

Canadian Ophthalmological Society policy statement on the medical use of marijuana for glaucoma

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The marijuana plant *Cannabis sativa* has long been recognized to have medicinal properties.¹ In 1964 the active component of marijuana, Δ^9 -tetrahydrocannabinol (THC), was isolated and its structure defined.² In addition to its psychotropic effects, THC also acts as an analgesic, appetite stimulant and nausea suppressant.

The intraocular pressure lowering effects of marijuana were first reported in 1971.³ Since then other studies have confirmed the intraocular pressure lowering effect of THC by various modes of administration including inhalational,⁴ oral,⁵ intravenous,⁶ sublingual,⁷ and topical.⁸

Although topical application might seem to be an optimal route of administration, ocular penetration has been poor due to the high lipophilicity and low aqueous solubility of the cannabinoid extracts. Topical preparations have also been noted to cause local irritation and corneal damage. In addition some studies have failed to find a hypotensive effect of topical THC.^{9,10} The oral route has also been limited by variable absorption.⁵

The mechanism of intraocular pressure reduction is not well understood.¹¹⁻¹³ The maximum hypotensive effect occurs between 60-90 minutes and the duration of action of is brief at only 3-4 hours.^{3,14}

The main problems with inhaling the smoke of burning marijuana are the side effects which acutely include psychotropic effects (euphoria, dysphoria, decreased short-term memory, cognitive impairment, time distortion, decreased co-ordination, sleepiness),^{4,5} tachycardia, palpitations, systemic hypotension⁸ and conjunctival hyperaemia. The long-term effects of smoking marijuana include emphysema and possible lung cancer.¹⁵ There are also concerns about the potential addictive properties and the development of tolerance.¹⁶

The clinical utility of marijuana for the treatment of glaucoma is limited by the inability to separate the potential clinical action from the undesirable neuropsychological and behavioural effects. The Canadian Ophthalmological Society does not support the medical use of marijuana for the treatment of glaucoma due to the short duration of action, the incidence of undesirable psychotropic and other systemic side effects and the absence of scientific evidence showing a beneficial effect on the course of the disease. This is in contrast to other more effective and less harmful medical, laser and surgical modalities for the treatment of glaucoma.

April 2010

References

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