Surgery				With comorbidities	+

National Institutes of Health of United States

The Second Diabetes Surgery Summit was held in London in 2016. The joint Statement published was probably the most recent and important practice recommendation in the field. It was endorsed by 45 international professional societies including the American Diabetes Association and the International Diabetes Federation[22]. Surgery is now regarded as part of the standard treatment for T2DM worldwide. The statement takes the BMI reference levels for both the Western and Eastern populations into account for the severity of obesity as well as the condition of T2DM control. The algorithm of treatment is shown in Fig. 1.

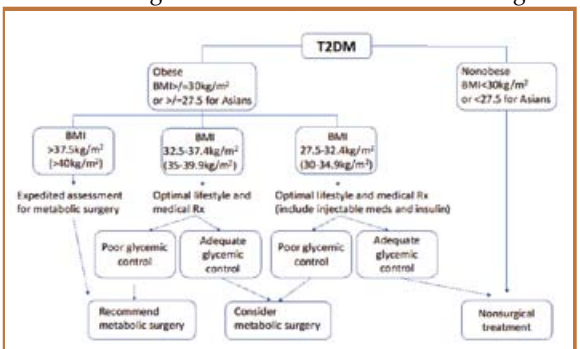

Fig. 1. Algorithm on the indication of metabolic / bariatric surgery

All BMI action thresholds reduced by 2.5 kg/m2 compared to the Western population
T2DM: Type 2 diabetes mellitus
Rx: Treatment
BMI: Body mass index

Current Situation in Hong Kong

Since the first bariatric surgery performed in Hong Kong in 2002, there has been more than one thousand patients who have received surgery for the treatment of obesity or the metabolic syndrome. The enthusiasm in this field is gradually proliferating. Currently, there are 8 public hospitals and 4 private hospitals providing bariatric and metabolic surgery services in Hong Kong. The number

of operations has increased exponentially from less than 10 to more than 200 every year. The efficacy and safety of surgical procedures remain the main concerns, both for the patients and referring medical practitioners. According to the Surgical Outcomes Monitoring & Improvement Programme (SOMIP) Report from the Hospital Authority, there was only one peri-operative mortality since the introduction of bariatric surgery in Hong Kong. The overall morbidity rate gradually has been reduced from more than 14% in 2009 to 4.9% in 2017. However, the morbidity rate of individual centres varies from 0-33% with high volume centres having lower rates. The median hospital stay rranges from 3 to 5 days for most centres.

The efficacy of bariatric surgery is procedure dependent. Currently, standard bariatric or metabolic procedures include duodenal switch, laparoscopic Roux-en-Y gastric bypass (RYGB), laparoscopic sleeve gastrectomy (SG) and laparoscopic adjustable gastric banding. Duodenal switch is the most potent procedure but it is seldom performed due to the technical complexity and its high complication rate. Laparoscopic adjustable gastric banding is the least effective one but again is a procedure that is gradually being abandoned because a significant number of patients require revision surgery. SG is the procedure of choice, particularly for Asians. The considerations in choosing between RYGB versus SG are that although the two procedures have similar efficacy, SG is technically easier and there is no need for lifelong dietary supplements. The risk of the gastric remnant developing cancer is another concern although the incidence is low.

In 2007-2016, a total of 123 patients underwent bariatric surgery in Queen Mary Hospital, the University of Hong Kong. The mean age was 42 year (range: 16-68) and 49 (39.8%) were males. Demographic factors are listed in Table 4. Among the 123 patients, 86% had laparoscopic sleeve gastrectomy. There was no 30-day or hospital mortality. The morbidity was minimal: 1 patient had deep vein thrombosis, 1 had acute renal impairment treated with rehydration and 2 had self-limiting bleeding and treated with blood transfusion. The mean percentage of excess body weight loss at 3-years and 5-years were 55.4 +/-27.2% and 44.5 +/-25.0%, respectively. This is comparable to the results of other countries announced in the Third International Summit for Sleeve Gastrectomy: 57.3-62.7%. Sixty-four (52%) patients had T2DM before surgery. The results are shown in Fig. 2.

Insurance Coverage

Most insurance companies currently do not provide support for bariatric or metabolic surgery as a treatment for obesity, diabetes or the metabolic syndrome in Hong Kong. It has long been clearly declared by the insurance industry that obesity or related disorders are not an area that they will support. The rationale behind this is unclear but often the reason of rejection of reimbursement is "non-essential" medical treatment. However, with accumulation of more scientific evidence, there has been a paradigm shift on obesity, which should not be regarded as a cosmetic problem but an energy regulation disorder. Surgery has been endorsed internationally as one of the standard treatment modalities for diabetes and the metabolic syndrome. More important is that surgery has been proven effective in reducing microvascular complications resulted from T2DM. This provides a scientific foundation as the mechanisms to defer the development of T2DM complications such as diabetic nephropathy, stroke or cardiovascular disease. The financial implication on this is that bariatric and metabolic surgery can reduced the health care financial burden and medical cost for the insurance industry[23]. Some large companies in the United States and United Kingdom do provide coverage for metabolic surgery. It is advised that the insurance industry should revise this policy and provide support to this new modality of treatment.

Conclusion and Future Perspectives

Obesity has become an epidemic globally and Hong Kong is no exception. The prevalence of T2DM is rapidly rising and tends to develop in younger age and lower BMI in comparing to the Western population. Surgery is now a standard treatment modality for obese patients with T2DM as well as with the metabolic syndrome. Internationally endorsed practice guidelines are already available. The efficacy and safety are also well proven. This field is gaining popularity. The morbidity rates vary significantly between high volume and low volume centres. To ensure safety and a high quality of surgery, proper training is essential. Bariatric surgery reduces health care cost and the insurance industry should cover this treatment modality so as to benefit the patients.

Table 4. Demographic factors of patients who underwent bariatric surgery in Queen Mary Hospital

Factors	N=123 (100%)
Mean preoperative BMI (range)	39.32 (29.4-57)
Mean weight in kg (range)	107.79 (74-165)
Mean excess weight in kg (range)	44.07(16.31—114.63)
Patient with T2DM	64 (52.0)
Patient with hypertension (%)	78 (63.4)
Hyperlipidaemia	64 (52)

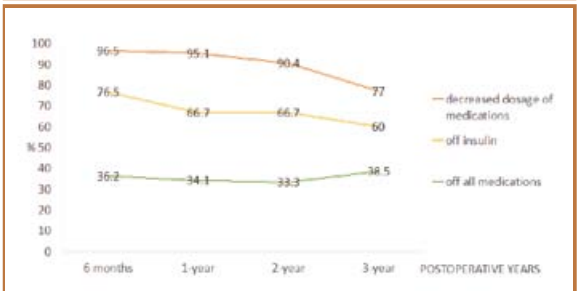

Fig. 2. Post-operative diabetic medication usage for patients treated in Queen Mary Hospital

References

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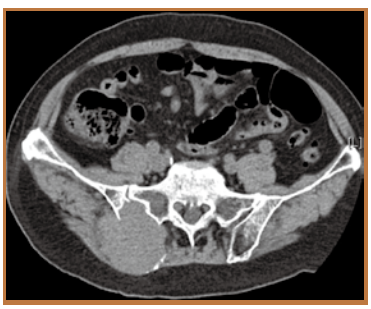
Radiology Quiz

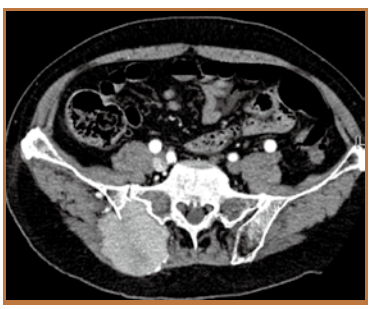
Radiology Quiz

Dr Victor LEE

Department of Radiology, Queen Mary Hospital

Dr Victor LEE





A 69 year old gentleman complained of acute abdominal pain and underwent contrast enhanced CT scans of the abdomen and pelvis. An incidental osseous lesion was detected at the right ilium.

Questions

1. What are the findings on the CT images?
2. What are the differential diagnoses?

(See P.37 for answers)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	★HKMA Council Meeting 3	4	5	6	7
8	9	★HKMA Tai Po Community Network - How to Achieve Asthma Control in Primary Care Setting: a Case Approach ★FMSHK Officers' Meeting 10	★Hong Kong Neurosurgical Society Monthly Academic Meeting ★HKMA Central, Western & Southern Community Network – Prescription of Insulin Therapy in a Primary Clinic 11	★HKMA Hong Kong East Community Network – Applications of Genetic Analysis in Wellness Management and Personalized Medicine ★KMA – HKS&H CME Programme 2017-2018 –"Update in Medical Practice" ★HKMA-KLN East Community Network – Updates on Type 2 Diabetes Management ★HKMA New Territories West Community Network – Holistic Approach in Early Alzheimer's Intervention ★MPS Workshop – Mastering Difficult Interactions with Patients 12	13	★Refresher Course for Health Care Providers 2017/2018 14
15	16	★HKMA Yau Tsim Mong Community Network - Lecture Series on Oncology (Session 1) - New Treatment in Metastatic Non-Small Cell Lung Cancer ★MPS Workshop – Mastering Adverse Outcomes 17	18	★MPS Workshop – Mastering Shared Decision Making ★FMSHK Executive Committee Meeting 19	★HKMA Kowloon City Community Network - Clinical Experience in Breakthrough Heart Failure Management 20	★MPS Workshop – Mastering Adverse Outcomes 21
★Integrative Medicine: Breast Problems and Dermatitis 22	23	★HKM KLN West Community Network DH – Primary Care Office – Assessment and Management of Older Adult's Cognitive Impairment in Primary Care Setting ★Integrative Medicine: Diabetic Nephropathy 24	★HKMA Central, Western & Southern Community Network – Management of Lung Cancer: Update in EGFR Targeted Treatment 25	★HKMA KLN East Community Network – New Update in Hypertension Guideline ★HKMA New Territories West Community Network – Managing Heart Failure with Breakthrough Treatment – The Local Experience ★HKMA Hong Kong East Community Network – Update on Long-term Management of Postmenopausal Osteoporosis ★MPS Workshop – Mastering Adverse Outcomes ★FMSHK Foundation Meeting 26	★HKMA Yau Tsim Mong Community Network – Lecture Series on Oncology (Session 2) – Management of Lung Cancer: Update in EGFR Targeted Treatment 27	28
29	30					

Date / Time	Function	Enquiry / Remarks
3 TUE 9:00 PM	**HKMA Council Meeting** Organiser:The Hong Kong Medical Association; Chairman: Dr. CHOI Kin; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road	Ms. Christine WONG Tel: 2527 8285
10 TUE 1:00 PM	**HKMA Tai Po Community Network - How to Achieve Asthma Control in Primary Care Setting: a Case Approach** Organiser:HKMA Tai Po Community Network; Chairman: Dr. CHOW Chun Kwan, John; Speaker: Dr. LEUNG Wah Shing; Venue: Chiuchow Garden Restaurant (潮江春), Shop 001-003, 1/F, Uptown Plaza, No. 9 Nam Wan Road, Tai Po	Ms. Candice TONG Tel: 2527 8285 1 CME Point
8:00 PM	**FMSHK Officers' Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Gallop, 2/F, Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
11 WED 7:30 AM	**Hong Kong Neurosurgical Society Monthly Academic Meeting** Organiser: Hong Kong Neurosurgical Society; Chairman: Dr PO Yin Chung; Speaker: Dr CHAN Nok Lun, Norren; Venue: Seminar Room, G/F, Block A, Queen Elizabeth Hospita	1.5 points College of Surgeons of Hong Kong Dr. LEE Wing Yan, Michael Tel: 2595 6456 Fax. No.: 2965 4061
1:00 PM	**HKMA Central, Western & Southern Community Network – Prescription of Insulin Therapy in a Primary Clinic** Organiser:HKMA Central, Western & Southern Community Network; Chairman: Dr. YIK Ping Yin; Speaker: Dr. CHAN Nor, Norman; Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central	Mr. Ian YAU Tel: 2527 8285 1 CME Point
12 THU 1:00 PM	**HKMA Hong Kong East Community Network – Applications of Genetic Analysis in Wellness Management and Personalized Medicine** Organiser:HKMA Hong Kong East Community Network; Chairman: Dr. AU Chi Lap, Simon; Speaker: Dr. Jeffrey LAI; Dr. CHAN Hoi Chung, Samuel; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA – HKS&H CME Programme 2017-2018 –"Update in Medical Practice"** Organiser:The Hong Kong Medical Association & Hong Kong Sanatorium & Hospital; Speaker: Dr. TONG Ka Fai, Henry; Venue: Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central	HKMA CME Dept. Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA-KLN East Community Network – Updates on Type 2 Diabetes Management** Organiser:HKMA KLN East Community Network; Chairman: Dr. AU Ka Kui, Gary; Speaker: Dr. YEUNG Tok Fai, Vincent; Venue: Lei Garden Restaurant, Shop No. L5-8, apm, Kwun Tong, No. 418 Kwun Tong Road, Kowloon	Mr. Ian YAU Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA New Territories West Community Network – Holistic Approach in Early Alzheimer's Intervention** Organiser:HKMA New Territories West Community Network; Chairman: Dr. CHEUNG Kwok Wai, Alvin; Speaker: Dr. YIP Wai Man; Venue: Pak Loh Chiu Chow Restaurant, Shop A316, 3/F, Yoho Mall II, 8 Long Yat Road, Yuen Long	Mr. Ian YAU Tel: 2527 8285 1 CME Point
6:30 PM	**MPS Workshop – Mastering Difficult Interactions with Patients** Organiser:The Hong Kong Medical Association & Medical Protection Society; Chairman: Dr. CHOI Kin; Speaker: Dr. FUNG Shu Yan, Anthony; Venue: Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central	HKMA CME Dept. Tel: 2527 8285 2.5 CME Point
14 SAT 2:15 PM	**Refresher Course for Health Care Providers 2017/2018** Organiser:Hong Kong Medical Association; HK College of Family Physicians; HA-Our Lady of Maryknoll Hospital; Speaker: Dr. KK WONG; Venue: Training Room II, 1/F, OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin	Ms. Clara TSANG Tel: 2354 2440 2 CME Point
17 TUE 1:00 PM	**HKMA Yau Tsim Mong Community Network - Lecture Series on Oncology (Session 1) - New Treatment in Metastatic Non-Small Cell Lung Cancer** Organiser:HKMA Yau Tsim Mong Community Network; Chairman: Dr. HO Kit Man, Carmen; Speaker: Dr. WONG Siu Yu, Joyce; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
6:30 PM	**MPS Workshop – Mastering Adverse Outcomes** Organiser:The Hong Kong Medical Association & Medical Protection Society; Chairman: Dr. CHOI Kin; Speaker: Dr. Hung Chi Wan, Emily; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	HKMA CME Dept. Tel: 2527 8285 2.5 CME Point
19 THU 6:30 PM	**MPS Workshop – Mastering Shared Decision Making** Organiser:The Hong Kong Medical Association & Medical Protection Society; Chairman: Dr. CHOI Kin; Speaker: Dr. FUNG Shu Yan, Anthony; Venue: Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central	HKMA CME Dept. Tel: 2527 8285 2.5 CME Point
8:00 PM	**FMSHK Executive Committee Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
20 FRI 1:00 PM	**HKMA Kowloon City Community Network - Clinical Experience in Breakthrough Heart Failure Management** Organiser:HKMA Kowloon City Community Network; Chairman: Dr. CHAN Man Chung, JP; Speaker: Dr. LI Siu Lung, Steven; Venue: President's Room, Spotlight Recreation Club, 4/F, Screen World, Whampoa Garden, Hung Hom	Ms. Candice TONG Tel: 2527 8285 1 CME Point
21 SAT 2:30 PM	**MPS Workshop – Mastering Adverse Outcomes** Organiser:The Hong Kong Medical Association & Medical Protection Society; Chairman: Dr. CHOI Kin; Speaker: Dr. CHENG Ngai Shing, Justin; Venue: Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-23 Connaught Road Central	HKMA CME Dept. Tel: 2527 8285 2 CME Point

Date / Time	Function	Enquiry / Remarks
22 SUN 2:15PM-5:00PM	**Integrative Medicine: Breast Problems and Dermatitis** Organiser: Association for Integrative Aesthetic Medicine, HK; Chairman: Dr Lee Tin-chak, Daniel and Dr. YU Chau-leung, Edwin; Speakers: (1) Dr LOO King-fan, Steven, (2) Dr. CHAU Wing-cheong, Louis, (3) CMP Fu Wenshu, (4) Dr CHAN Kam-tin, Michael; Venue: Garden Rooms, 2/F, The Royal Garden, 69 Mody Road, Tsimshatsui, Kowloon	Miss Y.C. YEUNG Tel: 3575 8600 Fax: 2301 2414
24 TUE 1:00 PM	**HKM KLN West Community Network** **DH – Primary Care Office – Assessment and Management of Older Adult's Cognitive Impairment in Primary Care Setting** Organiser:HKMA KLN West Community Network; DH-Primary Care Office; Chairman: Dr. TONG Kai Sing; Speaker: Prof. Samuel WONG Yeung Shan; Venue: Fulum Palace, Shop C, G/F, 85 Broadway Street, Mei Foo Sun Chune, Mei Foo	Mr. Ian YAU Tel: 2527 8285 1 CME Point
2:15 PM-5:00 PM	**Integrative Medicine: Diabetic Nephropathy** Organiser: Hong Kong Association for Integrative of Chinese-Western Medicine; Chairman: Prof. Bian Zhao Xiang and Dr. YU Chau Leung, Edwin; Speakers: (1) Prof. Sydney Tan Chi Wai (2) Prof. Xu Daji; Venue: Lecture Hall of FMSHK, 4/F, Duke of Windsor Social Service Bldg., 15 Hennessy Road, Wanchai, HK	Miss Y.C. YEUNG Tel: 33119 1858 Fax: 2301 2414
25 WED 1:00 PM	**HKMA Central, Western & Southern Community Network – Management of Lung Cancer: Update in EGFR Targeted Treatment** Organiser:HKMA Central, Western & Southern Community Network; Chairman: Dr. YIK Ping Yin; Speaker: Dr. AU Siu Kie; Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central	Mr. Ian YAU Tel: 2527 8285 1 CME Point
26 THU 1:00 PM	**HKMA KLN East Community Network – New Update in Hypertension Guideline** Organiser:HKMA KLN East Community Network; Chairman: Dr. AU Ka Kui, Gary; Speaker: Dr. TUNGGAL Prabowo, Thomas; Venue: V Cuisine, 6/F., Holiday Inn Express Hong Kong Kowloon East, 3 Tong Tak Street, Tseung Kwan O	Mr. Ian YAU Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA New Territories West Community Network – Managing Heart Failure with Breakthrough Treatment – The Local Experience** Organiser:HKMA New Territories West Community Network; Chairman: Dr. CHEUNG Kwok Wai, Alvin; Speaker: Dr. YAN Chun Ting, Fergus; Venue: Atrium Function Rooms, Lobby Floor, Hong Kong Gold Coast Hotel, 1 Castle Peak Road, Gold Coast	Mr. Ian YAU Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA Hong Kong East Community Network – Update on Long-term Management of Postmenopausal Osteoporosis** Organiser:HKMA Hong Kong East Community Network; Chairman: Dr. MA Pui Shan; Speaker: Dr. YEUNG Tok Fai, Vincent; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road	Ms. Candice TONG Tel: 2527 8285 1 CME Point
6:30 PM	**MPS Workshop – Mastering Adverse Outcomes** Organiser:The Hong Kong Medical Association & Medical Protection Society; Chairman: Dr. CHOI Kin; Speaker: Dr. FUNG Shu Yan, Anthony; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	HKMA CME Dept. Tel: 2527 8285 2.5 CME Point
8:00 PM	**FMSHK Foundation Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Nancy CHAN Tel: 2527 8898
27 FRI 1:00 PM	**HKMA Yau Tsim Mong Community Network – Lecture Series on Oncology (Session 2) – Management of Lung Cancer: Update in EGFR Targeted Treatment** Organiser:HKMA Yau Tsim Mong Community Network; Chairman: Dr. CHAN Wai Keung, Ricky; Speaker: Dr. LEE Siu Hong; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point

2018 CMA Annual Scientific Meeting & The 2nd Pak-China Medical Congress & Belt and Road Forum of Medical Associations

The Federation was invited by the Chinese Medical Association to participate in the "2018 CMA Annual Scientific Meeting & The 2nd Pak-China Medical Congress & Belt and Road Forum of Medical Associations" on 25-27 January 2018. Dr Mario CHAK, President of the Federation of Medical Societies of Hong Kong (FMSHK), and Prof. Bernard CHEUNG, the 1st Vice-President of the Federation, represented the Federation and attended this meeting at the China National Convention Center in Beijing. There were also representatives from the World Medical Association, and the Medical Associations of many countries including America, Pakistan, Britain and Japan. Several medical associations from Hong Kong and Macau were also represented. This was an important event for China and for the Chinese Medical Association in particular. A network was forged and hopefully, this would grow in future together with the Belt and Road initiative. In the afternoon of the first day, there was a visit to the Peking Union Medical College Hospital. On the second day, there was a special breakout meeting with about twenty delegates from Hong Kong and Macau. All in all, this was a successful meeting and augurs well for similar meetings and exchanges in the future.

Public talk on Diabetes Mellitus

On 20 January 2018, a public talk on Diabetes Mellitus was held in the Federation's Lecture Hall. Diabetes mellitus was the tenth leading cause of deaths in Hong Kong in 2015. It raised the public's higher attention to prevent diabetes. The Federation was privileged to invite Dr. Michele Mae-ann YUEN, Founding Co-President of the Hong Kong Obesity Society, to introduce the causes of diabetes, the different symptoms of Type 1 and Type 2 diabetes and the effective treatments available to diabetes patients; and Ms. Sally Shi-po POON, Chairperson of the Hong Kong Practising Dietitians Union, to suggest eating tips and teach the audience to prepare simple healthy meals to prevent diabetes. Participants greatly enjoyed the talks and the cooking demonstration. We would like to thank DCH Auriga (HK) for the generous sponsorship and support for this event.

Certificate Course for Health Care Professionals • **Course No. C313** • **CME/CNE Course**

Certificate Course on

Best Practices in Quality of Life Evaluation & Assessments

Jointly organised by

The Federation of Medical Societies of Hong Kong

World Association for Chinese Quality of Life

Date	Topics	Speakers
3 May	Principles and Concepts of Quality of Life (QoL)	Dr. Wendy WONG Assistant Professor, Hong Kong Institute of Integrative Medicine, School of Chinese Medicine The Chinese University of Hong Kong
10 May	Basic Statistics for Evaluation of QoL Measures	Dr. Daniel FONG Associate Professor, School of Nursing The University of Hong Kong
17 May	Linguistic and Psychometric Evaluation of QoL Measures	Dr. Daniel FONG Associate Professor, School of Nursing The University of Hong Kong
24 May	Interpreting QoL in Practice	Dr. Daniel FONG Associate Professor, School of Nursing The University of Hong Kong
31 May	Using QoL in Health Evaluation	Dr. Carlos WONG Assistant Professor (Research), Department of Family Medicine and Primary Care The University of Hong Kong
7 Jun	Assessing QoL in Cancer Patients	Dr. Winnie SO Associate Professor, The Nethersole School of Nursing The Chinese University of Hong Kong

Dates : 3, 10, 17, 24, 31 May 2018 & 7 June, 2018 (Every Thursday)
Time : 7:00 pm – 8:30 pm
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Course Fee : HK$750 (6 sessions)
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

Application form can be downloaded from website: http://www.fmshk.org

CNE/CME/CPD accreditations are in application

British Medical Association (Hong Kong)

Advance in Therapeutics Course 2018

Date : **30th April – 28th May, 2018 Every Monday Evening**
Time : **Light refreshments from 6:45 pm / Lecture: 7:15pm - 9:15pm**
Venue : **Asia Medical Specialists, 8/F China Building, 29th Queen's Road Central, Hong Kong**

• 30th April - Asthma & Allergy

Update on Paediatric Asthma
Dr. Ting-Yat MIU
Specialist in Paediatrics
Honorary Consultant in Queen Elizabeth Hospital & Kwong Wah Hospital

Allergic Rhinitis: Local or Not Local?
Dr. Alson Wai-ming CHAN
Specialist in Paediatric Immunology & Infectious Diseases, Allergy Centre, Hong Kong Sanatorium & Hospital
Honorary Clinical Assistant Professor, University of Hong Kong
Honorary Clinical Assistant Professor, Chinese University of Hong Kong

Chairman - Dr. Adrian Young-yuen WU, Vice-President of BMA (HK)

• 7th May - Orthopaedics & Sports Injury

Doctor, Is It Frozen Shoulder?
Dr. Kelvin Kwok-wai TAM
Specialist in Orthopaedic Surgery
Honorary Adjunct Assistant Clinical professor, Chinese University of Hong Kong

Chronic Low Back Pain
Dr. Eric Cheung-hing LAM
Specialist in Orthopaedic Surgery
Honorary Assistant Clinical Professor, University of Hong Kong

Chairman - Dr Jason BROCKWELL, Honorary Treasurer, BMA (HK)

• 14th May - Osteoporosis & Bone Health

Preventive Strategies Against Hip Fractures in Older People
Prof. Timothy Chi-yui KWOK
Professor, Department of Medicine & Therapeutics, Chinese University of Hong Kong
Director of Jockey Club Centre for Positive Ageing

When to Stop Drug Treatment or Take a Holiday
Prof. Steven R. CUMMINGS, MD
Founding Director, San Francisco Coordinating Center Professor of Medicine and Epidemiology & Biostatistics (Emeritus)
UC San Francisco Senior Scientist, California Pacific Medical Center Research Institute

Chairman - Prof. Brian TOMLINSON, Council Member of BMA (HK)

• 21st May - Cancer & Pain

Recent Advances on Management of Head & Neck Cancers
Dr. Eric Chi-ho TANG
Department of Otorhinolaryngology and Head & Neck Surgery, United Christian Hospital
Clinical Assistant Professor (Honorary), Chinese University of Hong Kong

Update on Treatment for Difficult Pain
Dr. Henry Ka-fai TONG
Honorary Consultant in Anaesthesiology
Specialist in Pain Medicine
Private practice in Hong Kong Sanatorium & Hospital

Chairman – Dr. Raymond Lo, President, BMA (HK)

• 28th May - Diabetes & Hypertension

The Right OAD Treatments to Achieve Goal
Dr. Norman Nor CHAN
Specialist in Endocrinology, Diabetes & Metabolism

New Hypertension Guidelines: A Focus on Systolic Blood Pressure
Prof. Brian TOMLINSON
Specialist in Internal Medicine & Clinical Pharmacology
Adjunct Professor, Department of Medicine & Therapeutics
Chinese University of Hong Kong
Council Member of BMA (HK)

Chairman – Prof. Clive COCKRAM,
Specialist in Endocrinology, Diabetes & Metabolism

Seats limited. Register early.

Free for BMA members Join BMA as Ordinary or Associate member at $350 and course fees waived.
For non-members $50 registration fee per evening or $100 for 5 evenings.

Enquiries and Registration:
The Federation of Medical Societies of Hong Kong,
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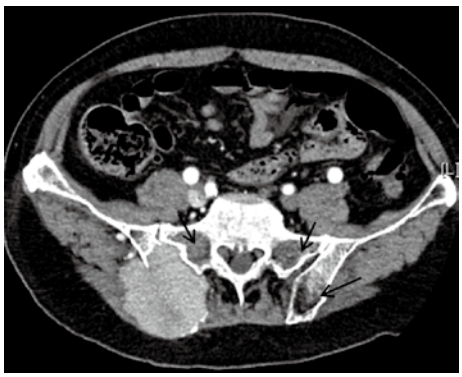
The Federation of Medical Societies of Hong Kong

Answers to Radiology Quiz

Answer:

1. Contrast enhanced CT abdomen and pelvis showed an enhancing expansile lytic lesion with soft tissue component and cortical breach at the subarticular region of the right ilium. Further lytic lesions with marrow infiltrates were present at the sacrum and the left ilium (arrows).

2. The list of differential diagnoses of the right pelvic mass includes malignant primary bone tumours, multiple myeloma and metastases of renal or thyroid origins.



Diagnosis: Multiple myeloma with extramedullary involvement

Discussion:
Multiple myeloma is the most common primary bone malignancy, accounting for 10% of all haematological malignancies. It is characterised by a clonal proliferation of malignant plasma cells in the bone marrow. Osseous manifestations including lytic lesions, osteoporosis and pathological fractures are the hallmarks of multiple myeloma. Extramedullary disease, as seen in this patient, occurs in 7-18% of newly diagnosed myelomas[1]. Two patterns have been described in the literature: those contiguous with bone and those non-contiguous with bone; the contiguous extramedullary myeloma is usually larger than the non-contiguous type[2].

According to the modified diagnostic criteria for multiple myeloma by the International Myeloma Working Group published in 2014, more than one focal lesion of at least 5mm in size detected in MRI is considered a myeloma-defining event, which is associated with an approximately 80% risk of progression of symptomatic end organ damage (3). Other myeloma defining events include presence of one or more CRAB features (hypercalcaemia, renal failure, anaemia, and osteolytic bone lesions), clonal bone marrow plasma cells ≥ 60%, or serum free light chain (FLC) ratio ≥ 100. Solitary plasmacytoma, on the other hand, is defined by the presence of a single biopsy-proven lesion (bone or soft tissue) with evidence of clonal plasma cells, a normal bone marrow examination and absence of end-organ damage[3,4].

References

1. Hanrahan CJ, Christensen CR, Crim JR. Current concepts in the evaluation of multiple myeloma with MR imaging and FDG PET/CT. RadioGraphics 2010; 30:127–142.
2. Tirumani SH, Shinagare AB, Jagannathan JP et al. MRI features of extramedullary myeloma.AJR Am J Roentgenol. 2014 Apr; 202(4):803-10.
3. Rajkumar SV. Updated Diagnostic Criteria and Staging System for Multiple Myeloma. Am Soc Clin Oncol Educ Book. 2016; 35:e418-23.
4. Rajkumar SV, Dimopoulos MA, Palumbo A, et al. International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma. Lancet Oncol. 2014; 15:e538-e548.

Dr Victor LEE
Department of Radiology, Queen Mary Hospital

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Once-weekly dosing[7-9] **Ready-to-use pen[8,9]** **Proven glycemic control[1-6]**

T2DM = type 2 diabetes mellitus.

References: 1. Wysham C et al. Diabetes Care 2014;37:2159-67. 2. Umpierrez G et al. Diabetes Care 2014;37:2168-76. 3. Nauck M et al. Diabetes Care 2014;37:2149-58. 4. Giorgino F et al. Diabetes Care 2015;38:2241-9. 5. Dungan KM et al. Lancet 2014;384:1349-57. 6. Blonde L et al. Lancet 2015;385:2057-66. 7. Trulicity® Instructions for Use. 8. Matfin G et al. J Diabetes Sci Technol 2015;9:1071-9. 9. Trulicity® 0.75mg and 1.5mg Prescribing Information.

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