Did you know that 7 times as many women die from Heart Disease as Cancer?

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Introduction:

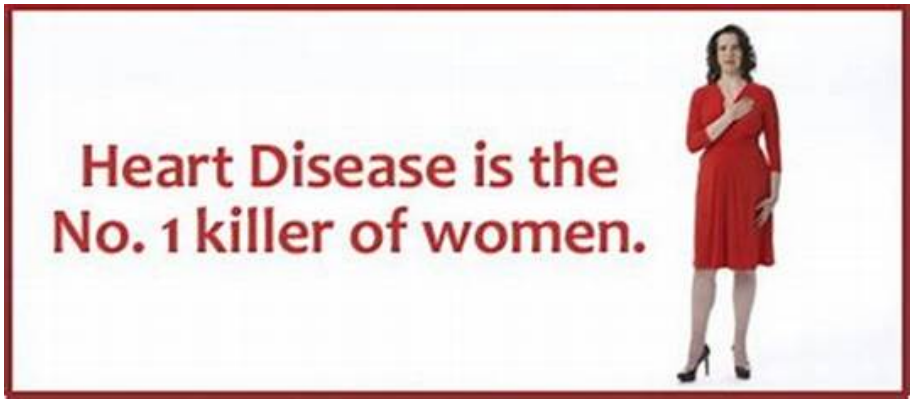
Unfortunately, in North America we continue to believe that heart disease primarily affects men. Although Women's College Hospital in Toronto has drawn attention to the fact that women are both under-represented in clinical trials including being underserved by cardiovascular professions (in addition to offering women-centred cardiac rehabilitation programs), it wasn't until Heart & Stroke published

Ms. Misunderstood Heart Report in February 2018 that heightened media attention on this issue was achieved.

This report indicated that women were under-researched, under diagnosed, under treated and under supported during recovery.(1) This report also indicated that early heart attack warning signs were missed in 78% of women.

Carolyn Thomas of Victoria BC, author of Heart Sisters Blog and A Woman's Guide to Living With Heart Disease (2) who suffered a heart attack is one of those women. Even though she worked at the hospital's hospice, her first trip to emergency resulted in being sent home with a diagnosis of indigestion. Her second Heart attack happened on an airplane on her return trip from Ottawa. Even though she browbeat herself with negative self-talk that indicated she was probably having indigestion again, this time the emergency department took her seriously and saved her life. Nancy Bradley (3) of Kamloops also experienced early signs of a heart attack and was sent home with the diagnosis of heart burn/indigestion. Two weeks later while walking her dog Marley, she experienced difficulty walking, including dizziness, sweating and shortness of breath. Fortunately she made it home, called 911 and passed out while speaking with the 911 operator.

Both of these examples reflect what happens when we as a society, only see heart disease as a man's disease. It is the reason why a woman in Canada dies every twenty minutes from heart disease. Both Carolyn and Nancy are fortunate to be alive. In Canada two thirds of all clinical trials related to heart disease only involve men.



The other major problem is that women's symptoms are different than men. One of the perplexing facts about heart disease with women is that a heart attack can

occur even without any arteries being blocked. This can happen with a “coronary artery spasm”, in which the artery of the heart suddenly closes upon itself. It can also happen with “spontaneous coronary artery dissection” in which the inside of the heart artery tears and a blood clot forms.(Scott Lear MD Myth of the “widow maker”) Often with the majority of men, a heart attack is experienced as a heavy pressure on the chest as if an elephant is sitting there making breathing difficult. Additionally men may experience sweating, nausea and chest or upper arm shoulder pain. For women the symptoms may be experienced as shortness of breath, dizziness, nausea, cold sweats, loss of appetite, overwhelming weakness sense of fatigue, pain in the jaw or neck, and a general sense of malaise.42% of women suffering a heart attack do not experience chest pain.(4) The complicating factors for women emerge from their sense of “care-taking for others” instead of themselves. When conducting seminars I often survey women on the question “What happens to you when you feel unwell and you are either getting dinner for your family or undertaking some other task for your household?” The standard answer I receive is “I normally just sit for a minute and then get about my business”. This is one of the major reasons that women ignore signs and symptoms of a heart attack and often do not make it to hospital in time to save their lives. The other is reflected in heart and stroke’s survey of 2000 women whereby only 37% of 19 to 29 year olds compared to 58% of women aged 50 to 69 believe that heart disease can be different for women than men. This finding suggests that we have a huge public education task in alerting health care professionals, women specifically and the general public that heart disease continues to be the leading cause of death for women. (5) This includes the fact that most Canadian women have at least one risk factor for heart disease and stroke, with ethnicity influencing the risk.(6) Dr. Sheila O’Keefe-McCarthy a Professor of Nursing at Brock University and researcher on prodromal signs for women experiencing a heart attack, has created a prodromal symptom screening scale to assist in early identification of women experiencing a heart attack. A resource designed to answer questions about early warning signs and to foster dialogue on heart disease can be accessed at www.catchheartdiseaseearly.ca.

Risk Factors for Atherosclerotic Cardiovascular Disease in Women
Traditional risk factors for women include diabetes mellitus, hypertension, dyslipidemia, smoking, obesity and physical activity. Some of the emerging or non-traditional risk factors include preterm delivery, hypertensive pregnancy disorders, gestational diabetes mellitus, breast cancer treatments, autoimmune disease and depression.

Diabetes Mellitus: In 2015, 6.9% of Canadians aged 12 and older roughly 2.1 million people were diagnosed with diabetes. 7.8% of males and 5.9% of females reported having diabetes. The prevalence of obese Canadians was 13.6% compared to 6.6% of overweight Canadians and 3.2% of normal weight Canadians.(7) In a meta-analysis of over 850,000 individuals the relative risk for cardiovascular disease was 44% greater for women living with Diabetes mellitus than similarly affected men.(8)women living with Diabetes have a 3 fold excess risk of fatal Coronary Artery Disease compared with women without diabetes. There is lower revascularization rates in women living with diabetes compared to men with diabetes. In addition women living with diabetes have a higher risk of developing heart failure, have a stronger risk factor for stroke and development of claudication (pain in the legs as a result of peripheral artery disease and atherosclerosis) than men with diabetes. Women have impaired endothelium-dependant vasodilation (the inner layer of the micro-vessel walls that constricts, dilates in response to metabolic changes including inflammation and blood clots) (9)(10). Women also are at risk of hypercoagulable state (this means greater tendency to develop blood clots), worse dyslipidemia (unhealthy levels of fat in the blood including LDL-C, HDL and triglycerides) and more metabolic syndrome than men. Research has also suggested these risk factors in terms of metabolic and vascular risk are present in individuals diagnosed with pre-diabetics as well.

Smoking: in the 2017 CBC report, 15% of women smoke compared to 20.4% of males. Women who smoke have a 25% increased risk for coronary artery disease compared to men. The combination of smoking along with oral contraceptive use increases risk for acute myocardial infarction (Heart attack), stroke and venous thromboembolism (Blood Clots). (11) Exposure to tobacco smoke is associated with accelerated atherosclerosis, increased risk of acute heart attack, stroke, peripheral artery disease, aortic aneurysm and sudden death. Smoking is a risk factor for diabetes and aggravates insulin resistance in persons with diabetes.(12)

Obesity and being Overweight: In 2014 the Canadian Community Health Survey indicated over 5million adults have obesity with 30% or more requiring medical support to manage their disease. It is a leading cause of type 2 diabetes mellitus, high blood pressure, heart disease, stroke, arthritis, cancer and other important health problems. Coronary artery disease seems to be higher in women than men. In the Framingham Heart Study obesity increased the risk for CAD for women by 64% as opposed to 46% for men. (7) From 1980 to 2013 obesity rates for men increased from 28.8% to 36.9% and for women from 29.8% to 38%. (13)

Physical Inactivity: Higher levels of physical activity are associated with reduced risk of chronic disease, disability, overall mortality and improved cardio metabolic health. The Canadian Physical Activity Guidelines recommends adults accumulate 150 minutes per week of moderate to vigorous intensity physical activity (14). Unfortunately Canadians spend almost 10 hours a day completely sedentary, with most never achieving the recommended weekly activity guidelines. Physical inactivity has led to a gain of abdominal and visceral fat. Physical inactivity has also been associated with higher risk of type 2 diabetes. In a Canadian population study the prevalence of obesity was significantly higher in people who watched television more than 21 hours a week(24% women) and lower in people who watched television less than 5 hours a week(11%women). An increase of 2 hours a day watching television and or computer screen time was associated with a 14% higher risk of developing type 2 diabetes.(13)(14)

Hypertension: Endogenous estrogens maintain healthy blood flow through the arteries and arterioles that contributes to blood pressure control in women who are premenopausal. Women develop hypertension about a decade after men, becoming more prevalent in elderly women than in elderly men. Hypertension is defined as systolic blood pressure greater than or equal to 140mmhg and a diastolic blood pressure greater than or equal to 90mmhg.(15) Hypertension was prevalent in 24% of Canadians between 20 to 79 between 2012 & 2015 and 53% of Canadians ages 60 to 79years. 65% of Canadians were aware of hypertension and taking medication to control this. 57% of overweight or obese adults between the ages of 60 to 79 were hypertensive.

Dyslipidemia: - The Canadian Health Measures Survey between 2012 and 2013 showed that 38% of Canadians between 18 and 79 years of age have dyslipidemia. In the survey dyslipidemia is defined as LDL-C >3.5mmol/L and total cholesterol HDL-C ratio >5.0. (15)Data available for women in primary prevention is limited. Atherosclerotic risk increases significantly for women after menopause. Numerous epidemiological studies support a strong relationship between elevated levels of low density lipoprotein cholesterol (LDL-C) and increased risk for cardiovascular disease. LDL –C lowering has been the primary goal of therapy aimed at cardiovascular risk reduction and multiple studies has demonstrated the benefits of statins for reduction of major cardiovascular events in individuals at risk. Lipid lowering along with lifestyle change aimed at addressing risk factors has been some of the key recommendations to Canadian physicians who manage patients with cardiovascular risk. Women traditionally have not been prescribed increased statins to meet guideline targets for lowering LDL-C levels. Some of this has occurred because women were at lower risk than men and some of this may be the result of gender bias. (16)

Other Atherosclerotic Risk Factors In Women

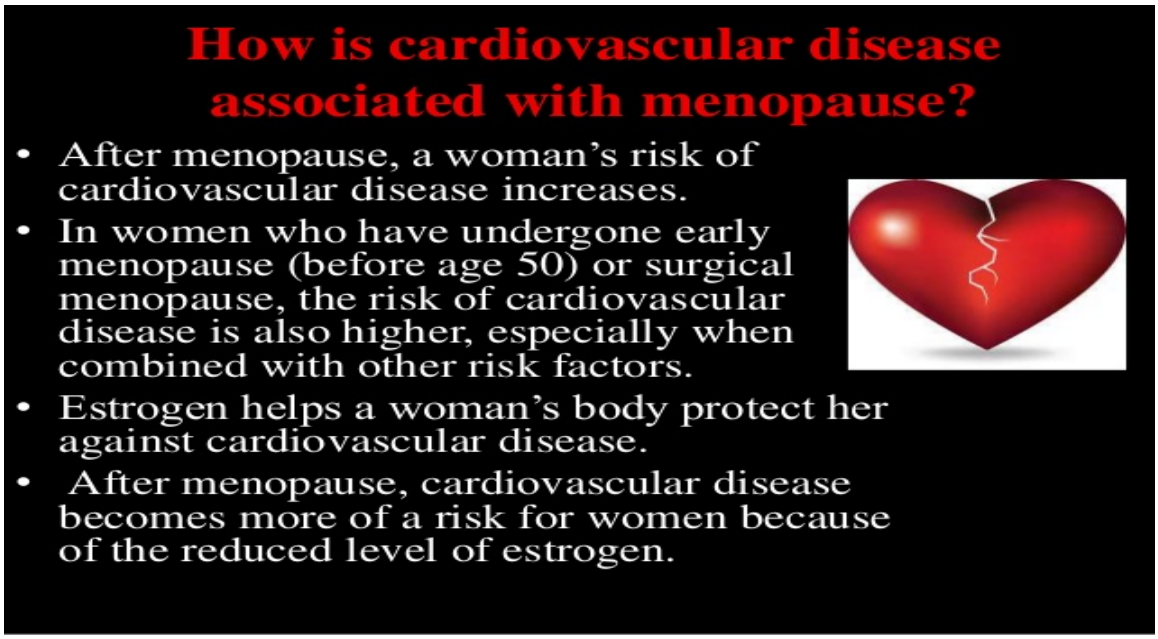
This includes pregnancy disorders and CVD risk association includes hypertensive pregnancy disorder such as gestational hypertension, chronic hypertension and preeclampsia. Women who suffer hypertension (>160/110mm Hg) are at greater risk of developing preeclampsia. Preeclampsia is defined as new onset hypertension(>140/90mm Hg) after 20 weeks gestation. There is growing consensus that associated CVD risk will persist later in life.

Gestational Diabetes Mellitus

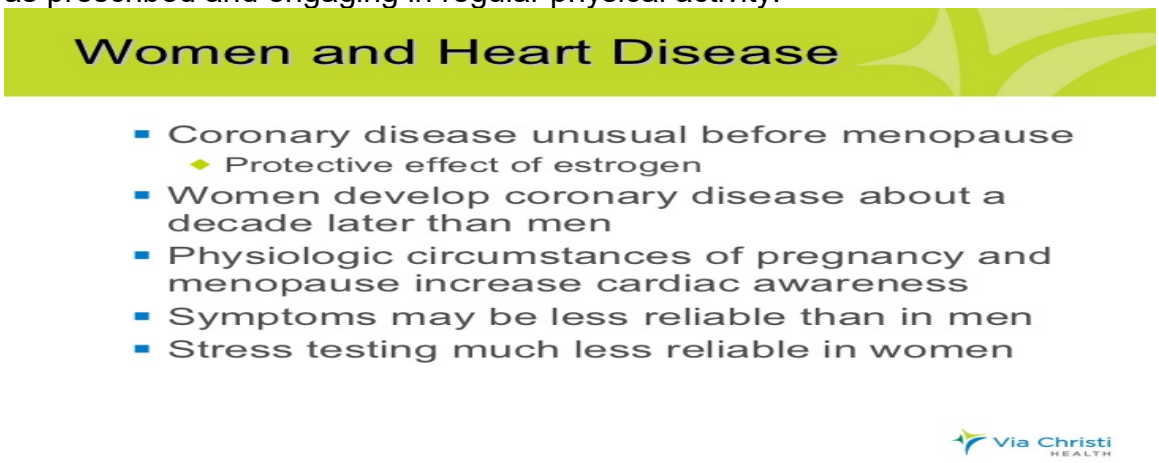
Gestational diabetes mellitus is a type of diabetes that occurs during pregnancy. Your body cannot produce enough insulin to handle the effects of a growing baby. Insulin helps your body control the level of glucose in your blood. If your body cannot produce enough insulin, your blood sugar level will rise. Between 3 & 20% of pregnant women will develop gestational diabetes depending on their risk factors. Diabetes Canada suggests that all pregnant women should be screened for Gestational Diabetes between 24 and 28 weeks of pregnancy.(17) Risk factors for gestational diabetes include being older than 35, coming from high risk ethno-racial populations including African, Arab, Hispanic, First Nation, Metis, Inuit, south and south east Asian, using a corticosteroid medication, having pre-diabetes or gestational diabetes previously, giving birth to a baby over 9lbs, obesity and have a first degree relative with type 2 diabetes.

Menopause and CVD

Premenopausal women are relatively protected against cardiovascular disease risk compared to men who are aged matched. Estrogen increases protection against cardiovascular disease for women. However the decrease in estrogen



production with menopause takes this protection away. This makes postmenopausal women prone to the same risks as men for developing cardiovascular disease. Diabetes also takes away this hormonal protection and adds to the risk for cardiovascular disease. Menopause is also associated with other adverse changes of cardiovascular risk factors including increased levels of total cholesterol, low-density lipoprotein (LDL) cholesterol, and Apo lipoprotein B. In a recent study Journal of the American Heart Association 2018:7:e010405. DOI: 10.1161/JAHA. 118.010405 looked at addressing cardiovascular risk assessment and prevention during midlife for women. This study (18) recommends that education and prevention should be targeted to women in midlife. This should include adopting a healthy lifestyle that includes promoting abstinence from smoking, eating a healthy diet, committing to taking medication as prescribed and engaging in regular physical activity.



Conclusion:

Our intention within this article was to focus on Women and Heart Disease in heightening awareness of some of the risk factors and issues that if addressed might reduce the mortality of women affected. Heart Disease is still the number

cause of death for women. More women are also impacted by Heart Failure, an area we did not address. Our aim is to pique your curiosity and to provide resource contacts for further information. If you enjoyed this article let us know and if you want more information about a particular area in terms of heart disease, comorbidities and or cardiovascular rehabilitation, let us know and we will attempt to address this in future articles.

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