

therapy for patients with Alzheimer's disease or vascular dementia. ▲

## Propentofylline

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The prevalence of dementias is increasing in the aging populations of developed countries. Propentofylline is a novel xanthine derivative that is in late phase clinical development for the treatment of dementias related to Alzheimer's disease or cerebrovascular disorders.

Preclinical studies demonstrate that propentofylline significantly reduces neuronal damage following cerebral ischaemia in rodents. The neuroprotective effects of propentofylline appear to be due to potentiation of adenosine receptor activity, since propentofylline blocks cellular uptake and elevates extracellular levels of adenosine in

ischaemic rodent brain. Adenosine is an endogenous neuromodulator that inhibits release of the excitatory neurotransmitter glutamate and has vasodilatory and antithrombotic properties, a combination of effects that is beneficial for neuronal survival following ischaemic episodes.

In addition to effects attributed to inhibition of adenosine uptake, propentofylline can inhibit free radical production by cultivated microglial cells, inhibit proliferation of astrocytes, and stimulate nerve growth factor production, effects that may reduce neuronal loss associated with neurodegenerative diseases.

Placebo-controlled studies in patients with dementia who were treated for up to 12 months indicate that propentofylline prevented clinical deterioration and produced significant clinical improvement in cognitive function. To date, human and animal studies are encouraging and indicate that propentofylline reduces neuronal loss due to acute or chronic disease processes. ▲

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