

Tea Leaves Alzheimer’s Disease Behind

We’ve all heard stories about tea leaves having the power to forecast the future. But what if tea could actually help you remember the past?

Alzheimer’s disease (AD) is an incurable form of progressive dementia that claims people’s abilities to remember family, friends – and the past.

Currently, in Canada, more than a quarter million Canadians (280,000 people) are losing their memories to AD. By 2031, more than 750,000 Canadians are expected to have the disease and related dementias.

And it doesn’t stop there.

AD also has a profound impact on Canada’s economy, with caring costs alone accounting for \$5.5 billion each year (Ostbye and Crosse 1994).

For the past few years, a number of researchers have conducted studies on tea leaves to prove that they can protect the brain’s neurons against AD’s toxic compounds. Some have found encouraging results – especially with green tea.

With the help of Dr. Stéphane Bastianetto at Montreal’s Douglas Hospital Research Centre, I undertook a study that proves for the first time that regular consumption of both green and black teas can prevent neuron cell death or delay the onset of AD.

Alzheimer’s Disease: The Causes

AD tends to attack the brain’s temporal lobe and the hippocampus, which help control thought, memory and language. It does so through an accumulation of clumps called toxic B-amyloid plaques and twisted brain tissue fibers called neurofibrillary tangles which, together, destroy the brain’s neurons.

No one is quite sure what causes AD. Age is usually identified as an important risk factor, for the majority of sufferers experience the disease after the age of 60. Family history may also be a risk factor, as some early-onset cases, which occur between the ages of 30 and 60, are believed to be genetically inherited. As for late-onset AD, it could very well be that the individual has a defective version of a gene called apolipoprotein-E (Apo-E), which helps induce the disease.

In order to be properly diagnosed, AD must be evaluated in the brain tissue of the sufferer through autopsy. Specialists in the field can only make an estimation of the disease’s existence while the person is alive, with up to 90% accuracy. This is done using common health research tools that include brain scans, memory recall tests, questions regarding the person’s daily activities and past medical status, and medical tests that involve urine, blood or spinal fluid.

There is no treatment available to stop AD, but drugs do exist to delay its progress for a couple of years. These drugs include donepezil (Aricept), rivastigmine (Exelon) or galantamine (Razadyne, previously known as Reminyl). Patients usually succumb to the disease after a decade.

Our Study

Using rat brains as models, we examined neuronal hippocampal culture in three different groups. We studied the effects, at different concentration levels, of B-amyloid introduced in two groups. We kept one control group free of both the plaques and any kind of tea extract.

The study suggests that regular consumption of tea (black or green) could offer some degree of protection against neurodegenerative diseases, such as AD.

While the control group’s tissue remained free of any disease and/or problem, the other two groups suffered neuron death. The cell death was observed using a fluorescent dye.

The toxic effect of the amyloid was reduced by the administration, at different doses, of extracts taken from both green and black teas.

The extract, which was composed of gallic acid and catechins (including epigallocatechin gallate, or EGCG, epigallocatechin, or ECG, and theaflavins), acted as a protective barrier against the amyloid and helped some of the neurons to survive. Higher concentrations of extract led to correspondingly higher rates of neuron survival.



Previously, studies have shown that extract drawn from green tea has the potential to combat a variety of different diseases – including various forms of cancer and AD. Earlier this year, for instance, one population-based study of elderly subjects conducted at the Tohoku University Graduate School of Medicine in Japan demonstrated that daily consumption of at least two cups of green tea per day could cut the risk of dementia by half.

While the benefits of green tea are recognized, our study is the first to demonstrate that extract drawn from both green and black teas can help in the fight against AD. The benefits of black tea may be at a lower intensity, but the study shows that benefits do in fact exist.

As this is still a rat model, similar benefits have yet to be demonstrated among humans. However, the study suggests that regular consumption of tea (black or green) could offer some degree of protection against neurodegenerative diseases, such as AD.

Concluding Thoughts

The benefits of this discovery could have a profound effect on elderly health as well as the Canadian economy.

Should tea extracts prove to offer protection among humans against amyloid plaques, it could open a whole new avenue in terms of prophylactic treatment and potential therapies.

This could also offer a tremendous benefit to the cost of elderly care.

As for caregivers (which includes nursing home care, use of medications, use of community support services by caregivers and unpaid caregiver time), the annual societal cost of care per individual with AD is estimated to be

- \$36,794 for severe disease
- \$25,724 for moderate disease
- \$16,054 for mild to moderate disease
- \$9,451 for mild disease (Hux et al. 1998)

AD not only has a financial impact on a family, but it can also have psychological effects on people who watch their loved ones lose their memories. Currently, half of Canadians know someone who has AD, and one-quarter of Canadians have someone in their family who suffers from the disease.

As Scientific Director of the Canadian Institutes of Health Research Institute of Neurosciences, Mental Health and Addiction, I am committed to devoting my time to funding and conducting research that will benefit the health of Canadians in the long term. It is my sincere wish, then, that tea helps leave Alzheimer’s disease behind. That way, those who suffer from it can look forward to a future – and remember their past.

References

Hux, M. et al. 1998. "Relation Between Severity of Alzheimer’s Disease and Costs of Caring." *Can Med Assoc J* 159(5).

Ostbye, T. and E. Crosse. 1994. "Net Economic Costs of Dementia in Canada." *Can Med Assoc J* 151(10): 1457–464. And personal communication, Canadian Study of Health and Aging.

Quoted in <http://www.alzheimer.ca/english/disease/stats-costs.htm>.

About the Author

Dr. Rémi Quirion is the inaugural Scientific Director of the Institute of Neurosciences, Mental Health and Addiction, one of the 13 virtual institutes of the Canadian Institutes of Health Research created in 2000. He is a McGill University Full Professor and Scientific Director at the Douglas Hospital Research Centre (a McGill affiliated teaching hospital).

If you have any questions regarding research discussed in this article, please feel free to contact Dr. Quirion at Tel: (514) 761-6131, ext. 3932, Fax: (514) 888-4060, E-mail: remi.quirion@douglas.mcgill.ca.



PATIENT ASSESSMENTS MADE EASY
ALLOWING YOU TO FOCUS ON PATIENT CARE



- Fast and Accurate** - an integrated web-base solution, validated for the capture and transmission of data for CIHI reporting
- Easy to learn and use** - efficient and user-friendly, reduces staff training time and makes assessment a part of patient care to eliminate time on paperwork
- Flexible, Secure and Scalable** - access from any number of workstations or locations to fit any size budget, full data encryption and audit trails for security and privacy

FREE TRIAL DOWNLOAD

Large multi-site organizations are already using Clarity Healthcare for CCRS, NRRS and MHRS. Take the first step to simplifying patient assessments, reducing costs and eliminating wasteful paper forms collection.

Visit our website for a demo or free trial download
www.clarityhealthcare.net

Consulting Cadre International Inc.



www.clarityhealthcare.net
info@consultingcadre.net

For more information or to arrange for a demo call us at 1-888-833-5953 (toll free)
(in Toronto at 416-747-5953)

Clarity Healthcare Solutions is a trademark of Consulting Cadre International Inc.