Demência e Diminuição da Cognição e Procaina

01/03/2009

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Procaine treatments for cognition and dementia

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Abstract

Background
Procaine is a controversial substance which has been used for "antiageing" effects including cognitive improvement for more than 50 years.
Objective
To assess the efficacy and adverse effects of procaine (and preparations containing procaine as a component) on cognitive function in the treatment of people with dementia as well as healthy elderly people.
Search strategy
References regarding trials with people with dementia or cognitive impairment were identified from a search of the Specialized Register of the Cochrane Dementia and Cognitive Improvement Group on 8 September 2007 using the search terms: gerovital* or aslavital* or procain* or KH3 or novocain* or GH3 or trofibial or "Zell H3" or Vitaceel* or GH7 or "Ultimate 9". The Cochrane Library, MEDLINE, EMBASE, PsycINFO, CINAHL and LILACS were searched on 18 September 2007 to find references to trials with healthy people.
Selection criteria
All human, unconfounded, randomized double-blind trials in which treatment with procaine was administered for its effects on cognitive function and behavioural symptoms in demented or healthy elderly participants in parallel group comparison with placebo.
Data collection and analysis
The two review authors independently selected trials, assessed quality, extracted data, and performed the data analysis.
Main results
Pooling data from two studies showed a detrimental effect of procaine in terms of causing side effects (20/208 active versus 3/207 placebo, OR 7.30, 95% CI 2.13 to 25.02, P = 0.002). In patients with dementia, a single small study also suggested a detrimental effect. Two trials referring to healthy elderly persons suggested a positive effect of procaine preparation on cognitive function. Meta-analysis of beneficial outcomes was not appropriate due to the different preparations, durations and poor quality of trials. Most trials were performed before the 1990s and none reported any criteria for cognitive decline and dementia.

Reviewers’ conclusions
This review suggests that the evidence for detrimental effects of procaine and its preparations is stronger than the evidence for benefit in preventing and/or treating dementia or cognitive impairment.

Synopsis

Preparations which contain procaine as a component are widely promoted and used in several countries. In analysing the effect of procaine and its preparations, there was no evidence for benefit in the prevention or treatment of dementia or cognitive impairment. There were a few but some serious adverse events related to long-term use of procaine.

Background
Dementia is an important public health problem. As the prevalence of dementia increases with age, and the proportion of the elderly in the world population is expected to increase over time, the impact of dementia on society will increase. More effective primary prevention might result in a decrease in the prevalence of dementia. Pharmacological and non-pharmacological treatments have been developed which aim to treat the causes of dementia as well as to interrupt the disease. Many other drugs have been claimed to provide symptomatic or disease-modifying effects.

Procaine hydrochloride or novocaine was first synthesized by the German chemist Alfred Einhorn in 1905 and was used as a local anaesthetic. Administered intravenously from 1925, it was described as effective in migraine, pain, and asthma. After 1950 it was also used for its "antiageing" effects. Preparations which contain procaine as a component (e.g. Gerovital, Gerovital H3, Procaine Hydrochloride, KH3, GH3, Trofibial H3, Aslavital, or Zell H3) are claimed to prevent, reverse and interrupt dementia and to have the following beneficial effects: neuron regeneration, cell membrane modulation, protection against cerebral anoxia (a condition in which there is a lack of oxygen supply of the brain), antioxidant activity, increasing resistance to infections and toxins, antidepressant activity (as a reversible inhibitor of monoaminooxidase), increasing serum HDL-C concentrations and decreasing triglyceride levels. They are also claimed to be thyroid inhibitors, muscle relaxants and antihistamines. They are said to decrease plasmacortisol levels and therefore to prevent and/or treat dementia. The British Pharmacopoeia (1997) states that these combined drugs containing procaine had a prophylactic or therapeutic effect in pathological ageing or in the diseases of later life, including dementia. Despite this, the drugs continue to be widely promoted and can be purchased "over the counter" outside the US and via the Internet. The following websites demonstrate the intensity of these marketing efforts:


The preparations themselves vary widely in active ingredients, nutritional components and other ingredients. The following are examples

of the preparations available as of April 2008:

(1) Gerovital H3, GH3@ - potassium metabisulphite, benzoic acid and disodium phosphate as well as procaine. VITACEL 3 and VITACEL 3sp are very similar products. Vitacel 6 is GH3 without bisulfite.

(2) ZELL H3, VITACEL 5 - procaine plus various vitamins, minerals and enzymes

(3) KH3 - procaine, hematoporphyrine, and other ingredients

(4) A-vital is Gerovital H3 + vitamin B6 and other ingredients

(5) VITACEL 4 ASLAVITAL is Aslavit + Bee Propolis + Royal Jelly

(6) Vitacel GH7 or GH7 - procaine hydrochloride complexed with various vitamins and other biochemically active compounds.

A host of GH7 based treatments have entered the market:

VITACEL 9* - GH7 + L-Carnitine + CoQ10 + Lycopene

VITACEL 8* - GH7 + Grape Seed + Ginkgo + Milk Thistle + Artichoke extracts

VITACEL GH7* PLUS 200 mg - double dose of GH7

VITACEL 7 GOLD* - a liquid preparation of GH7

Ultimate 9 (also called Procaine Vitamin H3, Ultra GH9, Ultra-H3): in Ultimate 9, so it is claimed, all the procaine hydrochloride is complexed and protected which makes it theoretically six times more active than GH3 2008). All these products can be sold (like any other product) at whatever price the distributor wishes. Consumers are warned however that "it is worth bearing in mind that a 'cheap' version often indicates corners have been cut in the manufacturing process" (GH3 2008).

At present procaine hydrochloride and preparations containing procaine have an unclassified status as treatments for promoting cognition and preventing dementia. In view of the fact that the last systematic review of preparations containing procaine was performed more than 30 years ago, and given their apparent popularity as an "antiageing" treatment - the preparations are said to be readily available in over 70 countries around the world and to be used by more than 100 million people (GH3 2008) - a Cochrane review testing the safety and efficacy of these preparations for promoting cognition and preventing dementia was warranted.

References to studies included in this review

Balaceanu 1989 {published data only}


Cashman 1961 {published data only}


Hall 1983 {published and unpublished data}


Southampton 1982 {unpublished data only}

The Southampton Ageing Project: A trial of KH3. 1982-.

* indicates the major publication for the study

References to studies excluded from this review

Abrams 1965 {published data only}


Aslan 1980 {published data only}


Berryman 1961 {published data only}


Czerwenka 1970 {published data only}


Fee 1961 {published data only}


Gericke 1961 {published data only}


Hirsch 1961 {published data only}


Isaacs 1962 {published data only}


Kant 1962 {published data only}


Kant 1980 {published data only}


Long 1964 {published data only}


May 1962 {published data only}


Olsen 1978 {published data only}


Ostfield 1977 {published data only}


Quatember 1980 {published data only}


Rusu 1996 {published data only}


Sakalis 1974 {published data only}


Smigel 1960 {published data only}

Valtonen 1992 {published data only}

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Ultimate 9 2008
Development of Ultimate 9. :::

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