

DocTalk

# High cholesterol from a genetic disorder

**FH affects the way the liver clears cholesterol from the blood; it occurs in 1 in 500 people**



**Tan Chee Eng**

When Andrew (not his real name) discovered he had high cholesterol several years ago, at the age of 38, he dismissed it.

Some time later, his older brother, who had high cholesterol but did not take his medication regularly, suffered a mild stroke.

His four sisters are also on medications for high cholesterol. His mother, too, had a stroke several years back, when she found out she had a very high cholesterol level of more than 500 mg/dl. The normal rate is 200mg/dl.

That was when Andrew realised he had to take his condition seriously. He started going for regular check-ups and now takes his medication regularly. His cholesterol readings are now near healthy levels.

Recently, Andrew's 26-year-old nephew and 27-year-old niece came for cholesterol screening and were found to have high cholesterol levels of more than 300 mg/dl.

Andrew's family is not afflicted with the typical garden variety type of high cholesterol. What the members have is familial hypercholesterolaemia (FH), a genetic disorder that affects the way the liver clears cholesterol from the blood.

It is estimated to occur at a frequency of 1 in 500 people. Individuals with this condition have high cholesterol because they lack LDL (bad) cholesterol receptors which are needed to mop

up cholesterol from the blood. They are at high risk of heart attacks.

**STATIN THERAPY MYTHS AROUND**

The link between high cholesterol and heart disease is no longer a hypothesis but proven by many studies anchored by established academic institutions.

Yet, there are still many untruths circulating on the Internet that challenge this relationship.

Statins, which are drugs that lower cholesterol, have been conclusively proven to be effective and safe. However, many patients choose to believe the myths about the dangers of statin treatment.

The Prosper study, a large study done in the United Kingdom, has proven that statin use does not prevent nor does it cause dementia.

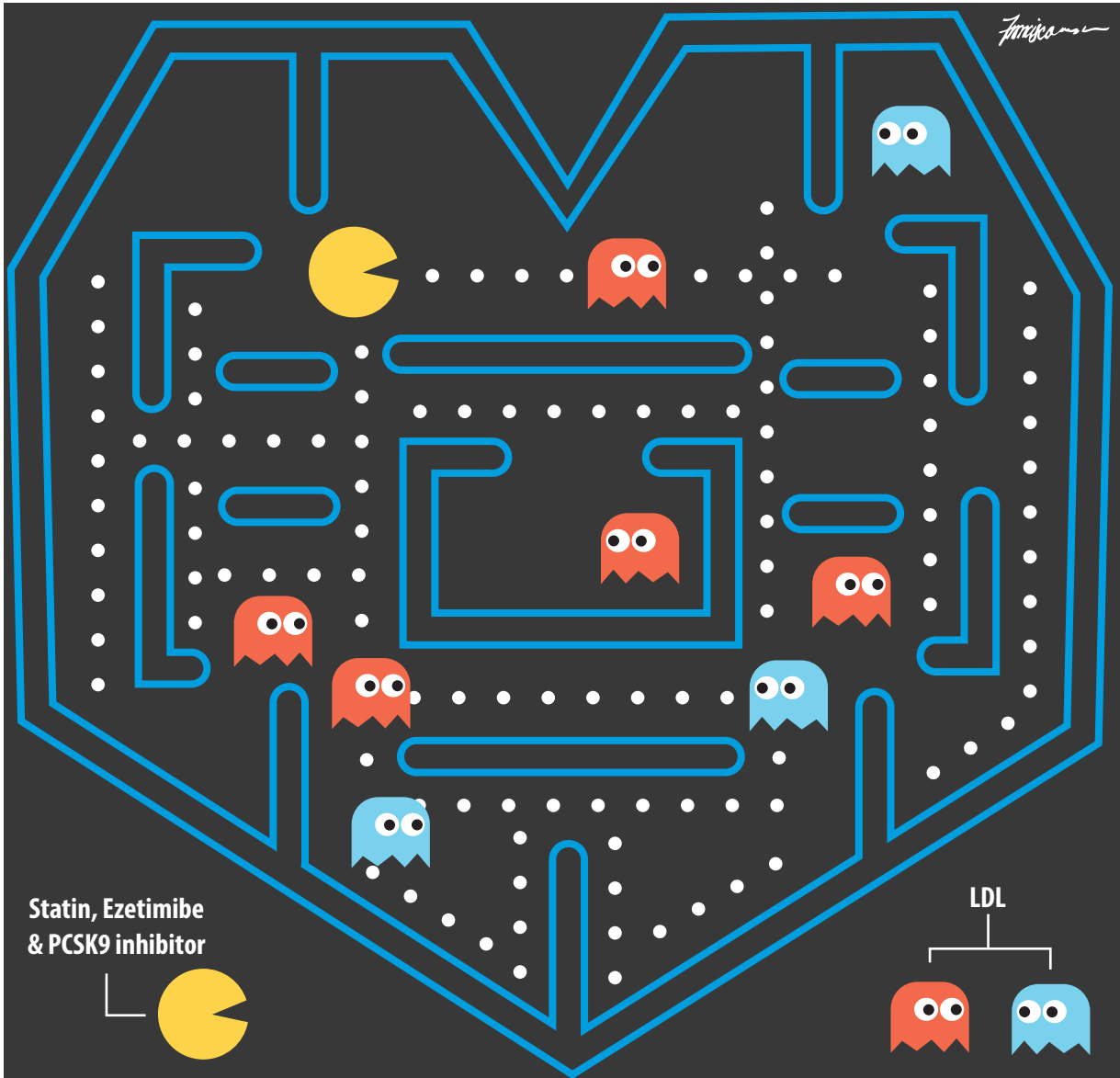
Statin use is associated with a slight increase in the risk of getting diabetes but there is no evidence that it causes kidney failure.

Statins, which are the most frequently used drugs for lowering cholesterol, work by inhibiting an important step in the synthesis of cholesterol. This reduces the cholesterol in the body.

Another class of drugs known as Ezetimibe disrupts the re-absorption of cholesterol secreted in the bile acids from the intestines, complementing the action of the statins.

Only 20 per cent of our blood cholesterol comes from the food we eat. The remaining 80 per cent is produced predominantly by the liver and a smaller proportion by the intestines.

The liver takes the sugar, fats and protein we eat to create cholesterol, which is needed for hormone production, aids in digestion and is an important structural component of cells in our body.



Our level of blood cholesterol is regulated by LDL receptors found in cells throughout the body but mainly in the liver, whose main function is to facilitate the transfer of cholesterol into cells throughout the body. Excess cholesterol is transported by LDL receptors to the liver for recycling or excretion from the gut via the bile acids.

The magnitude of cholesterol reduction with statins is dependent

on the availability of LDL receptors. Those with FH have insufficient LDL receptors and thus a poorer response to statins.

It is not possible to determine the number of LDL receptors in FH individuals. But in those with a severe form, called homozygote FH, the LDL receptors can be almost non-existent.

Such patients can have high cholesterol levels even from the

time they are infants. Some may even have extremely high levels exceeding 800 mg/dl.

Most patients with homozygote FH will die from coronary heart disease by their 20s if their condition is not treated aggressively.

**NEW DRUGS GIVE HOPE**

Recently, a new class of cholesterol lowering drug known as PCSK 9

inhibitors became available. The drug reduces the breakdown of LDL receptors in the liver and thus increases the number of LDL receptors available to mop up cholesterol from the circulation.

It is given via injection once every two weeks but it is not meant for every single person with high cholesterol.

There are two PCSK 9 inhibitors available in Singapore. Most individuals with high cholesterol that is not due to FH would be able to attain their cholesterol targets with statins alone or in combination with Ezetimibe.

However, for those with FH, many of whom are already on high dosages of statins with Ezetimibe, the use of PCSK 9 inhibitors will reduce cholesterol levels substantially and thus lower their chances of heart attacks.

Another group who can benefit from PCSK 9 inhibitors is those who cannot tolerate the side effects of statins, such as abnormal liver function.

Individuals with FH are unlikely to reduce their cholesterol levels adequately just by dietary measures alone.

Also, men with untreated FH are likely to get heart attacks by the time they are in their fourth decade while women with FH may suffer heart attacks when they are between 50 and 60 years of age.

Aggressive reduction of cholesterol is mandatory regardless of any other risk factors the patient may have.

That is also why screening of families with FH is vital in picking up individuals affected early and for intervention to be initiated.

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## A normal reading is less than 130/80mmHg

FROM B10

**5. HOW DO I CHECK MY BLOOD PRESSURE?**

"People don't take blood pressure seriously. They think checking (it) on their own is too troublesome," said Professor Tan Huay Cheem, director of the National University Heart Centre Singapore.

But the disease is mostly symptom-

less, making it a silent killer, he said.

"Ideally, every home should have a blood pressure machine, and anyone above 18 should use it. If their blood pressure level is normal, they can leave it for three years," said Prof Tan.

In Singapore, a normal blood pressure level is less than 130/80mmHg.

The cost of a blood pressure moni-

tors can run from a few hundred to a few thousand dollars (like those used in hospitals) depending on the various added functions it possesses. But the price does not matter, said Prof Tan.

Dr Teong Hui Hwang, a senior consultant at the general medicine department in Tan Tock Seng Hospital, said hypertensive patients should monitor their blood pressure at home as it is more accurate than clinic blood pressure and more predictive of cardiovascular events.

When taking measurements at home, it is important to note that the readings will vary, and it is very

unlikely they will all be the same, said Assistant Professor Chin Chee Tang, senior consultant at the Department of Cardiology, National Heart Centre Singapore.

"Doctors are looking at a general trend, and so there is no need to be too alarmed with single readings."

Prof Chin said he would advise against taking readings too many times a day or even every day, unless you have been advised to do so.

"When an individual becomes very concerned and worried about his or her blood pressure readings, it tends to make the next measurement high, and this may cause undue anxiety."

For those looking to measure your blood pressure at home, Prof Tan offers these tips.

Before measuring your blood pressure:

- Relax and sit in a chair (feet on the floor with back supported) for more than five minutes.
- Avoid caffeine, exercise and cigarettes for at least 30 minutes before taking a reading.
- Empty your bladder.

When measuring your blood pressure:

- Neither the patient nor the observer should talk during the

rest period or during the blood pressure measurement.

- Remove all clothing covering the location of the cuff placement.
- Sit. Avoid lying down.
- Measure your blood pressure at least two to three times a week. It does not matter what time you take the reading.
- Use an average of at least two readings obtained on at least two occasions to estimate your blood pressure level.

If your blood pressure reading at home is persistently more than 130/80mmHg, you should consult your family physician.

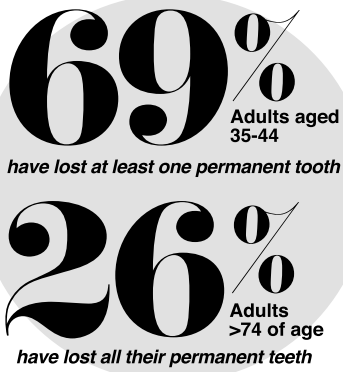
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## Better bytes, better dental implants

**Tooth loss can occur at any age. The condition of being toothless to at least some degree is called edentulism, and it becomes more prevalent with age. Studies show that 69% of adults aged 35 to 44 have lost at least one permanent tooth, and 26% of adults over the age of 74 have lost all their permanent teeth.**

**The woes of being toothless**

People with unrestored edentulism were found to suffer emotional and psychological problems such as declining self-confidence and social isolation (Patil and Patil, 2009). Findings from a large German survey also show that people having fewer than nine teeth reported more impact on health-related quality of life than those suffering from cancer (Mack et al., 2005).



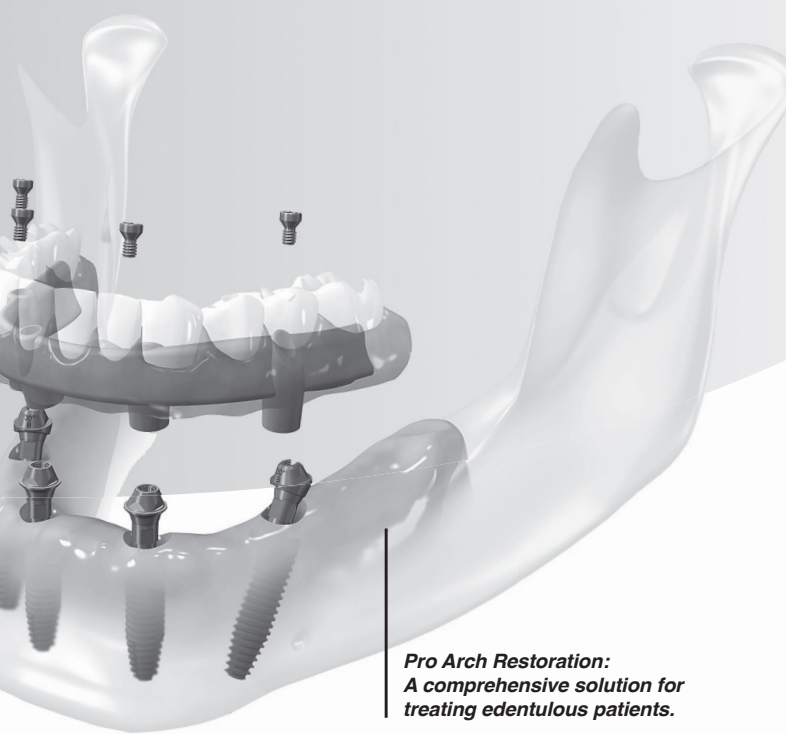
These results stem from the various ways in which edentulism can substantially reduce daily functioning, self-image and quality of life:

- Chewing and speaking capabilities will be inhibited to some degree
- Digestion and nutritional status may become diminished due to difficulty in breaking down food
- Diminished facial appearance and loss in self-confidence due to missing or damaged teeth

- Resorption (the process in which all or part of bone tissue gradually disappears due to gaps in the jawbone) may occur
- Lack of proper support in the skin around the mouth, resulting in sagging skin and premature ageing

**"Nowadays, patients are more discerning and want solutions for a better quality of life. Pro Arch restoration is a good option for the edentulous jaw – it can restore chewing function, comfort, and a person's self-confidence."**

– Dr Wong Keng Mun, Founder & Managing Director of T32 Dental Group



**Pro Arch Restoration:**  
A comprehensive solution for treating edentulous patients.

**Tooth restoration options**

Gone are the days when the edentulous have to bear with the inconveniences and discomfort of wearing ill-fitting dentures or crowns. Those with multiple missing, decaying or loose teeth can now turn to dental specialists like T32 Dental Centre @ Camden for upgraded solutions like the Pro Arch or All-on-4® dental implants, which are more comfortable and permanent.

The Pro Arch treatment or All-on-4® implants is ideal for replacing the entire upper or lower arch of teeth in minimal time. Patients undergoing this full mouth restoration procedure will be able to get a whole set of prosthetic teeth through the placement of only four to eight dental implants.

More importantly, as Patrick Loh, Executive Vice President, Head of APAC, Straumann Group, remarked:

**"Our goal is to go beyond products and create smiles for patients. We want to restore their confidence and significantly improve the quality of their lives. Straumann® Pro Arch is an extremely comprehensive solution we have produced to date and it provides clinicians and lab technicians with the flexibility, quality, and reliability to exceed their patients' expectations for a new smile and improved quality of life."**

**Tap into technology and expertise**

The Pro Arch treatment or All-on-4® implants, which involves the use of the Cone Beam CT imaging system prior and during treatment to deliver clear

3D images, is the fruition of advancements in digital dental technology.

Its 3D implant planning processes allow seamless collaborations between the multi-disciplinary specialists and surgeons at T32 Dental Centre, and enable them to surmount the specialised and complex challenges in implant placement procedures. This is largely due to the significant advantages offered by such advanced implant planning, as compared to traditional dentistry processes:

- Streamlined procedures
- Precise and accurate diagnoses
- Enhanced treatment efficiency
- Predictability of results
- Long-term success

Another benefit of the Pro Arch treatment or All-on-4® implants over conventional implant treatment is that it reduces the number of surgeries and therefore reduces treatment complexity, which could result in extensive time and cost savings for the patient. This is especially so in patients who suffer from bone loss and require lengthy bone grafting procedures.

However, full mouth restoration procedures are generally considered to be among the most difficult and technically demanding in the field of implant dentistry. As such, patients would do well to seek the expertise and quality care of trained and experienced practitioners specialising in such complex dental implant surgeries.

**Pro-Arch treatment and All-on-4® implants are available at T32 Dental Centre @ Camden.**

