JAN–APR 2020

ISSUE 36 MCI (P) 040/04/2020

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A publication of National Heart Centre Singapore (NHCS)

NEW CLINIC FOR PATIENTS WITH INHERITED CARDIAC CONDITIONS

BENEFITS OF EXERCISE ON HEART HEALTH

A UNIQUE LEAN DIABETIC PHENOTYPE IN ASIAN PATIENTS WITH HEART FAILURE

COVID-19:

IMPACT ON PATIENTS WITH PRE-EXISTING HEART OR LUNG CONDITIONS

National Heart Centre Singapore
SingHealth

PATIENTS. AT THE HEART OF ALL WE DO.®

COVID-19:

IMPACT ON PATIENTS WITH PRE-EXISTING HEART OR LUNG CONDITIONS

Patients with pre-existing heart conditions were found to have a 13 per cent risk of death, while for those with pre-existing lung conditions, just slightly lower at eight per cent.

These were figures found in the **Report of the World Health Organisation (WHO)-China Joint Mission on Coronavirus Disease 2019 (COVID-19)** released in February this year. The report also accounted for patients without any pre-existing health conditions – a mere one per cent risk of dying from coronavirus disease – and the stark difference in mortality rates is a cause for alarm.

Demographics and risk factor

"Generally, the mortality risk of a patient with COVID-19 increases with age," said Asst Prof Ong Boon Hean, Consultant, Department of Cardiothoracic Surgery, National Heart Centre Singapore (NHCS). Individuals in their fifties have a one to two per cent risk of death; those in their sixties have a four to five percent risk; patients in the seventies have an eight to 10 per cent risk; and the risk level shoots up to between 15 and 20 per cent if they are in their eighties.

The reason for the higher mortality risk primarily stems from the fact that as we age, our physiological reserves become lower, shared Asst Prof Ong who is also the Director of the Lung Transplant Programme at NHCS. The ability of an older person to overcome a serious infection is reduced as compared to someone who is younger. Older patients also tend to have more pre-existing medical conditions, which could further increase their risk of succumbing to the infection.

For instance, compare a patient in his thirties with a heart or lung condition with another healthy individual in his sixties. The younger patient, because of his medical condition, would face an increased risk compared to a healthy peer while the older patient, by virtue of his age, would have lower physiological reserves to fight the virus – so both are at an increased risk of death.

Lung damage a high probability

In patients with COVID-19, about 15 to 20 per cent develop significant pneumonia, an infection of the lungs which causes air sacs in the lungs to fill with fluid and inflammatory cells as a response to the infection. When this happens, patients have difficulty breathing and would typically require hospitalisation and oxygen support.

According to the WHO-China report and a study which looked into more than 72,000 cases from the Chinese Center for Disease Control and Prevention[1], Asst Prof Ong observed that of this group, a quarter progressed to a more severe form of illness requiring intensive care support such as artificial ventilation or drugs to support their blood pressure. These patients have an overall mortality risk of 50 per cent.

As COVID-19 is still a relatively new disease, the long-term prognosis after infection remains unclear. However, Asst Prof Ong cautioned that any patient with a severe lung infection, be it caused by COVID-19 or other illnesses, could be at risk of developing permanent damage to their lungs.

He shared that, for instance, some survivors of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) were found to have impaired lung function even after recovery from the acute illnesses. The degree of impairment was described to be worse in those with more severe pneumonia[2,3].

In light of the current pandemic, it is critical that we take all the necessary precautions to protect ourselves against COVID-19.

Healthy body and mind to fight the battle

Staying in the pink of health – in both body and mind – during this challenging period is crucial in fighting the long-drawn battle against COVID-19. Asst Prof Ong has these tips to share:

- Eat a well-balanced and healthy diet
- Have sufficient sleep
- Drink adequate amount of water (Follow fluid restrictions from your doctor, if any)
- Quit smoking as it worsens pre-existing heart and lung conditions

Continue with medications

In most cases, a person's immune system is usually not directly affected by their pre-existing heart or lung conditions.

However, some patients need to take medications for their pre-existing conditions that may affect their immune system, such as steroids. It is important for these patients to adhere to the medication regime unless advised by the doctor to do otherwise. Compliance to medications help to keep pre-existing conditions under control, which will in turn lower a patient's risk of developing complications from COVID-19[4].

The current pandemic has inevitably caused disruptions and heightened anxiety and stress. Hence, there is critical need to take care of one's mental health. The Singapore government has set up a 24-hour National Care Hotline at 1800-202-6868 – to offer support for those who feel weighed down and need a listening ear.

Everyone should remain vigilant and practise good personal hygiene. Here are some precautionary measures:

Wash your hands frequently with soap and water for at least 20 seconds

After coming into contact with high touch surfaces such as lift buttons and stair railings, wash your hands. You can use a hand sanitiser if your hands are not visibly dirty.

Avoid touching your face with your hands

Consider switching to spectacles if you are currently wearing contact lenses.

Clean high touch surfaces

Surfaces with high contact points, such as mobile phones and door knobs at home, should be cleaned with disinfectant regularly.

Wear a mask

Put on a mask when you have to leave the house.

For a comprehensive guide on heart and lung conditions, visit:

www.nhcs.com.sg/patient-care/conditions-treatments

[1] Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. 2020;323(13):1239–1242.

[2] Kang Il Jun et al. Long-term Respiratory Complication in Patients with Middle East Respiratory Syndrome: 1-year Follow-up After the 2015 Outbreak in South Korea, Open Forum Infectious Diseases, Volume 4, Issue suppl_1, Fall 2017, Page S577

[3] Hui DS, Joynt GM, Wong KT, et al. Impact of severe acute respiratory syndrome (SARS) on pulmonary function, functional capacity and quality of life in a cohort of survivors. Thorax 2005;60:401-409.

[4] Sources: COVID-19 and Heart Patients (Q&A). European Society Cardiology. *https://www.escardio.org/Education/COVID-19-and-Cardiology/what-heart-patients-should-know-about-the-coronavirus-covid-19.* 2020. and Covid-19 and Lung Disease Q&A. European Lung Foundation. *https://www.europeanlung.org/covid-19/covid-19-information-and-resources/covid-19-info.* 2020.

NEW CLINIC FOR PATIENTS WITH INHERITED CARDIAC CONDITIONS

By Dr Eric Lim, Consultant, Department of Cardiology, NHCS

The Inherited Cardiac Conditions (ICC) clinic at the National Heart Centre Singapore (NHCS) run by the doctors of the Electrophysiology and Pacing subspecialty, is one of the newer services provided at NHCS. The clinic helps patients with hereditary cardiac conditions – such conditions can be termed genetic, as defined by an abnormality which is rooted in a mutation within the DNA of an individual, that can be passed on from generation to generation.

ICC comprises a large and diverse set of cardiovascular conditions, which include electrical disorders of the heart, such as long QT syndrome, Brugada syndrome, catecholaminergic polymorphic ventricular tachycardia; structural disorders such as bicuspid aortic valve, Marfan syndrome, Loeys-Dietz syndrome; and disorders of cholesterol metabolism (a main example of this is familial hyperlipidaemia).

While these disorders are also seen in a general cardiology clinic, the ICC clinic provides additional resources and tools such as genetic counselling. As these disorders are rooted in the genetic material of the patient, where appropriate, counselling and advice would be provided, prior to the appropriate genetic sequencing. Depending on the ICC, genetic sequencing can be used to confirm the diagnosis, provide guidance on prognosis, predict response to therapy and also determine the need for screening of affected family members. If necessary, the care team at the ICC clinic would offer to screen close family of the patient, as well as his or her extended family members.

A TYPICAL CASE SEEN IN THE ICC CLINIC

Note: Details are amended to protect patient confidentiality.

Case study

A 35 year-old man (A) had slumped over while watching television and became unresponsive. His wife who was next to him at the time, checked his pulse and could not detect any movement. She quickly dialled for the ambulance and began life-saving cardiopulmonary resuscitation (CPR) on him for approximately eight and a half minutes.

When the ambulance arrived, the man was found to be in ventricular fibrillation (a condition when there is rapid or chaotic heartbeat due to the heart's ventricles beating too fast and losing its pump function) with no blood pressure.

He was quickly defibrillated (electrically shocked back into a normal rhythm), following which he made a full recovery. His initial diagnostic tests including the electrocardiogram (ECG), coronary angiogram and echocardiogram all appeared normal. He was then referred to the ICC clinic at NHCS.

At the ICC clinic, the care team carefully looked at the tests he had undergone, and conclusively agreed that they appeared entirely normal. Looking at the patient's detailed family history, a genogram was also constructed, which is a diagram showing the relationship between family members and any relevant manifestations of disease that they might have (refer to Figure 1).

This was the first and most important clue, as the genogram revealed that the patient had a brother (B) who had died suddenly at the age of 37, and although an autopsy was done, no clear cause was pinpointed. In addition, he had a nephew (D) who had fainted twice for no apparent reason, and injured himself as a result.

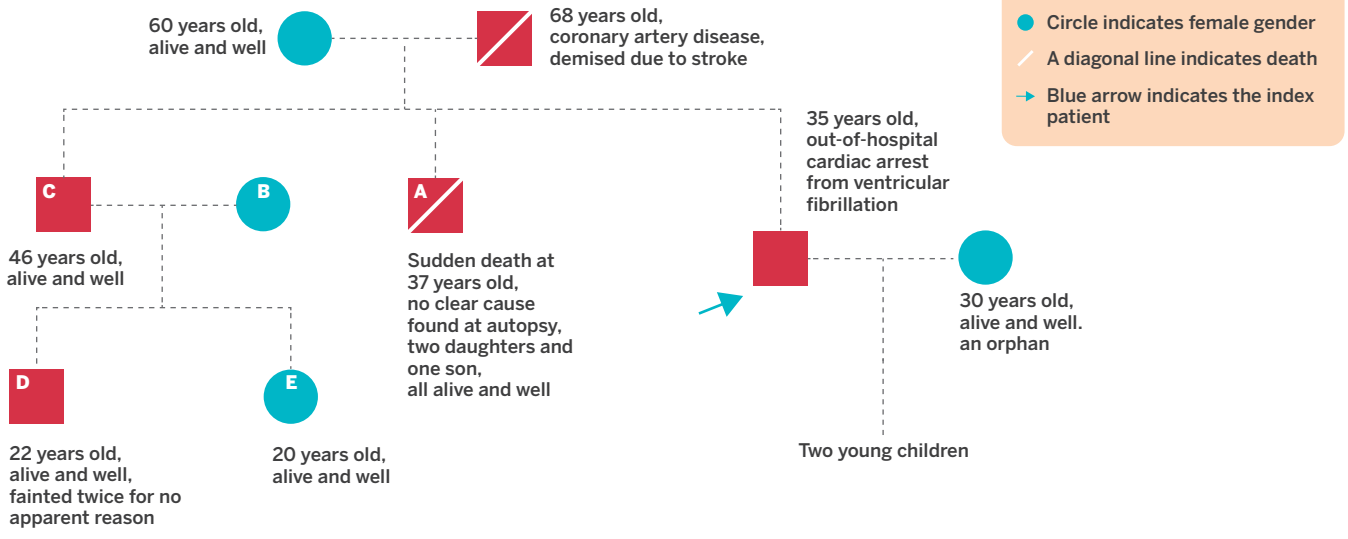
With this background, the team were concerned by a number of arrhythmia syndromes that could cause sudden death – these are electrical disorders of the heart and include long QT syndrome, Brugada syndrome, early repolarisation syndrome and idiopathic ventricular fibrillation. The patient therefore underwent a number of specialised tests including one called a flecainide challenge. This is a test using a drug to deliberately provoke a condition called Brugada syndrome.

Within one minute of starting the flecainide infusion, the patient's ECG became floridly abnormal (Figure 2) and further infusion of the drug was immediately stopped. This type of severe ECG change occurring so quickly essentially confirmed the diagnosis of Brugada syndrome and established the cause for the ventricular fibrillation and the collapse in the patient. It inferred that the likely cause of death of his brother (B) was undiagnosed Brugada syndrome.

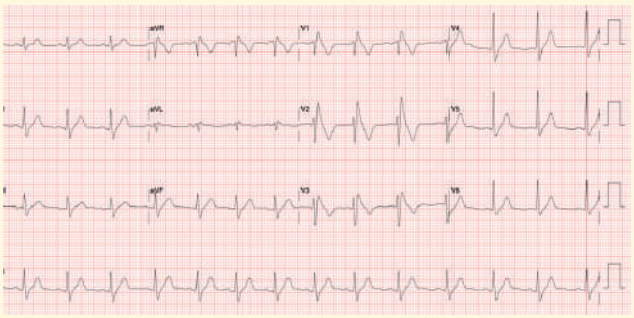
The appropriate advice and treatment for Brugada syndrome was given to the patient, including implantation of an implantable cardioverter defibrillator (ICD) to protect against possible future episodes of ventricular fibrillation.

At the ICC clinic, with such a background of family medical history, the patient was offered a test for genetic abnormalities that can cause Brugada syndrome. This was particularly the case because he has two children, plus a nephew who had prior history of fainting twice. The care team proceeded with a genetic test withstanding that it might be difficult to interpret Brugada syndrome as the mutations of the gene - SCN5A, which was thought to be responsible for Brugada

A GENOGRAM FROM THE ICC CLINIC



▲ Figure 1. Case study's genogram – a diagram on the relationship between family members and any relevant manifestations of disease that they might have



▲ Figure 2. An ECG of the patient, the minute after starting flecainide infusion

syndrome, only happened 25% of the time. The results found a likely mutation in SCN5A.

With this insight into the genetic material of the patient, a screening test for Brugada syndrome was then offered to other members of his family. A consultation with other family members was arranged, particularly for the patient's brother (C) and his two children (D and E). All three of them (C, D and E) agreed to be tested.

The results later showed that while C and D were found to carry the SCN5A mutation but E was not affected. In view that the patient's two children were very young, the team suggested to defer testing until later age. The results from the screening test were very useful information that allowed the care team to counsel, treat and follow up with the patient's immediate and extended family in the most appropriate manner, for better care of their medical health.

Conclusion

While the ICC clinic is a new service at the NHCS, it provides domain expertise in the diagnosis and management of genetic conditions affecting the heart. The clinic offers specialist tests to diagnose these conditions, both genetic and non-genetic.

For genetic testing, the clinic offers pre-test counselling, interpretation of the genetic test and follow-up, including screening of close and extended family, as part of the early diagnosis plan.

BENEFITS OF EXERCISE ON HEART HEALTH

By Assoc Prof Tan Swee Yaw, Senior Consultant, Department of Cardiology, Director of Cardiovascular Rehabilitation & Preventative Cardiology, NHCS

Cardiovascular exercise is known to be good for the heart. Being physically active provides long-term health benefits and is one major step towards good heart health. Regular exercise and physical activity can also improve your overall quality of life.

Exercise helps with the following factors:

Improves blood pressure control and reduces blood sugar levels

While exercising, your blood pressure increases, and after completing a physical activity, your blood pressure is usually lower. Regular exercise helps regulate blood pressure and keeps blood pressure under control.

When you exercise, your body expends energy and uses glucose and energy reserves. This reduces blood sugar concentration and helps your body regulate sugar metabolism.

Improves lipid profile

Exercise increases the level of the good high-density lipoproteins (HDL) cholesterol and reduces low-density lipoprotein (LDL) cholesterol and Triglyceride (TG) levels. HDL cholesterol prevents deposits of cholesterol in the arteries, whereas higher levels of LDL cholesterol and TG will lead to increased deposits of cholesterol in atheromatous plaques in the blood vessels. Regular exercise reduces the chance of arteries becoming clogged with atherosclerosis (a condition in which plaque builds up inside the arteries).

Improves overall cardiopulmonary fitness

When you exercise, you burn calories and increase your basal metabolic rate. Engaging in moderate physical exercise daily for 30 minutes, five to seven times per week helps in weight maintenance.

Studies have also shown that heart failure patients who are compliant with their medications and exercise regularly can improve their heart's function and can build up better stamina and endurance.

Regular exercise reduces the risk of heart attacks and improves your longevity. Many studies have shown that an individual is less likely to get a heart attack, if one exercises regularly.

How much exercise is recommended to keep your heart healthy?

Many health guidelines recommend 30 minutes of moderate intensity exercise at five to seven times per week to keep our heart healthy. Singapore's National Physical Activity guidelines recommend a similar 150 minutes of moderate intensity exercise every week. Activities such as taking the stairs, engaging in brisk walking and other aerobic exercises can contribute to this weekly target.

Why exercise is good for patients with heart disease?

Exercise is even more important for patients with heart disease. After a bypass surgery or heart attack, it is recommended that eligible patients should attend a structured cardiac rehabilitation programme. This programme aims to educate patients on their cardiac condition, monitor the patients' health status following their discharge from the hospital, help patients effect lasting appropriate lifestyle changes, and motivate them to participate in regular aerobic exercise.

The programme usually lasts for one to three months and can start a week after a patient discharges from the hospital. The patient should refer to his or her doctor's recommendation before embarking on such a programme. NHCS offers a second-phase outpatient Cardiovascular Rehabilitation and Preventive Cardiology programme, for all patients with coronary artery bypass surgery (CABG) done or had been admitted to NHCS for heart attack. Many studies have shown that cardiac patients who attended the structured cardiac rehabilitation programme and participated in regular exercise had up to 25% reduction in the risk of future cardiac events.

Optimal heart rate to keep to while exercising

One way to calculate one's maximum predicted heart rate for vigorous exercise is to subtract his or her age from 220 and multiply it by 0.85. Therefore, during a vigorous exercise, an individual can aim to keep his or her heart rate below this maximum heart rate.

While this formula may generally be acceptable for fit and healthy individuals, recent studies have found that a different method of determining a safe maximal heart rate may be a better option, especially for patients with pre-existing cardiac conditions.

During exercise, the body goes from an initial aerobic state to a 'stressed' anaerobic state, as the intensity of exercise increases. At some point during the vigorous exercise, the body will enter the anaerobic state and start to accumulate lactic acid in the muscles, causing muscle cramps. The point when this happens is called the 'anaerobic threshold'.

It is postulated that if heart rate is kept below the anaerobic threshold, the risk of adverse cardiac outcomes during exercise is reduced. The heart rate at whence this occurs is best determined by a specialised cardiopulmonary exercise test machine.

A 2017 study by NHCS published in an international journal found that in patients with prior coronary artery disease, keeping the heart rate at this Anaerobic Threshold versus the traditional (220-age x 0.85) target, has resulted in far fewer abnormal electrocardiography changes.

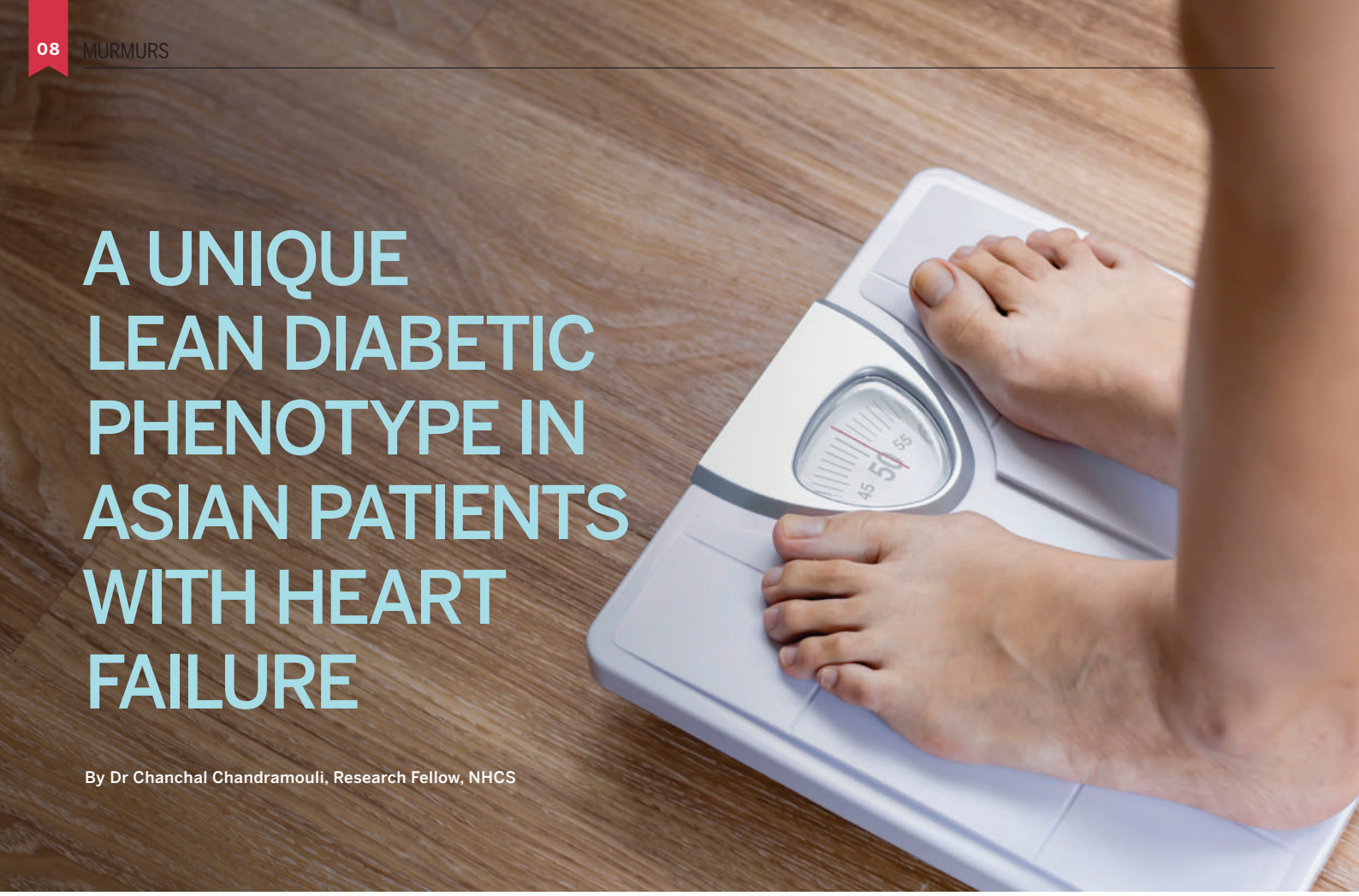
Overall, regular moderate exercise is a fun and excellent way to stay healthy and to reduce the chances of developing heart disease. More importantly, patients should always check with their regular doctor to determine if it is safe to start an exercise programme.

EXERCISE IN THE COVID-19 PERIOD

In the era of the COVID-19 (Coronavirus Disease 2019) pandemic, the widespread implementation of movement restrictions, closing of gyms, parks and other exercise facilities pose a challenge for individuals to stick to their regular exercise regime.

Here are a few **Do's** and **Don'ts** for this period:

- ✓ Continue regular exercise. Check with your doctor on the appropriate exercises you can do. Exercise at home with an exercise bike or treadmill, if available. Isometric exercises like planking are excellent in training your core muscles and can easily be performed at home.
- ✓ Use a mask when not performing strenuous exercise. Should you choose to go out and jog or have a brisk walk, bring along a mask with you. Remember to put the mask on when the strenuous portion of your exercise is complete.
- ✓ Keep a distance from others during exercise. Exercise should not be a social event. Recent research from Belgium revealed that runners and cyclists could potentially spread infective particles to other individuals 10 to 20 metres away if the affected individuals are in the exercising person's slipstream'.
- ✓ Practise good personal hygiene. Eventually, when gyms and communal exercise facilities open, it is imperative that all equipment, especially those with high touch areas are to be disinfected after each use. Virus can potentially stay viable on surfaces for a few days. Bring your own hydration supplies, avoid communal water coolers and water fountains.
- ✗ Do not exercise if you are feeling unwell and/or having flu-like symptoms such as fever, cough, runny nose or sore throat.



A UNIQUE LEAN DIABETIC PHENOTYPE IN ASIAN PATIENTS WITH HEART FAILURE

By Dr Chanchal Chandramouli, Research Fellow, NHCS

Diabetes mellitus (DM) is a disease of epidemic proportions with a projected increase in worldwide prevalence from 360 million in 2011 to 552 million by 2030. Asia harbours 60% of the global DM population (4.7 billion), with the highest prevalence in Southeast Asia.

In Singapore, the number of adults with diabetes is projected to increase from 440,000 to 1 million in less than 30 years. The declaration of war against diabetes is timely as the projected number of diabetes in the different ethnic groups will vary. By 2050, 50% of the Malay and Indian population in males aged 60-69 years old being afflicted the most, followed by 30% in the Chinese population.

Cardiovascular diseases (CVD) account for more than half the mortality and morbidity among patients with diabetes. CVD complications of diabetes lead to disability, reduced quality of life, and hospitalisations, resulting in tremendous health economic impact. Southeast Asia has the highest rate of diabetes and Singapore has the highest risk of diabetic limb amputations in the world. Treating individuals with diabetes and CVD is 112% higher in cost than treating diabetics without complications.

A recent research at the National Heart Centre Singapore (NHCS) has discovered a unique lean diabetes pattern among Asian patients with heart failure (HF). These individuals develop diabetes despite a low body mass index (BMI), strikingly different from the conventional obesity-induced diabetes among Caucasians. These landmark findings were recognised for its importance and published in several high impact scientific journals (Tromp 2018 PLOS Med; Chandramouli 2019 PLOS Med).

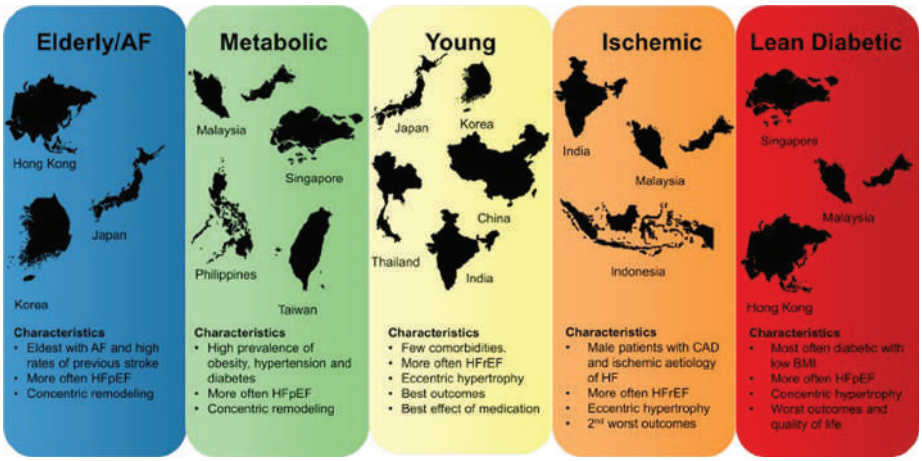
A unique lean diabetic phentotype in Asians

Conventionally, diabetes is attributed to obesity, defined by BMI, resulting in hyperinsulinemia, glucose intolerance and insulin resistance. Beyond this classical paradigm and other well-defined diabetic conditions (Type 1 diabetes, maturity onset diabetes of the young, gestational diabetes), the lean diabetic phenotype has emerged as an interesting conundrum. The World Health Organisation (WHO)'s recommended cut-offs for normal and underweight categories among Asians are BMI 18.5–22.9 kg/m^2 and <18kg/m^2, respectively. The prevalence of diabetes among Asians who fall within this normal or underweight range (BMI<23kg/m^2) is increasingly high. Lean diabetes among asymptomatic Asians has been previously established and well-characterised by the absence of ketosis on withdrawal of insulin, a relatively early age of onset and associated with malnutrition and poor socioeconomic status. The WHO previously distinguished malnutrition-related diabetes from Type 1 and Type 2 diabetes in their former guidelines, however, it was removed in the later iterations due to insufficient evidence for causality. There is growing body of literature on this tropical diabetic phenotype that urges reconsideration.

Lean diabetes among Asian patients with heart failure

Professor Carolyn Lam, Clinician Scientist and Senior Consultant from Department of Cardiology, NHCS and her research team at NHCS demonstrated for the first time that lean diabetic phenotype also exists among patients with HF in Asia and that these patients have the worst outcomes. Dr Jasper Tromp, Research Fellow, NHCS, and fellow colleagues utilised the Asian Sudden Cardiac Death in Heart Failure (ASIAN-HF) Registry to analyse 6,480 patients with chronic HF from through latent class analysis. Interestingly, comorbidities naturally clustered into

five distinct groups, namely, the elderly/atrial fibrillation, metabolic, young, ischaemic and lean diabetic clusters. Among these comorbidity clusters of HF, the lean diabetic group with low BMI (<23 kg/m^2) was associated with a predominance of HF with preserved ejection fraction (HFpEF), more concentric left ventricular enlargement, worst quality of life, more severe symptoms of HF and highest rate of mortality and morbidity outcomes. A prominence of the lean diabetes group in Southeast Asia, particularly Singapore, Malaysia and Hong Kong, was also evident. This article was published in PLOS Medicine in March 2018.



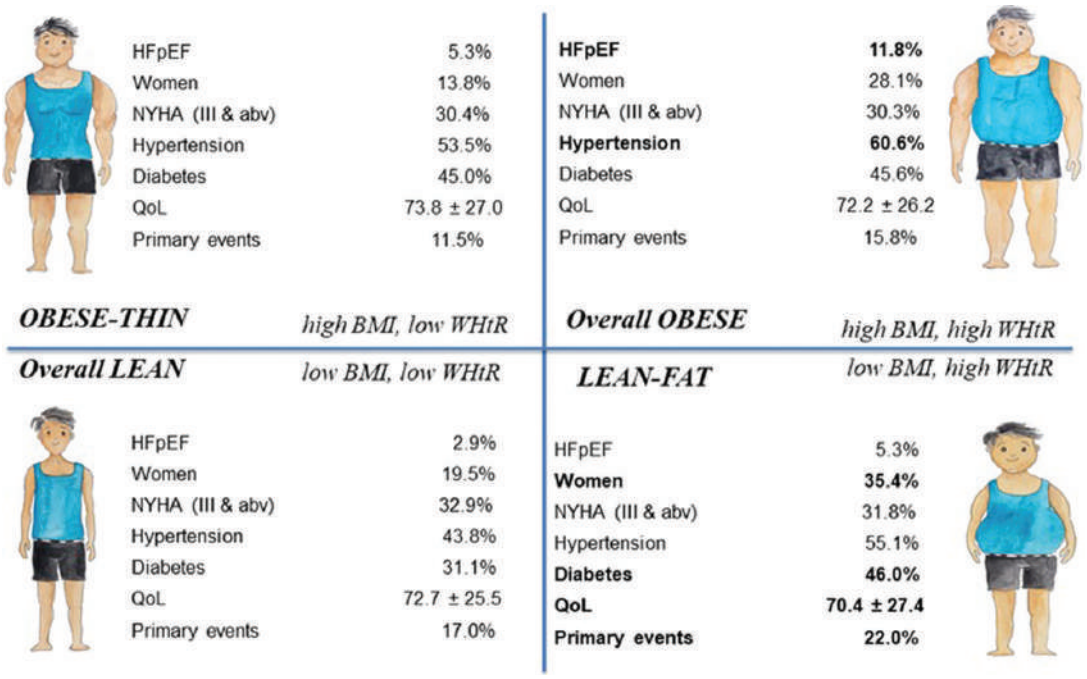
Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5870945/

Visceral and epicardial fat: Potential culprits in lean diabetic heart failure

The research team has shed more light into this unique phenotype by identifying a possible detrimental role for 'lean-fat' among lean diabetic patients with HF. For the same given BMI, a higher percentage body fat is noted among Asians, compared to Caucasians. They recently reported that among individuals with HF (from ASIAN-HF Registry), those who were lean-fat (low BMI, high abdominal fat) were more likely to be women, from low-income countries in South/Southeast Asia, have high prevalence of diabetes, worst quality of life and worst HF outcomes, compared to their muscular counterparts in the obese-thin group (high BMI, low abdominal fat).

Another interesting finding was that women with HF were also found likely to have diabetes at a lower BMI compared to men (≥23 vs. ≥27.5 kg/m^2). They have demonstrated that adding simple abdominal measure (waist-to-height ratio) to BMI in clinics has stronger prognostic ability among patients with HF than using BMI as a standalone marker. Together, these data suggested that visceral obesity could play a central role in cardiac pathology of lean diabetes. In low-middle income countries, foetal undernutrition, maternal insufficiency, the 'thrifty gene' hypothesis and predisposition towards visceral fat deposition are chiefly implicated in lean diabetes. Specifically, epicardial fat, the local visceral fat surrounding the heart, is particularly detrimental. This article was published in PLOS Medicine in September 2019.

While there are no effective therapeutic options available to-date for this vulnerable group of individuals with lean diabetes and HF, particularly so for those with HFpEF, the research team is currently exploring prevention of CVD onset through early identification of high-risk diabetic individuals and the possibility of management through aggressive preventive therapy.



Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6759142/

SINGLIVE 2020

SCALING GREATER HEIGHTS

The National Heart Centre Singapore (NHCS) annual flagship event, the **29th Annual Singapore LIVE (Live Interventions in Vascular Endotherapy) Course** ran successfully from 15 to 18 January 2020.

Better known as SingLIVE, the course marked its second year of being independently run by NHCS.

1,100 INTERNATIONAL AND LOCAL PARTICIPANTS

23 LIVE CASE TRANSMISSIONS

9 TRANSMISSION CENTRES

10TH CTO INTERVENTIONS LIVE COURSE

The 29th SingLIVE Course kicked off with the 10th CTO Interventions LIVE Course - catered specifically for the challenging field of CTO (chronic total occlusions) PCI (percutaneous coronary interventions). This year's edition featured numerous live transmissions including a renowned CTO centre, Guangdong Provincial Cardiovascular Institute, China.

IMAGING AND PHYSIOLOGY ASSESSMENT COURSE

The Imaging and Physiology Assessment Course, specially designed for interventionists, nursing and allied health professionals, was well-attended with coverage on the use of adjunctive PCI modalities such as intravascular ultrasound (IVUS), optical coherence tomography (OCT) and fractional flow reserve (FFR) measurements in making more qualified judgements in the day-to-day management of coronary artery disease.

Learning from experts

The highly regarded interventional cardiologist in coronary stenting, Prof Antonio Colombo, had all eyes on the big screen as he tackled the complex left main anatomy live from NHCS, together with Asst Prof Chin Chee Yang from the Department of Cardiology, NHCS. Prof Colombo pioneered the concept of adequate stent deployment during coronary interventions.

In another live case, the challenging procedure of closing a patent foramen ovale was carried out on a young patient by NHCS doctors, Assoc Prof Tan Ju Le and Dr Muhammad Idu Bin Jion. Alongside was Prof Eric Eeckhout from the Faculty of Medicine and Biology, University of Lausanne, Switzerland, as the expert commentator. Prof Eeckhout, the Director of the Cardiac Catheterisation Laboratory at Centre Hospitalier Universitaire Vaudois (CHUV), is also the co-director of SingLIVE.

Showcasing new techniques

A one of its kind transcatheter aortic valve implantation (TAVI) technique by the CHUV team, transmitted live from Switzerland, demonstrated how hypnosis by a trained specialist allowed the use of sedation and avoided general anaesthesia while having the ability of arousing the patient if concerns of stroke arose during the procedure.

Dr Jonathan Hill, Consultant Cardiologist from King's College Hospital and Asst Prof Ho Kay Woon from NHCS demonstrated a new procedure, which has been shaking up the PCI scene - intravascular lithotripsy (IVL) which can be used to break up hard plaque in arteries via sonic pulses.

On the local front, the team from Tan Tock Seng Hospital (TTSH) led by Prof Paul Ong, Head of the Interventional Cardiology Department, TTSH, showed the use of a robotic arm in the assistance of minute yet vital surgical manoeuvres.

Hands-on opportunities

The Training Village at SingLIVE 2020 was significantly enhanced with variety of hands-on training sessions. The Philips training village, for instance, displayed the latest equipment with capabilities to conduct an assessment of a myriad of modalities, which previously was not available.

Riding on the interest of virtual reality (VR) technology introduced last year, participants of the TAVI teaching class had the opportunity to immerse in the experience of performing a TAVI procedure – via an all new and improved VR goggle, featuring a 180-degree visual field with three-dimensional effect.

Recognising the best

▲ Assoc Prof Paul Hsien-Li Kao (centre), together with faculty members and course directors of SingLIVE 2020.

Assoc Prof Paul Hsien-Li Kao from the National Taiwan University School of Medicine was the recipient of the Chien Foundation Award for Lifetime Achievement in Cardiovascular Intervention.

The annual award recognises an interventional cardiologist who contributes significantly to the promotion and advancement of interventional cardiology especially in the Asia-Pacific region.

Post-course: Balloon pulmonary angioplasty (BPA) workshop

A dedicated half-day course hosted by Assoc Prof Lim Soo Teik, Deputy Medical Director and Director of the Cardiac Catheterisation Laboratory of NHCS, imparted management principles and practical knowledge on the set-up, performance, complications and the latest approaches to BPA.

What's next: The 30th Edition

Mark your calendar for the course's third decade in the Asia-Pacific region, taking place from 21 - 23 January 2021!

For more information, please visit: www.singlivecourse.com

SingaporeLIVE 2021
30th Annual Live Interventions in Vascular Endotherapy

21 – 23 January 2021

RESEARCH PUBLICATIONS

January 2020 – April 2020

JANUARY 2020

Additional Antitachycardia Pacing Programming Strategies Further Reduce Unnecessary Implantable Cardioverter Defibrillator Shocks *Heart Rhythm. 2020 Jan;17(1):98-105. doi: 10.1016/j.hrthm.2019.07.027*

Left ventricular outflow tract calcium and TAVR-The tip of the iceberg? *J Cardiovasc Comput Tomogr. 2020 Jan - Feb;14(1):42-43. doi: 10.1016/j.jcct.2019.08.007*

The yield of postmortem genetic testing in sudden death cases with structural findings at autopsy *Eur J Hum Genet. 2020 Jan;28(1):17-22. doi: 10.1038/s41431-019-0500-8*

Pulmonary mucormycosis with diaphragm and liver involvement in a patient with haematopoietic stem cell transplant *Interact Cardiovasc Thorac Surg. 2020 Jan 1;30(1):144-145. doi: 10.1093/icvts/ivz219*

Cardiovascular and non-cardiovascular death distinction: the utility of troponin beyond N-terminal pro-B-type natriuretic peptide. Findings from the BIOSTAT-CHF study *Eur J Heart Fail. 2020 Jan;22(1):81-89. doi: 10.1002/ejhf.1654*

Utility of incorporating next-generation sequencing (NGS) in an Asian non-small cell lung cancer (NSCLC) population: Incremental yield of actionable alterations and cost-effectiveness analysis *Lung Cancer. 2020 Jan;139:207-215. doi: 10.1016/j.lungcan.2019.11.022*

Regional Variation of Mortality in Heart Failure With Reduced and Preserved Ejection Fraction Across Asia: Outcomes in the ASIAN: HF Registry *J Am Heart Assoc. 2020 Jan 7;9(1):e012199. doi: 10.1161/JAHA.119.012199*

Interdependence of Atrial Fibrillation and Heart Failure With a Preserved Ejection Fraction Reflects a Common Underlying Atrial and Ventricular Myopathy *Circulation. 2020 Jan 7;141(1):4-6. doi: 10.1161/CIRCULATIONAHA.119.042996*

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APPOINTMENTS & PROMOTIONS

Dr Iswaree Devi D/O Balakrishnan
Associate Consultant,
Department of Cardiology

Dr Keh Yann Shan
Associate Consultant,
Department of Cardiology

Dr Lim Chiw Yeh
Associate Consultant,
Department of Cardiology

Dr Yan Limin
Associate Consultant,
Department of Cardiology

ADVISORS
Prof Terrance Chua
Prof Koh Tian Hai

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Asst Prof Calvin Chin Woon Loong

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