

Nicergoline

Nicergoline is an ergoloid mesylate derivative used to treat senile dementia and other disorders with vascular origins. It has been found to increase mental agility and enhance clarity and perception. It decreases vascular resistance and increases arterial blood flow in the brain, improving the utilization of oxygen and glucose by brain cells. It has similar vasoactive properties in other areas of the body, particularly the lungs.

It is used for vascular disorders such as cerebral thrombosis and atherosclerosis, arterial blockages in the limbs, Raynaud's disease, vascular migraines, and retinopathy.

Nicergoline has been registered in over fifty countries and has been used for more than three decades for the treatment of cognitive, affective, and behavioral disorders of older people.

The ergot alkaloid derivative nicergoline became clinically available about 35 years ago in the 1970s. Nicergoline has a broad spectrum of action:

- *As an alpha-adrenoceptor antagonist, it induces vasodilation and increases arterial blood flow;*
- *It enhances cholinergic and catecholaminergic neuro-transmitter function;*
- *It inhibits platelet aggregation;*
- *it promotes metabolic activity, resulting in increased utilization of oxygen and glucose;*
- *It has neurotrophic and antioxidant properties.*

Acting on several basic patho-physiological mechanisms, nicergoline has therapeutic potential in a number of disorders.

Nicergoline acts as a potent and selective alpha-1A adrenergic receptor antagonist. The primary action of nicergoline is to increase arterial blood flow by vasodilation. Furthermore, it is known that Nicergoline inhibits platelet aggregation. Studies have shown that Nicergoline also increases nerve growth factor in the aged brain.

Use

Nicergoline is used in the following cases:

- Acute and chronic cerebral metabolic-vascular disorders (cerebral arteriosclerosis, thrombosis and cerebral embolism, transitory cerebral ischaemia). Acute and chronic peripheral metabolic-vascular disorders (organic and functional arteriopathies of the limbs), Raynaud's disease and other syndromes caused by altered peripheral irrigation.
- Migraines of vascular origin
- Coadjutant therapy in clinical situations accompanied by platelet hyper-aggregability, arterial tension.
- Corio-retinal vascular disorders: , diabetic retinopathy, macular degeneration and retinal angiosclerosis
- Oto-vestibular problems of a vascular nature: dizziness, auditory hallucinations, hypoacusis.

Nicergoline acts alpha-adrenolytic action to activate the brain's metabolism. It acts on different levels:

- On the cerebral level, it prompts a lowering of vascular resistance, an increase in arterial flow and the use of oxygen and glucose.
- In terms of lung circulation, it lowers vascular resistance.
- With regard to limb circulation, it brings about an increase in the flow, particularly evident in those patients with insufficient irrigation due to functional arteriopathies.

Oxidative stress and nicergoline

Oxidative stress has been suggested to adversely influence cerebrovascular disorders and some neurodegenerative disorders. We examined whether nicergoline, an agent widely used for treating cerebrovascular disorders and senile mental impairment, possesses antioxidant activities and some beneficial effect on neutrophils generating free radicals. Although nicergoline did not scavenge superoxide produced from a superoxide-generating system, it significantly inhibited superoxide secretion from stimulated neutrophils. Auto-oxidation of brain homogenate of rats, monitored by formation of thiobarbituric acid-reactive substances, was suppressed by nicergoline in a dose-dependent manner. The oxidation of the homogenate was accelerated by activated neutrophils and was significantly suppressed by nicergoline. These observations suggest that Nicergoline is an antioxidant that inhibits not only lipid peroxidation but also free radical generation from neutrophils. These properties of nicergoline should be beneficial in some pathological conditions including cerebrovascular and neurodegenerative disorders in which oxidative stress may have a pathoetiological role.

Contraindications and cautions

Persons suffering from acute bleeding, myocardial infarction (heart conditions), hypertension, bradycardia or using alpha or beta receptor agonists should consult with their physician before use. Although toxicology studies have not shown nicergoline to have any teratogenic effect, the use of this medicine during pregnancy should be limited to those cases where it is absolutely necessary.

Side effects

Medicines and their possible side effects can affect individual people in different ways. The following are some of the side effects that are known to be associated with this medicine. Because a side effect is stated here, it does not mean that all people using this medicine will experience that or any side effect. Nicergoline can cause side effects they are usually limited to nausea, hot flushes, mild gastric upset, hypotension and dizziness. At high dosages bradycardia, increased appetite, agitation, diarrhea and perspiration

have been known to present themselves. The vasoactivity of nicergoline may heighten the effect of pharmaceutical products that produce hypotension.

Very infrequently, rubeosis, a hot feeling, mild gastric upsets; hypotension and dizziness have been observed. Should you notice any adverse reaction not described, consult your doctor.

Interactions

Nicergoline is known to enhance the cardiac depressive effects of propranolol (Inderal) - caution is advised. At high dosages, it is advisable to seek one's physician's guidance if combining with potent vasodilators such as bromocriptine, ginko biloba, hydergine, picamilone, vinpocetine or xanthinol nicotinate.

It is currently being used in the battle to treat senile dementia. Interestingly it has been found to improve mental agility through enhancing clarity and perception.

In this instance it is different to the effects of Hydergine - (which improves oxygen stability, increases mental ability - i.e. it extends the period of useful mental workload, and has been designated as an I.Q. booster with its brain dendrite stimulation). Nicergoline on the other hand appears to enhance clarity, perception and clear thought.

Dosage

By mouth: 5-10 mg (1-2 tablets or 20-40 drops) 3 times daily at regular intervals over prolonged periods of time. To facilitate absorption, take this medicine between meals.

Dosages for known conditions are usually administered at 5-10mg three times a day, however anti-aging preventative purposes may want to consider 5mg once or twice a day more adequate.

Dosages for the treatment of senile dementia have been as high as 30mg to 60mg daily; however treatment and protection from ARMD would

normally indicate 5mg once, twice or three times daily. Like nearly all nootropics, nicergoline has been shown in clinical trials to be safe when used respectfully.

Side effects include nausea and headache, and are normally an indication of over-dosage or over-stimulation through synergistic combinations. If utilizing nicergoline with other nootropics, always reduce the individual doses and only increase to larger doses over several days. As with all nootropic products occasional breaks are recommended (i.e. 1-week per month or 2-days per week).

The dosage and length of treatment are to be decided by your doctor. At times, the therapeutic effects of nicergoline, both subjective and objective, are not immediately noticeable, but will be noted after a certain period of treatment.

Precautions

Although toxicology studies have not shown nicergoline to have any teratogenic effect, the use of this medicine during pregnancy should be limited to those cases where it is absolutely necessary.

Clinical efficacy

Nicergoline (30 mg twice daily) can be used in the treatment of dementia (including Alzheimer's disease and vascular dementia) and vascular and balance disorders.

For dementia of different etiologies, the therapeutic benefit of nicergoline has been established, with up to 89% of patients showing improvements in cognition and behaviour. After as little as 2 months of treatment, symptom improvement is apparent compared with placebo, and most patients become further improved or become stable after 12 months.

Concomitant neurophysiological changes in the brain indicate (after only 4-8 weeks treatment) improved vigilance and information processing.

In patients with balance disorders, mean improvements of 44-78% in symptom severity and quality of life have been observed with nicergoline.

Although clinical experience with nicergoline in vascular disorders is limited to relatively short-term, small-scale studies, it has been successfully used in rehabilitation therapy of patients with chronic ischaemic stroke.

Open-label evaluations suggest that nicergoline may also be valuable in glaucoma, depression and peripheral arterio-pathy.

Adverse events of nicergoline, if any, are related to the central nervous system, the metabolic system and the overall body. Most are considered typical symptoms of ergot derivatives. Because of their generally mild and transient nature, treatment discontinuations occur relatively infrequently. The efficacy of nicergoline combined with a favorable safety and tolerability profile at commonly applied doses (60 mg/day) make this agent a valuable therapy in patients with mild to moderate dementia, vascular diseases and balance disorders.

Like Hydergine, nicergoline is a vasodilator that improves blood flow to the brain and stimulates the use of oxygen and glucose. It also inhibits blood platelet aggregation and improves blood circulation in the arms, legs, and lungs. Nicergoline does not effect arterial tension, and it sometimes reduces tension in hypertensive patients.

It is used to treat migraine headaches that are of vascular origin and other problems of a vascular nature, such as dizziness and auditory problems. It is also used to treat certain eye disorders, platelet aggregability, and arterial hypertension, as well as senile dementias.

A recent study in Italy showed that nicergoline can also have a neuroprotective effect. Researchers demonstrated that nicergoline protects cultured neurons against beta-amyloid toxicity, the major protein component of Alzheimer's plaques.

Another study in Italy suggested that nicergoline may be beneficial in the prevention and treatment of side-effects from other drugs, such as the antipsychotic drug haloperidol. The chronic use of this powerful neuroleptic induces a significant decrease in the activity of the enzymes glutathione reductase, glutathione peroxidase, and superoxide dismutase in certain areas of the brain. When nicergoline is co-administered with haloperidol the activity of these enzymes is restored to levels comparable to those observed in control animals.

Haloperidol is a very powerful drug, with frequent side-effects, and is used primarily to treat psychosis. The efficacy of nicergoline to restore natural enzyme levels under such extreme pharmacological conditions suggests that this mighty ergot derivative has enormous potential to help restore neurochemical imbalances in the aging brains of healthy individuals.

An interesting study in Japan showed that nicergoline increased nerve growth factor in the brains of aged rats, but it had no significant effect in this regard upon the brains of younger animals. Other studies indicate that nicergoline can enhance glutamate re-uptake and protect the brain against a condition where there is too little blood flow called ischaemia. For these reasons it is believed that nicergoline offers protection against neurological disorders that may be due to blood, glucose, or oxygen deprivation.

Side effects from nicergoline sometimes include mild nausea and gastric disturbances, dizziness, hot flashes, and hypotension. Less common side effects that may occur at higher doses include agitation, bradycardia, and sweating. Since nicergoline is known to enhance cardiac depressive effects it should never be used concurrently with alpha or beta receptor agonists, like Inderal, and people suffering from myocardial infarction, acute bleeding, or bradycardia should also avoid using nicergoline. For anti-aging preventative purposes most people do well with a dosage of 5 mg. once or twice a day. Nicergoline is also known to heighten the effects of drugs that produce hypotension, such as Hydergine and bromocriptine, so caution is advised if one is combining these drugs.