

Cannabinoids in Clinical Practice



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Cannabis has been used for medicinal purposes for thousands of years. The herbal cannabinoid marijuana contains > 60 cannabinoids (CB). Tetrahydrocannabinol (THC) is psychoactive and the main component of smoked marijuana, while cannabidiol is 90% less psychoactive than THC and cannabidiol has no psychoactivity.¹

As of 2001, the Marijuana Medical Access Regulations (MMAR) allows Canadian patients suffering from a serious disease to be eligible for therapeutic marijuana consumption.²

In Canada, the following CBs are available:

1. Sativex[®] contains THC and cannabidiol in an oromucosal spray. The non psychoactive cannabidiol competes with THC for binding sites, diminishing psychoactive side-effects. It has been conditionally approved for the treatment of multiple sclerosis (MS)-related neuropathic pain and cancer pain
2. Dronabinol, a synthetic THC, is indicated for chemotherapy-induced nausea and vomiting and HIV-induced anorexia
3. Nabilone is a synthetic derivative of THC indicated for chemotherapy-induced nausea and vomiting
4. A herbal form of CB is made available through the MMAR^{3,4}

Nancy's Case

Nancy has been struggling with widespread burning pain related to multiple sclerosis. She has been treated with a number of anticonvulsants, tricyclic antidepressants and opioids, all with limited effect. Nancy asks you about using marijuana. Nancy has never used marijuana before. Her history is negative for substance abuse.

Read on for what to do for Nancy...

Marijuana has been used to treat nausea, illness-induced anorexia, symptoms of MS, spinal cord injuries, Tourette's syndrome, epilepsy, glaucoma, Parkinson's disease (PD), dystonia and pain. The following is a brief review of the evidence which can assist the clinician in making treatment decisions involving the use of CBs.

Common uses

Nausea

Cannabinoids have been identified as being superior to conventional antiemetics in the treatment of chemotherapy-induced nausea; however, they are more toxic.⁵ Interest in these agents has reduced with the introduction of powerful, low side-effect 5-HT₃ receptor antagonists such as ondansitron.^{5,6}

Appetite stimulant

Loss of appetite and weight are often associated with cancer and HIV infection. CBs have been demonstrated to stimulate appetite and weight gain without having a negative impact on HIV disease or treatments.⁷

MS

MS is associated with central pain syndromes, disturbances of the autonomic nervous system, tremor, sleep disturbance and upper motor neuron-induced spasm. In the Cannabinoids and Multiple Sclerosis (CAMS) study, no objective benefit was noted for spasticity, with objective improvement in mobility. However, subjectively, patients who used CBs reported improvement in pain, spasticity, tremor and bladder control. Adverse events were mild. Trials have demonstrated a positive impact of CBs on central pain related to MS. Sativex[®] has been shown to reduce spasticity and pain with mild adverse events.⁸⁻¹²

Spinal cord injuries

Spinal cord injuries can be associated with upper motor neuron spasm and urinary incontinence. Small studies have demonstrated improvement in spasticity, muscle spasms, pain, autonomic dysfunction and sleep quality.⁷

Tourette's syndrome

A limited number of studies have demonstrated that CBs can reduce the vocal and motor tics of this disorder as well as associated behavioural issues such as obsessive compulsive disorder. The use of CBs did not have a negative impact on learning or cognitive ability.¹³

Epilepsy

THC has been shown to suppress kindling and could have anticonvulsant properties. However, other data indicate that THC has a proconvulsant effect. To date, no controlled clinical trials exist to support or refute the use of CBs in the treatment of epilepsy.¹⁴

Glaucoma

Smoked CB or THC by intraocular drops reduces intraocular pressure. However, the effects are short lived and other medications are more effective in the treatment of glaucoma with fewer side-effects.⁷

PD

To date, no evidence has been found supporting the use of CBs for the treatment of PD symptoms. A pilot study demonstrated that CBs had an impact on levodopa-induced dyskinesia.^{15,16}

Dystonia

To date, research has not supported the use of CBs in the treatment of dystonia.^{16,17}

Pain

All of the areas of the central nervous system involved in pain modulation have CB receptors. To date, the evidence is poor for the impact of CBs on acute pain and post-operative pain.⁷




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CBs appear to be equivalent to and not better than codeine in the management of pain.^{18,19} There is evidence that CBs can reduce cancer pain, central pain, HIV-induced sensory neuropathy and spasticity-related pain.²⁰⁻²² Sativex[®] was superior to placebo in the management of pain related to rheumatoid arthritis with some evidence of suppression of disease activity.²³ A recent randomized controlled trial demonstrated reduction in pain related to the use of nabilone without any change noted in tender point count. Functional outcomes were not measured.²⁴

Discussion

CBs can be effective in the treatment of disease-induced anorexia and a number of painful conditions. However, adverse events must be considered when using medicinal CBs. In recreational users there is a risk of drug dependence, psychosis, early death²⁵ and motor vehicle accidents.²⁶ However, these adverse events cannot be extrapolated to patients using CBs for medicinal purposes. In research, medicinal CB users had a higher rate of nonserious adverse events than controls. However, the incidence of serious adverse events was low.³ Some of the more common side-effects include dizziness, dry mouth, blurred vision, nausea, muscle spasm, pain, somnolence, sedation and euphoric mood.²⁷ It has been concluded that short-term use of CBs for medical purposes has an acceptable safety profile. However, there is insufficient information to draw conclusions about safety in regards to long-term use.²⁵

CBs can have a useful role in the treatment of a number of medical conditions. However,

further research is required to determine if CBs will become a common tool in day-to-day clinical practice. 

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