

# Medicament Comprising Donepezil and Carbostyryl Derivative for Alzheimer Treatment

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**Abstract---** Donepezil is the predominant Alzheimer's drug in over fifty countries. The Donepezil is a strongly active and reversible piperidine derivative with AChEI activity that has the largest pharmacological benefit for cognitive recovery and reaction risk (40%–58%), side effects (6.0 %–13.0 %) and side effects (5.0%–13.0%) in comparison to AD compared with traditional acetylcholinesterase inhibitors (AChEI). Although donepezil is an inexpensive treatment, most research indicate that this drug can provide mild to extreme DA with a mild, slower development of disease and a reduced institutionalization of attitude, cognition and daily life. This is a modest advantage. Donepezil will also be helpful for people with vascular dementia in the same manner as AD. This paper aims at presenting a medication that includes donepezil and carbostyryl derivatives, or even salt, to cure Alzheimer's with impressive synergistic methods to combat the disease of Alzheimer.

**Keywords---** Acetylcholinesterase, Alzheimer's, Carbostyryl, Donepezil, Dementia, Pharmacological, Vascular.

## I. INTRODUCTION

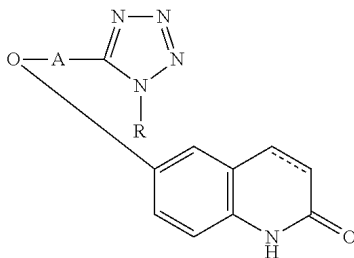
Alzheimer's is recognized as one of the main medical and social issues affecting elderly persons in developing and undeveloped countries. To date, for this disease, there are only symptomatic treatments, all attempting to counterbalance the neurotransmitter disorder[1], [2]. Three CIs for moderate to severe AD diagnosis are currently available and accepted. Memantine is a more medicinal option for moderate to extreme “N-Methyl-D-aspartate” receptor anti-competitive. There is also research on treatments which can disrupt or change the progression of AD, known as 'disease-modifying' medications that cause the disease.

Most of AD is believed to be a rare occurrence, but it is suspected that familial number of Alzheimer is about 10% and, due to an abnormal gene mutation such as amyloid protein precursor gene, presenilin-1 and presenilin-2 may form with inheritance of autosomal dominant. Females are more vulnerable to AD in general[3], [4]. Ageing is the predominant risk factor for AD. The AD frequency is rising with age and hence most AD has late start-up AD at 65 years of age. AD patients can undergo different pathological conditions based on neurotransmitter disruptions for example senile plaque and acetylcholine develop-up by means of intracerebral amyloid accumulation, beta protein, intraneuronal filament deformation and other compounds including phosphorylated tau. The primary signs of AD include memory problems, executive failure, aphasia and related effects, all of them euphoric[5], [6]. Nonetheless, other

AD symptoms include negative factors including lack of energy, bad mood, anxiety and low temperature from the very beginning.

Dementia has been increasingly recognized as a significant medical issue among senior citizens, with an incidence of 1% at 60 and at least 35% at the age of 90. The most prominent subtype of the dementia continuum is Alzheimer that constitutes almost sixty percent of all disorders[7], [8]. This is regarded as scientifically by leading memory loss and concentration and several diverse documented deficits, including decision taking and reasoning difficulties, apraxia and language disorders. Usually these are followed by diverse symptoms of neuropsychiatry (i.e. depression, anxiety, apathy, anger, hallucinations and delusions). The continuing increase in life expectancy heading to an emerging number of dementia patients, particularly Alzheimer, drastically improved the identification of medicinal products for primary, secondary and tertiary disorders[9], [10]. Despite all work efforts, there are currently no successful pharmacotherapeutic approaches to avoid and treat AD. Donepezil Hydrochloride (Aricept) is often used for big AD signs in clinical practice. Donepezil hydrochloride is effective as a palliative treatment for related symptoms such as anxiety, paranoia and ailing temperature.

However, as used in the long term, the symptoms of donepezil hydrochloride palliative therapy can decrease. Thus, donepezil hydrochlorides also have a problem that the development of the pathological condition is difficult to continuously and sufficiently suppress since the drug must be administered in the long term. This research therefore provides a drug to treat Alzheimer, specifically a medicament for treatment of Alzheimer that contains a general formula derivative of carbostyryl as an active ingredient (1):



**Fig. 1 Chemical Structure**

Where (Fig. 1), A is the lower group of alkylene, R is the cycloalkyl group and bond of the carbostyryl skeleton between 3-positions consists of a single and double bond, or its salt; and donepezil. Carbostyryl derivatives (1) have an inhibition effect on platelets aggregation, phosphodiesterase (PDE), antiulcer, hypotensive activity and antiphlogistic activity, and can be used as an anti-thrombotic agent, cerebral blood circulation treatment, anti-inflammatory agent, anti-hypertensive treatment, anti-asthmatic drugs, phosphodiesterase inhibitors etc. Furthermore, the compounds are considered to be effective even for the treatment of allergies as medicines.

## II. MATERIALS AND METHODOLOGY

### Preparation of Tablets

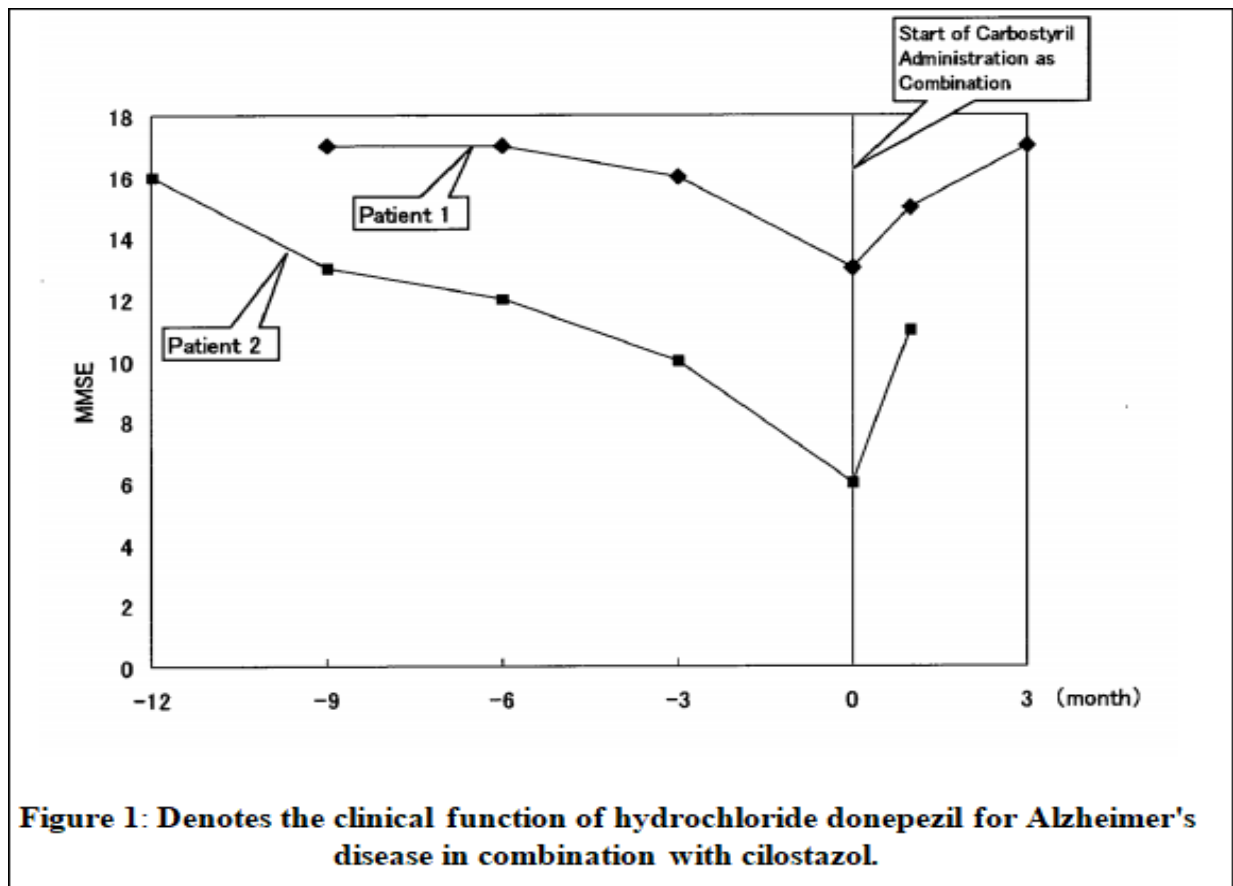
The tablets are formed by combining the active ingredient(s), starches, gelatin, lactose, gum Arabic, magnesium stearate and talc and the like with traditional pharmaceutical carriers. The capsules may be filled by combining with

diluents (an active ingredient) or inert pharmaceutical fillers and by filling with mixture of soft capsules and hard gelatin capsules. Mixing of active ingredients with sweetener agents (e.g. sucrose), preservatives, such as methyl paraben, propylparaben, colorings, taste and so on, can prepare oral liquid formulations like elixirs or syrups. Preparation may also be made through a traditional process, e.g., through dissolving in the sterilized aqueous container, usually water or saline, new product active ingredient(s). Disintegrated everyday in water, organically soluble and polyethylene glycol with molecular weights from 300 to 5000, the active ingredient above is mentioned, which is ideally used in liquid preparation appropriate for parental administration, is the recommended liquid preparation such as polyvinyl-pyrrolidone, methylcellulose, polyvinyl alcohol and sodium carboxymethylcellulose are rather present. Preferably, Fungicide may contain previous mentioned liquid preparations, a disinfective product (e.g. benzyl alcohol, thimerosal, and phenol), an isotonic agent as alternative, a topical anesthetic, a buffer, a stabilizer, etc. With the goal of preserving stability, parenteral preparation and the modern lyophilizing technologies can be inserted in capsules, which can then be separated from the aqueous medium. If used as a liquid solution, the solution may be dissolved by dissolving as aqueous solution. The inhalants should be formulated using a conventional approach. In other terms, inhalants can be created by incorporating a powder or liquid container into the inhalant and/or propellant and charging appropriate mixing vaporizers. For addition when the active substance is a solvent and a vaporizer such as a nebulizer is used because it becomes a solvent that can often be combined with a mechanical powder vaporizer. The inhaler will potentially also produce a surfactant, oil, flavor, cyclodextrin or a derivative thereof is used appropriately.

### III. RESULT

In a dosage of 5 mg / day for almost two years, donepezil hydrochloride (Aricept(R)) has been given to two people with Alzheimer (one with age of 63 and other one with age of 52, respectively). The examination of mini-mental state for women was carried out under administration and figure 1 and Table 1 revealed the results. At the outset of the (0 month) procedure, 100 mg / day of cilostazol was introduced in the donepezil hydrochloride combination. The MMSE score was quickly improved, but declined until that point. Due to the following findings cilostazol can restore the effect of donepezil hydrochloride in combination with donepezil, which has continued to decrease because of long-lasting administration of donepezil hydrochlorides. The following findings are reported. The results and the use of donepezil hydrochloride and cilostazol has also been shown to have a strong therapeutic benefit for dementia, including Alzheimer's.

<b>Table 1: Mini-mental state examination for women</b>									
<b>No.</b>	<b>Age</b>	<b>Sex</b>	<b>-12 Ms</b>	<b>-9Ms</b>	<b>-6Ms</b>	<b>-3Ms</b>	<b>0M</b>	<b>1M</b>	<b>3Ms</b>
1.	63	F	-	17	17	16	13	15	17
2.	52	F	16	13	12	10	6	11	-



#### IV. CONCLUSION

In this paper, a new medicine has been tested in this unexpected to treat Alzheimer, and the combination or mixture of carbostyryl derivatives of the formula has been found to be available: “6-[4-(1-cyclohexyl-1H-tetrazol-5-yl) butoxy]-3, 4-dihydrocarbostyryl (cilostazol)” and donepezil demonstrates outstanding synergistic therapeutic intervention for Alzheimer's disease. The combination of current study may also display a very positive effect, enhancing the activity of donepezil hydrochloride that has declined from long-term administration of donepezil hydrochloride. The mixture of drugs of the produced medication also has fast-acting, low-toxicity and cognitive disability such as young-onset dementia, senile dementia, alzheimer-type dementia such as Pick' disease, late-onset movement disorder, Huntington's disease, etc.

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