

Researchers pave the way for novel treatment of pulmonary hypertension

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A Heart and Stroke Foundation researcher has discovered what could be the first truly effective breakthrough in the diagnosis and treatment of pulmonary hypertension, a devastating, life-threatening condition which results in an enlargement of the heart.

"We have discovered an early warning system in a protein called PIM-1," Dr. Sébastien Bonnet told the Canadian Cardiovascular Congress 2010, co-hosted by the Heart and Stroke Foundation and the Canadian Cardiovascular Society.

Dr. Bonnet has established that the PIM-1 cells can be used as markers of pulmonary [hypertension](#).

"Blood samples were taken from patients to measure PIM-1 expression in the blood," says Dr. Bonnet, who is a professor at Laval University and a researcher at Centre hospitalier universitaire de Québec. "We were surprised to find that the greater the PIM-1 levels, the more severe the [pulmonary hypertension](#) in the patient."

He says this opens the doors to using regular blood tests to look at PIM-1 levels. "If there is a slight increase in PIM-1, we will know that something is going on." This is important since the condition is under-diagnosed and often not discovered until it is in a late stage. Without earlier treatment it has a very poor prognosis. The condition has traditionally been diagnosed by a six minute walking test.

PIM-1 also offers the opportunity to move beyond the diagnosis of pulmonary hypertension to treatment. By blocking the PIM-1 protein, researchers were able to reverse the condition.

"This is a remarkable finding," says Dr. Bonnet. "We have found that using gene therapy to inhibit the inappropriate activation of this [protein](#) is a novel and effective therapy that can reverse the disease altogether."

Before this discovery there has been no agent to reverse the disease. Current drug treatments can improve quality of life but to this date there has been nothing that can cure the disease.

"Pulmonary hypertension is a rare but life-threatening condition," says Heart and Stroke Foundation spokesperson Dr. Beth Abramson. "These are often very sick individuals. By the time a patient gets to a doctor, the disease is usually well established." Individuals at increased risk of developing pulmonary hypertension include those with a family history and people with a history of blood clots in the lungs (pulmonary embolism).

She recommends that patients pay particular attention to any symptoms like shortness of breath or extreme tiredness. "There are treatments that can help patients live longer, healthier lives."

Pulmonary hypertension is abnormally high blood pressure in the pulmonary arteries, the arteries which carry blood from the heart to the lungs. The condition makes it more difficult for blood to flow to the lungs, causing shortness of breath, fatigue, and swelling of the feet and ankles. It can make everyday tasks almost impossible.

The number of Canadians with pulmonary hypertension is difficult to estimate, because it is under-diagnosed and the early symptoms are common to other conditions such as asthma and general fatigue. In

addition, few studies have been conducted.

Provided by Heart and Stroke Foundation of Canada

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