

SOLUTIONS

FOR THE CANADIAN INSURANCE INDUSTRY



NEW CONCEPTS IN CHOLESTEROL TESTING

Cholesterol testing has been a cornerstone of Life Insurance laboratory testing for a long time, both to establish insurability and as a factor to determine an applicant's ability to qualify for preferred insurance products.

Although the total amount of cholesterol in blood is itself a strong risk factor for the development of cardiovascular disease, cholesterol exists as part of several different lipoprotein particles found in the blood. Even though cholesterol is an important building block for larger molecules in the body (e.g. adrenal steroids, vitamin D), and when it is packaged in some lipoprotein particles it is quite healthy, when cholesterol is contained in some lipoprotein particles in the blood, it can be quite unhealthy.

The cholesterol-containing particles are:

LDL-Cholesterol = Low-Density Lipoprotein (known as "bad cholesterol")

HDL-Cholesterol = High-Density Lipoprotein (known as "good cholesterol")

VLDL-Cholesterol = Very Low-Density Lipoprotein (also a "bad cholesterol")

In addition, high levels of triglycerides in blood (>1.8 mmol/L) can be a risk factor for both cardiovascular disease as well as for pancreatitis.

Levels of cholesterol in the different lipoprotein particles as well as the total cholesterol level (all of the cholesterol in all the different particles) can be used to assess risk of cardiovascular disease. Those commonly used for this purpose are:

Total-Cholesterol/HDL-Cholesterol Ratio

LDL-Cholesterol/HDL-Cholesterol Ratio

Non-HDL-Cholesterol

Based on studies conducted between 2009 and 2011, unhealthy cholesterol levels were present in 39% of Canadians aged 6 to 79 years of age but in older individuals this percentage was much higher. A more recent study according to a Statistics Canada report released in March 2010, shows 47% of adults between the ages of 50 and 59 have high levels of total cholesterol, putting them at risk of developing heart disease.

Much of the focus on cholesterol is on the LDL-Cholesterol (or the bad cholesterol) level, as it promotes the build up of plaque in the coronary arteries. This plaque reduces blood flow to the heart, resulting in increased risk of coronary disease and heart attack.

A significant reason for the high percentage of Canadians having elevated levels of cholesterol is to be found in our lifestyle. In some individuals, a positive change in lifestyle can reduce many of the risk-factors for cardiovascular disease. However, those

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who are unsuccessful at lifestyle changes for any reason, or for those individuals in whom lifestyle changes are insufficient to reduce cholesterol-related risk factors, doctors will often place their patients on cholesterol lowering medications (e.g. statin drugs). While this intervention usually does lower blood levels of "bad cholesterol", it also works best in combination with an improvement of lifestyle.

Over the last number of years there has been continuing research into understanding why individuals with apparently healthy levels of the bad cholesterol, sometimes die of cardiovascular disease. To this end, scientists have tried to develop better markers for the risk of a heart attack. Apolipoprotein B (Apo B) is purported to be a better marker than LDL-Cholesterol and is useful as a target in treatment of high-risk individuals because it is not affected by high triglyceride levels (the triglyceride level is used in the calculation of LDL-Cholesterol levels). Apo B is a protein found on the surface of LDL particles and each LDL particle contains only one molecule of Apo B. With this test, physicians can quantify the number of LDL particles in the blood directly and treat to the required Apo B target levels.

In addition to the Apo B test, physicians may also consider ordering an LDL particle test (LDL-Fractionation test) that measures the distribution of all of the different cholesterol-containing particles. Although we usually refer to LDL-Cholesterol as a single entity, in fact it can be fractionated into several sub-particles. One of these is the "small dense LDL" particle, a particle thought to be more atherogenic than the other LDL components and one for which treatment may require more than just a statin drug. These small dense LDL particles seem better able to slip through the cells that line the walls of the arteries. They also appear to be more readily oxidized and it is only oxidized LDL that causes the atherosclerotic effects. This LDL-Fractionation test can further assist physicians in determining the real risk of coronary artery disease, and thereby enable appropriate treatment. Appropriate treatment is thought to be a very significant factor for these patients because patients with acceptable levels of LDL-Cholesterol but with elevated levels of the small dense LDL particles are thought to be at significant risk for coronary artery disease.

These new LDL-Fractionation tests are just starting to be recognized for their added value in the directing treatment. It is therefore likely that they will be referenced in attending physician reports in the future. What would prompt a physician to order them?

If a patient had a number of serious risk factors for coronary artery disease such as bad family history, obesity, diabetes, smoking etc. but all their lipid blood work was within acceptable limits, or even if just their triglyceride levels were elevated, an LDL particle test could be ordered. If the test shows there is an elevated level of small dense LDL particles, there is probably significant added risk to the individual for which a more aggressive and selected treatment will be beneficial. Alternatively, if a patient had no coronary artery risk factors other than elevated LDL, a physician may choose to order LDL particle testing to validate the patient as requiring no treatment other than dietary. Finally, LDL particle testing on patients with risk factors and elevated cholesterol could also be ordered to determine both the correct treatment as well as how aggressive the treatment should be.

In summary, we are probably going to see more reference to LDL-Fractionation tests in the future and this data add to our understanding of how to treat the various types of lipid disorders. This understanding will undoubtedly impact underwriting in terms of risk assessment.

Gamma-Dynacare partakes at CIU Meeting

This year's CIU meeting took place at the Toronto Marriott Eaton Centre Hotel. Gamma-Dynacare was proud to play a part in this meeting as a major sponsor and was pleased to participate in the first luncheon exhibitor fair.



The attached picture is of our booth with our representatives – Shari Gottschalk, Maria Thompson and Nicole Faucher. We thank all of our friends and clients who visited with us as this year's event.



The CIU meeting had a number of excellent speakers and we were pleased to sponsor Dr. Kim Minish from Great-West Life. Dr. Kim Minish spoke on the topic of Chronic Pain and in particular its impact on Living Benefits. She received top marks for her technical material and presentation style.



The final picture is that of Nicole Faucher and Derrick Sabourin, FALU from London Life. Derrick was the recipient of the Education Achievement Award for achieving the highest marks amongst all of this year's FALU graduates. Congratulations Derrick.

We look forward to visiting with you soon at one of the industry meetings this fall.