

March 2018

Cause

1. Two researchers in Massachusetts are changing the way in which we view amyloid-beta and its role in the development of Alzheimer's disease. Rudolf Tanzi and Robert Moir have been studying an antimicrobial peptide that forms part of the body's ancient immune system and closely resembles amyloid-beta, and have theorised that amyloid-beta may actually have started out as a protective mechanism. Using the analogy of an oyster forming a pearl, Tanzi and Moir suggest that amyloid-beta may form in the brain in order to trap and contain invading pathogens. During tests in the laboratory, they found that amyloid was adept at fighting viruses and bacteria. The next step is to discover why the brain sometimes makes too much amyloid – is it overreacting to an invading pathogen, or mistaking healthy cells for those that need destroying?

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2. New Polygenic risk scores (PGR) are being utilised by researchers to identify mild cognitive impairment (MCI) in adults in their 50s. Previous studies of the Alzheimer's PGR scores have typically been conducted with people in their 70s, but it is now known that the pathological process begins much earlier. Researchers analysed data on over 1,300 men in the U.S., with an average age of 56, and ranked the participants according to their PGR score. They found that those in the top 25% had 2.5 times higher risk of having MCI.

** Polygenic refers to a group of nonallelic genes that together control a quantitative characteristic in an organism*

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3. According to new research from France, alcohol use disorders are the most preventable risk factor for all types of dementia, especially those that start before the age of 65. The nationwide study, which looked at over one million adults diagnosed with dementia, found that 57% of the early-onset dementia cases were related to chronic heavy drinking. The researchers are calling for preventative and policy measures to address the issues.

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4. A new study, involving blood samples from over 22,000 across Europe, has found that higher concentrations of certain molecules in the blood are associated with lower risk of future dementia. Branched-chain amino acids, creatinine and two lipoprotein lipid subclasses were cited as being associated with a lower risk. These biomarkers may help scientists to develop a diagnostic exam, identify people at risk and broaden the search for possible treatments.

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Cure

1. Two papers recently published in the medical journal *Neuron* discuss a trigger in the brain that prompts immune cells to degrade amyloid-beta proteins. TREM2 (Trigger Receptor Expressed on Myeloid Cells 2) could possibly play a role in preventing Alzheimer's disease or reducing the severity of its symptoms. Amyloid-beta binds to TREM2, prompting neural immune cells to attack the amyloid, which can slow the progress of the disease. Increasing TREM2 levels appears to further improve the responsiveness of immune cells and reduce symptoms.
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2. Disrupted sleep is one of the earliest symptoms of Alzheimer's disease. Dr Laura Jacobson, a scientist at Florey's Sleep and Cognition Laboratory, is leading research into the orexin system, which controls our sleep-wake cycle as well as helping to regulate our appetite and eating behaviours. Of particular interest is the way higher levels of orexins (molecules produced in a very specific region in the brain) match up with higher levels of tau proteins accumulating in the brains of people with Alzheimer's or Frontotemporal dementia. Dr Jacobson believes the build-up of tau may be causing orexin levels to rise, which then leads to disrupted sleep. It is possible drugs that target the orexin system may also prove useful in slowing the progression of dementia.
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3. According to new research from Edith Cowan University, a protein-rich diet can reduce the risk of developing Alzheimer's. Over 500 Australians were involved in the study, which looked at protein consumption and amyloid beta levels in the brain. Participants were split into three groups, based on their level of protein intake. Those who consumed the most protein – around 118g daily – were twelve times less likely to have high levels of amyloid than those in the group eating only 54g a day. The reason for the link has not yet been established, though scientists theorise it may be due to high-protein diets being associated with lower blood pressure, lower body weight and a reduction in the risk of cardiovascular disease.
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Care

1. New guidelines for staff involved in the care of transgender people with dementia have been developed to ensure empathetic, understanding and appropriate health care in North Wales. Believed to be the first of its kind, the guidelines will help support a vulnerable and unique sector of the dementia community. Transgender people with dementia have specific needs and issues, and the new guidelines will provide advice and suggestions on how to help them accept their current gender (when they cannot remember transitioning) maintain their preferred appearance, and deal with any fears or anxieties related to their gender identity.
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2. A new study from the U.S. is successfully helping people with dementia, and their carers, improve communication and reduce frustration and disengagement. CARE (Caring About Relationships and Emotions) was designed to “increase facilitative (helpful) communication in the caregiver and sociable communication in the care receiver”. Caregivers are taught to recognise their partner’s ongoing need for closeness, inclusion, love and respect (even if they are unable to verbalise these needs) and to modify their own behaviours, which may be hindering communication.
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3. People from non-English speaking backgrounds may have difficulty getting a dementia diagnosis due to communication and cultural challenges. The National Ageing Research Institute’s federally-funded program, “Moving Pictures” is aiming to improve awareness of dementia throughout migrant communities. Fifteen films, in languages such as Hindi, Mandarin and Arabic, are in production, and will feature interviews with caregivers talking about their experiences. The films will be available online and via a smartphone app.
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