Alzheimer's drugs linked to reduced risk of myocardial infarct

Drugs that are used for treating Alzheimer's disease in its early stages are linked to a reduced risk of myocardial infarction and death, according to a study of over 7000 people with Alzheimer's disease in Sweden (Nordström et al, 2013).

The research looked at cholinesterase inhibitors, such as donepezil, rivastigmine and galantamine, which are used to treat mild to moderate Alzheimer's disease. Side effects of cholinesterase inhibitors include a beneficial effect on the vagus nerve, and some experimental studies have suggested that cholinesterase inhibitors could also have anti-inflammatory properties.

Professor Peter Nordström, of Umeå University, Umeå, Sweden, and colleagues followed 7073 people with Alzheimer's disease, who were on the Swedish Dementia Registry from May 2007 to December 2010. They found that those who were on cholinesterase inhibitors had a 36% reduced risk of death from any cause, a 38% reduced risk of myocardial infarction and a 26% reduced risk of death from cardiovascular causes such as stroke compared to people not taking cholinesterase inhibitors.

Professor Peter Nordström, Umeå University, Umeå, Sweden

The results included adjustments for confounding factors such as age, sex, whether the diagnosis was for Alzheimer's dementia or Alzheimer's mixed dementia, level of care, and medical history including medications for other conditions.

Professor Nordström said: 'If you translate these reductions in risk into absolute figures, it means that for every 100 000 people with Alzheimer's disease, there would be 180 fewer heart attacks – 295 as opposed to 475 – and 1125 fewer deaths from all causes – 2000 *vs* 3125 – every year among those taking cholinesterase inhibitors compared to those not using them.'

Patients taking the highest recommended doses of cholinesterase inhibitors had the lowest risk of heart attack or death: 65% and 46% lower respectively compared with those who had never used cholinesterase inhibitors.

The researchers also checked whether the reduction in risk applied only to the use of cholinesterase inhibitors or was seen in other drug treatments for dementia. Memantine is indicated for use in moderate to advanced Alzheimer's disease and has a different mechanism of action; it made no difference to the risk of heart attack or death from any cause.

As the study was based on a nationwide group of patients, Professor Nordström said it should be possible to extrapolate the findings to other countries.

Nordström P, Religa D, Wimo A, Winblad B, Eriksdotter M (2013) The use of cholinesterase inhibitors and the risk of myocardial infarction and death: a nationwide cohort study in subjects with Alzheimer's disease. *Eur Heart J* Jun 4 (Epub ahead of print)

Vitamin D deficiency may help hepatitis B spread through liver

Researchers from Germany have found that low levels of vitamin D are associated with high levels of hepatitis B virus replication (Farnik et al, 2013).

Between January 2009 and December 2010, the team recruited 203 patients with chronic hepatitis B virus who had not previously received treatment for their infection. Levels of 25-hydroxyvitamin D were measured in each participant. Patients co-infected with hepatitis C, human immunodeficiency virus or hepatitis D, those with excessive alcohol use, and those with liver cancer or other malignancies were excluded.

Results show that 34% of participants had severe vitamin D deficiency (less than 10 ng/ml), 47% had vitamin D insufficiency (between 10–20 ng/ml) and 19% had normal levels of vitamin D (>20 ng/ml). Further analyses indicate that the viral load was a strong indicator of low vitamin D levels. In patients with HBV DNA less than 2000 IU/ml *vs* 2000 IU/ml or more, levels of vitamin D were 17 and 11 ng/ml respectively.

Patients with the hepatitis B antigen had lower levels of vitamin D than hepatitis B antigen negative participants. Inverse seasonal fluctuations between vitamin D and hepatitis B virus levels were noted, further suggesting a relationship between the two variables.

Farnik H, Bojunga J, Berger A et al (2013) Low vitamin D serum concentration is associated with high levels of hepatitis B virus (HBV) replication in chronically infected patients. *Hepatology* May 22 (Epub ahead of print)

MRI shows early chemotherapy effects on children's hearts

Magnetic resonance imaging (MRI) of children who have had chemotherapy can detect early changes in their hearts, found University of Alberta researchers (Tham et al, 2013).

Chemotherapy with anthracyclines, e.g. doxorubicin, is one of the most effective treatments for many types of cancer, including leukaemia and Hodgkin's lymphoma, breast, lung and ovarian cancer. However, it can lead to irreversible heart damage, which may not be apparent until several years after treatment. Being able to detect this damage at an early stage is especially important in children, to initiate preventative therapy.

Researchers performed MRI scans on children and young adults (aged 7–19 years) at the Stollery Children's Hospital who were in remission following anthracycline treatment. They identified changes in heart muscle related to the formation of fibrosis, using an emerging MRI method called T1 mapping, even in children whose heart function was apparently normal on ultrasound.

Tham EB, Haykowsky MJ, Chow K et al (2013) Diffuse myocardial fibrosis by T1-mapping in children with subclinical anthracycline cardiotoxicity: relationship to exercise capacity, cumulative dose and remodeling. *J Cardiovasc Magn Reson* **15**: 48