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Burden of Ischaemic Heart Disease (IHD) in Australia

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Abstract: **Ischaemic Heart Disease (IHD) remains the leading cause of death and disability in Australia, posing a major public health and economic challenge. Affecting over 580,000 Australians and responsible for around 20,000 deaths annually, IHD accounts for more than $2 billion in healthcare costs each year. Its burden is influenced by socioeconomic inequalities, limited social support, and environmental factors, along with individual risks such as age, obesity, hypertension, and smoking. This paper examines the burden and determinants of IHD in Australia and assesses the applicability of the Chronic Care Model (CCM) in improving its prevention and management. Through its emphasis on patient self-management, coordinated care, and community engagement, the CCM provides an effective framework for enhancing health outcomes and reducing the overall impact of IHD.**

Keywords: **Ischaemic Heart Disease, Australia, Public Health, Risk Factors, Chronic Care Model, Cardiovascular Disease, Health Management.**

1. INTRODUCTION

Also referred to as coronary heart disease, ischaemic heart disease (IHD) is one of the most common cardiovascular diseases as well as the most common type of heart disease in not only Australia but also across the globe (Nichols et al., 2014). In Australia, 5% of individuals aged 2 and above (approximately 1.1 million people) had heart disease as at 2012 (ABS, 2013). Of this, IHD comprised approximately 53% (about 582,000 people) (ABS, 2013). Though death rates associated with IHD in Australia have declined in the last five decades, the condition is still the leading cause of mortality, not to mention the significant economic burden the condition imposes on individuals, families, communities, healthcare organisations, and governments (AIHW, 2010; AIHW, 2014). This paper discusses the burden of IHD in Australia, public health significance of the chronic condition, as well as broad determinants and individual risk factors associated with the condition. The paper also examines the applicability of the chronic care model to the prevention and management of the condition. The choice of IHD is informed by the greater commonness of the condition across the globe and, most importantly, its prominence in terms of mortality and healthcare burden compared to other chronic conditions.

Burden of IHD

Statistics from the Australian Bureau of Statistics (2013) reveal that approximately 582,000 people had IHD as at 2012. This represents about 2.6% of the population aged 2 and above. Though the prevalence of IHD stretches across different age groups, it is important to note that senior citizens (adults aged 65 and above) are the major victims. In Australia, for instance, persons aged 65 and above account for more than half of the total number of IHD patients (ABS, 2013). Though death rates associated with IHD have declined consistently since the late 1960s owing to tremendous advances in prevention, diagnosis, and treatment, the condition is still a significant cause of mortality in Australia (AIHW, 2010). In fact, compared to most of its OECD counterparts, particularly Canada, France, and Switzerland, Australia registers more deaths associated with IHD and other cardiovascular diseases (AIHW, 2010).

As at 2004, IHD accounted for approximately 250 deaths per a population of 100,000 people in Australia (AIHW, 2010). Statistics from the Australian Bureau of Statistics (2015) further reveal that IHD kills more people in Australia than any other disease. In 2013, for instance, IHD was responsible for about 20,000 deaths (ABS, 2015). At the global level, IHD is responsible for more than 7 million deaths every year, with the greater number of deaths being reported in the US, China, Russia, and India (WHO, 2015)

Besides deaths, IHD imposes a significant economic burden on individuals, families, communities, healthcare organizations, governments. In Australia, cardiovascular disease accounts for about 12% ($7.6 billion) of the overall healthcare expenditure (AIHW, 2014). More specifically, IHD accounts for approximately 3% ($2 billion) of the total healthcare expenditure in Australia (AIHW, 2014). This expenditure predominantly entails hospitalisation services, out-of-hospital medical costs, and prescription pharmaceuticals. In Australia, hospitalisations relating to IHD accounts for approximately three quarters of the total expenditure on IHD, with average hospitalisation expenditure per person being $9,500 (AIHW, 2014).

The burden of IHD can as well be viewed from the perspective of disability-adjusted life years (DALYs), which is the summation of years of life lost due to premature mortality (YLL) and years of productive life lost due to illness and disability (YLD). In Australia, IHD accounts for the second leading cause of YLL. In 2013, for instance, the number of YLL was 74,829 (ABS, 2015). As for DALYs, IHD is responsible for approximately 10-19 DALYs (WHO, 2015). At the global level, IHD accounts for the second largest disease burden in terms of DALYs. The condition is particularly responsible for more than 7% of all DALYs in the world (WHO, 2015). It can, therefore, be seen that the burden of IHD is overwhelming.

Public Health Significance

Given the substantial prevalence of IHD in Australia and, most importantly, the associated mortality and economic burden, it is clear that IHD is a matter of public health concern. The public health significance of IHD also stems from the increasingly aging population of Australia. As at 2006, the number of persons aged 65 and above was 2.7 million, representing 13% of the overall population in the country (AIHW, 2010). This figure is projected to reach 6.3 million (or 24% of the total population) in the next three decades. A similar trend is also being observed in other developed countries. The implication is that IHD will be a greater public health concern in the future given that older adults are at a greater risk of developing IHD compared to the rest of the population (Nichols et al., 2014). Furthermore, the prevalence of obese, overweight, and physical inactivity in Australia has continued to increase over the years (AIHW, 2010). This makes IHD an even greater public health concern.

Broad Determinants

Most diseases are associated with a number of environmental and social factors, including availability of social support, socioeconomic status, and the natural environment. Other determinants include social disorder, housing, public safety, exposure to toxic substances, physical barriers, as well as quality and accessibility of healthcare services. Though all these factors can be linked to IHD, the most relevant include socioeconomic status, availability of social support, and the natural environment. The relevance of social support stems from the fact that lack of it has been shown to increase the risk for heart disease (Lett et al., 2005; Ikeda et al., 2008). Social support generally encompasses aspects such as marital status, emotional support, social networks, closeness of family and friends, involvement in group activities, and informational support (Lett et al., 2005; Ikeda et al., 2008). The natural environment can as well increase the risk for IHD. Cold weather, for instance, has the potential to precipitate a cardiovascular complication (WHO, 2015).

Socioeconomic status is particularly a major determinant of IHD and other cardiovascular diseases. In other words, individuals in lower tiers of the socioeconomic ladder are at a greater risk of developing IHD compared to those in higher tiers (WHO, 2015). This is particularly true for developed countries. Individuals in lower socioeconomic tiers face a greater risk of IHD due to poor nutrition, lower use of medication and lesser access to healthcare services, greater prevalence of smoking, and lower educational attainment (WHO, 2015). The significance of socioeconomic status as an important predictor of IHD also stems from the fact that the prevalence of IHD is greater in minority communities, which tend to be poorer than their majority counterparts (WHO, 2015). In Australia, for instance, the Aboriginals bear the greatest burden of cardiovascular disease (AIHW, 2008). More particularly, it is important to note that more than half of Aboriginals have at least three of the major risk factors for cardiovascular disease (tobacco smoking, high alcohol consumption, diabetes, obesity, physical inactivity, and poor nutrition) (AIHW, 2008).

Individual Risk Factors

Besides environmental and social factors, a number of individual factors also increase the risk for IHD. These include age, obesity, overweight, high cholesterol levels, high blood pressure, tobacco smoking, alcohol consumption, and inadequate physical activity (WHO, 2015). Age is particularly an important risk factor for IHD. In most developed countries, including Australia, persons aged 65 and above comprise the greatest proportion of IHD patients (AIHW, 2010). This has actually been a major public health concern given the increasingly aging Australian population. Tobacco smoking and alcohol

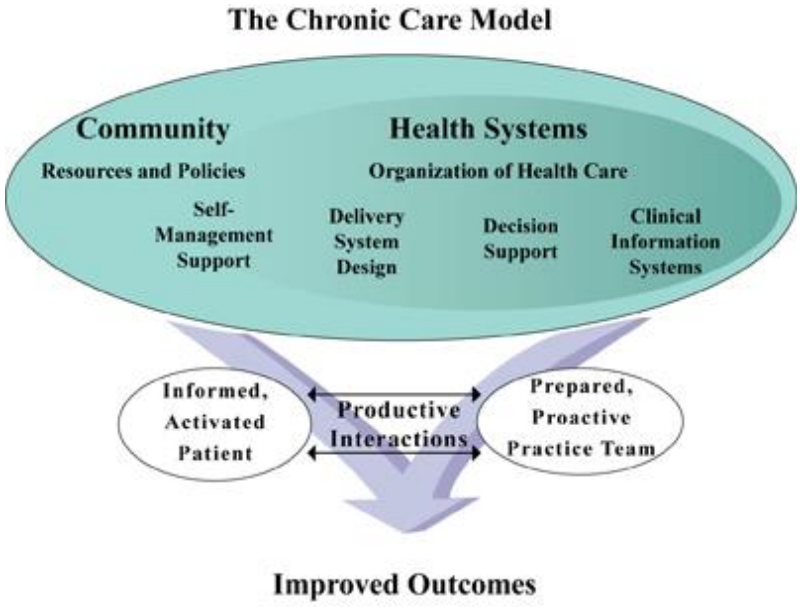
consumption are also significant risk factors for IHD. Though tobacco smoking in Australia has declined consistently in the last three decades, it is still a major risk factor for IHD. As at 2008, the prevalence of tobacco smoking amongst adults in Australia was slightly above 16%, which is one of the lowest in OECD countries (AIHW, 2010). Though alcohol consumption has been associated with IHD, it has a lower risk compared to tobacco smoking (WHO, 2015). As for physical activity, Australians have increasingly become physically inactive since the late 1990s (AIHW, 2010). The implication is that more Australians are at a greater risk of developing IHD.

Obesity, overweight, and high cholesterol levels are often associated with unhealthy diets, especially those with risky levels of salt and fat (Nichols et al., 2014). Individuals with obesity, overweight, and high cholesterol levels are at a greater risk of developing IHD compared to the rest of the population. Obesity and overweight have particularly increased the risk of IHD given that the proportion of obese and overweight Australians has grown consistently in the last three decades (AIHW, 2010). In fact, at more than 20% obesity prevalence, Australia represents one of the largest prevalence rates for obesity among OECD countries. Another risk factor for IHD is blood pressure, which is actually the leading risk factor for IHD (WHO, 2015). In Australia, the prevalence of high blood pressure amongst persons aged 25 to 64 has declined fairly remarkably since 1980, declining from 47% in 1980 to 21% in 2000 for urban men and from 32% to 16% for urban women (AIHW, 2010). Despite this significant decline, high blood pressure remains a significant risk factor for IHD.

Other risk factors include diabetes and genetic inheritance (WHO, 2015). Whereas diabetes is a chronic condition on its own, it is a risk factor since individuals with the condition are at a greater risk of developing IHD and other cardiovascular complications (AIHW, 2010). Diabetes is actually increasingly becoming an important risk factor for IHD given that more and more Australians are succumbing to diabetes and that more and more diabetes patients are developing cardiovascular complications. In 2008, for instance, 58% of Australians with diabetes had cardiovascular disease (AIHW, 2007). Genetic factors have also been shown to be a significant predictor of IHD. Nonetheless, it important to note that more than 80% of IHD cases are attributable to obesity, overweight, high cholesterol levels, high blood pressure, tobacco smoking, and physical inactivity, all which have a lot to do with individual lifestyle (WHO, 2015).

The Chronic Care Model and its Applicability to the Management of IHD

The chronic care model is one of the most popular frameworks utilised in the prevention and/or management of chronic conditions. The model essentially identifies six elements that are necessary for guaranteeing the best quality care for patients with chronic illnesses. These elements include the healthcare system, delivery system design, clinical information systems, decision support, self-management support, and the community (Coleman et al., 2009). The development of the model was based on the notion that disease management requires a holistic and multifaceted approach, where patients, healthcare organisations, and the community have an instrumental role to play and where the psychosocial, lifestyle, and physical problems of patients are addressed (Davy et al., 2015).



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The chronic care model

The element of the healthcare system involves creating a culture that guarantees optimal management of chronic conditions. This specifically entails management commitment to change and quality improvement, creating inducements for healthcare providers to enhance care, and providing the necessary resources for supporting chronic care programmes (Davy et al., 2015). For practice improvement to be implemented, data is important. The element of clinical information systems, therefore, becomes crucial. In essence, information about individual patients and the health of the general population enables the healthcare system to facilitate optimal care (Davy et al., 2015). The element of delivery system design encompasses aspects such as the composition and responsibilities of the practice team, coordination of follow-up care, and arrangement of visits, while the element of decision support is concerned with increasing access to evidence-based practice as well as specialists on the part of healthcare providers (Coleman et al., 2009).

While the first four elements are centred on the healthcare system, the last two are centred on the patient. The element of self-management support advocates for patient-oriented interventions (Davy et al., 2015). It specifically entails preparing the patient to take charge of his or her health. Self-management support, therefore, entails providing educational resources, skills training, psychosocial support, and so forth. The element of community acknowledges the significance of close ties with the community so that patients can access services and facilities that are outside the healthcare organisation (Davy et al., 2015). This is particularly important for the elderly.

The prominence of the chronic care model stems from its emphasis on disease prevention as opposed to treatment (Davy et al., 2015). In other words, the model advocates for the transformation of chronic care from one that responds when an individual is sick to one that pays attention to keeping the individual as healthy as possible all the time. The model also recognises the active role of the patient in chronic disease management. Most importantly, the model seeks to enhance care at not only the individual but also the population level. This has significant implications for the prevention and management of IHD. The elements of self-management support and community resources are particularly relevant for IHD prevention and management. With adequate education about IHD risk factors, especially in relation to lifestyle and dietary behaviour, individuals are better placed to avoid the risk factors. This can further be reinforced by the provision of community-based support such as nutrition counselling, peer networks, and physical activity programmes.

The elements of the healthcare system, delivery system design, clinical information systems, and decision support also have significant implications for the management of IHD. In particular, the commitment of healthcare organisations to quality improvement, an information system that monitors trends in IHD, improved care delivery processes, and access to best practice has immense potential to improve patient outcomes in terms of IHD treatment. In essence, the chronic care model would significantly improve care outcomes if applied to the management and prevention of IHD. A number of studies have actually demonstrated the effectiveness of the model (Coleman et al., 2009; Davy et al., 2015). Nonetheless, the effectiveness of models that advocate for community-based prevention programs is significantly dependent on participation rates (Petter et al., 2015). In essence, due to personal beliefs or other values, some individuals may not be willing to participate in the programmes, thereby undermining their effectiveness.

2. CONCLUSION

Ischaemic heart disease is the leading cause of mortality in Australia and the rest of the world, accounting for approximately 20,000 deaths in Australia and more than 7 million deaths in the world. Furthermore, the condition consumes approximately $2 billion per year in Australia in terms of hospitalisation services, out-of-hospital medical costs, and drugs. It can, therefore, be seen that IHD is a major public health concern. This is particularly true given the increasing population of senior citizens, which have a greater risk of developing IHD compared to the rest of the population. Besides age, other risk factors for IHD include obesity, overweight, high cholesterol levels, high blood pressure, tobacco smoking, alcohol consumption, inadequate physical activity, genetic inheritance, as well as environmental and social factors. The chronic care model has significant implications for the prevention and treatment of IHD as it advocates for a holistic and multifaceted approach to the prevention and treatment of the condition.

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