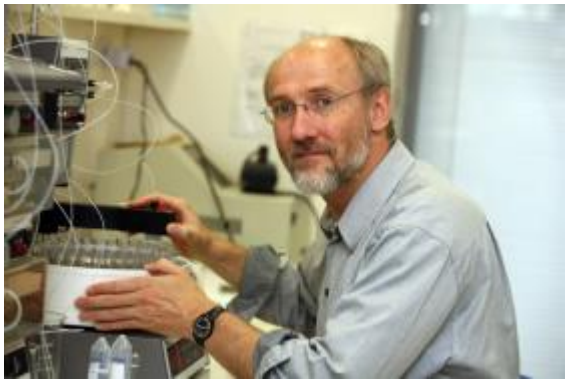
Does our blood contain early markers of MS?



Our bodies contain a number of fascinating but under-rated bodily fluids, with blood possibly being the most fascinating. We use it regularly to test our health, we can save lives by donating it to others, poets and playwrights have been obsessed with it. Blood is the body fluid with the strongest cultural references, including the platitude - blood is thicker than water, while figuratively it might be accurate, it is literally correct, as blood is a mixture of plasma, red blood cells, white blood cells, pseudo cells known as platelets and many other chemicals, compounds and molecules.

While all of the components of blood are important, we are going to focus on platelets. Originally platelets were best known for contributing to blood clot formation, and that is true, when you have a cut, platelets bind to the site of the damage, causing a blood clot and stopping the bleeding. However, more recently it has been discovered that they are important players in the immune system, playing an important role in inflammation.

Platelets are "intelligent" in that they are capable of discriminating between different types of danger and of adjusting their response accordingly. Now researchers funded by MS Research Australia with support from CharityWorks for MS are discovering even more about them. Professor Karlheinz Peter based at the Baker IDI Heart and Diabetes Institute in Melbourne has been investigating the role of platelets in MS.

Professor Peter and his team have shown in animals that there is an increase in the number of platelets in the blood before the onset of an MS-like disease. Why this happens is still unknown, however these platelets manage to get in and accumulate in the brain before some of the other immune cells, signifying that platelet accumulation maybe one of the earlier immunological events in the development of MS.

This team has carried out a lot of research on platelets in other diseases and are recognised internationally for their work on platelets, and they are using their experience in platelet research in their new work in MS. They are currently using a cutting edge imaging technology, called Positron Emission Tomography (PET), to trace platelets in the brain allowing the detection of MS lesions very early on in MS, even before MS symptoms manifest. This suggests that platelets may be a useful diagnostic marker, detecting MS before any symptoms become apparent.

Another exciting aspect of this work is that there is a number of medications which are already clinically approved to be used in humans that alter the function of platelets. Given that we already know the inflammatory response is a major component of MS and results from this work suggest platelets are playing an important role in the inflammation, potentially some of already approved clinical medications may be able to be repurposed to halt the progression of MS.

This work shows that platelets appear to be very important in MS, further highlighting the many and varied roles blood has in our bodies. We look forward to further studies of Professor Peter and other groups around the world as they unlock the mystery of this underappreciated body fluid. But as the quote goes you can't ignore the whispers in your blood.

Article Courtesy of MS Research Australia www.msra.org.au