Did you know?

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Big four trauma claims – angioplasty and heart bypass

In the final part of our Big 4 Did you know? series, this week’s paper examines cardiovascular procedures, specifically heart bypass surgery and angioplasty. CommInsure’s Manager of Medical Research & Development, Aamer Fattah, answers some questions on the medical aspects of heart bypass surgery and angioplasty, including relevant definitions, what each type of procedure involves, along with other aspects relevant to the specific benefits defined under trauma insurance cover.

What are the main medical reasons for someone to undergo an angioplasty or heart bypass surgery?

Angioplasty and heart bypass surgery are two different approaches used in the medical management of symptoms and conditions arising from coronary artery disease (CAD), which affect the normal functioning of the heart.

‘Atherosclerosis’ is a medical term that describes the process of cholesterol and plaque build-up on the inner walls of arteries which supply blood to the heart¹. As this build-up increases, the affected arteries become hardened and narrower, with the resulting reduction in blood flow leading to symptoms of angina (or chest pain).

As noted in your recent article on heart attack, blockage of a coronary artery is typically caused by a blood clot, which could (in turn) be caused by a rupture of plaque in an artery, resulting in a coronary thrombus or occlusion that causes the heart attack. Medical intervention via angioplasty or heart bypass surgery is typically indicated in the treatment of an acute heart attack episode, or otherwise to reduce the risk of a future heart attack by treating CAD.

Coronary artery disease (also commonly described as coronary heart disease or ischemic heart disease), the most common type of heart disease in Australia, was a leading specific cause of death in 2007, accounting for just over 17 per cent of all male deaths and almost 16 per cent of deaths in females².

In addition to the increased heart attack risk, CAD can also weaken the heart muscle over time and thus resulting in certain related conditions, such as changes in the heart’s ‘normal’ beating rhythm (arrhythmia), or the heart’s inability to efficiently pump blood to the rest of the body (heart failure)¹.

According to a recent report² by the Australian Institute of Health & Welfare (AIHW), CAD was ranked first among the specific leading causes of the burden of disease and injury in Australia, as projected for 2010.

What is an angioplasty?

Coronary angioplasty (or percutaneous coronary intervention – PCI) is a relatively-common medical procedure used to ‘open’ one or more blocked or narrowed coronary arteries, thereby restoring (or otherwise enhancing) blood flow to the heart and improving symptoms associated with CAD, such as shortness of breath and angina³.

Several variants of the angioplasty procedure exist, such as balloon angioplasty and coronary ‘stenting’. Balloon angioplasty involves the insertion of a small ‘balloon’ into a coronary artery, which is then expanded to relieve narrowing or blockage (for example, during a heart attack) of the affected artery. Today⁵, angioplasty typically also includes stenting, a procedure involving the use of a device called a ‘stent’, which is inserted into the re-opened artery in order to keep it open.

You mentioned stenting earlier – exactly what is a stent?

The Merriam-Webster™ online medical dictionary defines a stent as a “short narrow metal or plastic tube often in the form of a mesh, that is inserted into the lumen of an anatomical vessel (as an artery or bile duct), especially to keep a previously blocked passageway open”."
The two basic stent types used are Bare-Metal Stents (BMS) and Drug-Eluting Stents (DES), with the latter currently used in most angioplasty procedures in Australia. The DES is a type of stent coated with specific drugs which are slowly and continuously released into a treated artery, thereby helping to prevent that artery from becoming blocked again (or ‘restenosis’) in the future.

How does heart bypass surgery fit into the picture?

Heart bypass surgery, or coronary artery bypass grafting (CABG) in medical terminology, is a procedure in which blocked coronary arteries are circumvented (or ‘bypassed’) through the use of blood vessel grafts.

During the procedure, a cardiothoracic surgeon obtains a section of healthy blood vessel (artery or vein) from a donor site such as the patient’s leg (for example a 'saphenous vein' graft) or inner chest (‘internal mammary’ graft), then uses this vessel to bypass a blocked artery (or several arteries), by surgically-attaching it to vessels on the outside of the heart. This process creates a new 'connection' around the location of blockage in an artery, thereby restoring blood flow to the heart muscle.

As with angioplasty, there are several types of heart bypass surgery, including the ‘traditional’, ‘off-pump’ and ‘minimally-invasive direct’ approaches. Minimally-invasive direct CABG is a relatively-newer approach which (by definition) involves the surgeon gaining access to the heart by making minor cuts between the ribs in the left side of the chest, whereas each of the other two approaches necessitate surgical opening of the chest bone.

Note: CommInsure’s trauma cover insurance includes a specific benefit for ‘Coronary Artery Disease Requiring Bypass Surgery’, with scope to cover all three aforementioned types of heart bypass surgeries.

As up to four ‘major’ coronary arteries may be by-passed during a single CABG procedure, in certain cases, this treatment approach is considered as a viable alternative in patients with relatively more severe CAD, or in those with a condition not deemed amenable to treatment via angioplasty with stenting.

As noted in the recent Big Four article on heart attacks, most of the CAD risk factors (listed in that paper) are modifiable, which means that individuals can take specific preventative measures to reduce their likelihood of suffering a heart attack or other CAD-related event in the future.

Summary

In the past few decades, we have seen several important advances in medicine, including the use of cardiovascular procedures to improve health outcomes and reduce the risk death in people affected by coronary heart disease.

According to a report by the AIHW published in June this year, the rate of angioplasty procedures in Australia almost doubled during the period from 1996-97 to 2007-08, to reach 155 per 100,000 people, whereas the rate of heart bypass procedures fell from 99 to 61 over the same timeframe.

The following graph (reproduced the kind permission from the AIHW) illustrates the trends for cardiovascular procedures in Australia during the aforementioned timeframe. Although the rate of PCIs appears to have dropped slightly during the annual period from 2007-08, the AIHW report reflects that the actual number of such procedures remained very high during that timeframe, at approximately 35,000.

The available data and observed trends reflect the substantive impact of CAD in Australia, including the ongoing use of angioplasty and heart bypass procedures in the treatment of this condition. Accordingly, it is essential that advisers are aware of such trends and implications, specifically in the context of the availability of relevant trauma insurance benefits, to facilitate well-informed discussions with their clients.

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References:


