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By Kira Vermund

Imaging...with heart and innovation

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AVOIDING THE WORST

Meanwhile, Dr. Maral Ouzounian, a cardiac-surgeon who specializes in aortic disease at the PMCC, has a grand vision of her own. After moving to Toronto from Houston in 2014, she has performed many surgeries on patients with aneurysms or dissections in their aorta. The aorta is the main artery that carries blood away from the heart to the rest of the body. If an aneurysm forms there - the artery wall weakens, so that it balloons out - it can quickly become a serious, life-threatening medical emergency if the aneurysm tears and bursts.

"If you tear your aorta at home, most of the time you don't even make it to the hospital; it's a fatal event," she cautions. Most people don't even realize there's a problem until it shows up on an unrelated echocardiogram or CT scan. Then the surgeon has a decision to make: operate to remove it or take a wait-and-see approach. Some aneurysms are stable and unlikely to rupture. Others are far more dangerous. The problem is, it's not easy to tell one from the other, so physicians depend on their size as a guide. In the past, the aorta that is close to the heart (root or ascending) aneurysms are repaired if they are larger than 5.5 centimetres. Yet size can be misleading, says Dr. Ouzounian. Some will rupture or dissect when they're smaller, while others remain stable even as they hit the six-centimetres threshold.

"If we do find parameters that are predictive, we could tailor our therapies more to the specific individual," she says. "The PET-MRI gives us a much more in-depth look at somebody's aorta and allows more personalized decision making.

Considering the risk of death is only less than 1 per cent for the event, "it's no wonder Dr. Ouzounian is looking for new ways to avoid risky emergency surgeries.

She's pleased she's been able to conduct her potentially life-saving research at the PMCC, where she works daily alongside vascular surgeons, interventional radiologists, cardiologists, surgeons and even geneticists.

"It really like the team-based nature of the work at the [Peter Munk Cardiac Centre] and the opportunity to do high-end surgery and research," she says. "My goal was to be an academic aortic surgeon - and this is the best place to do it."