VIEWPOINT

Whither Medical Marijuana?

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"It creates vital energy, the mental powers, and internal heat, corrects irregularities of the phlegmatic humour, and is an elixir vitae"

- 17th Century Materia Medica, The Rajavallabha

INTRODUCTION

In recent times, interest in *marijuana* has been shifting from the emphasis on abuse to its medical potential. The debate has focussed on its potential in evidence-based medicine (based on knowledge and experience and informed by scientific rigour) as against belief-based medicine (based on custom, judgement, intuition and lacking scientific analysis).

The name *marijuana* is being used herein to describe the unpurified Cannabis plant constituents from leaves or flower tops whether smoked or consumed in some form or other. The effects of *marijuana* will be taken to refer to the composite effects of its various cannabinoids, of which tetrahydrocannabinol (THC) and cannabidiol are the two most abundant. The debate rages on both locally and internationally, but, historically and increasingly, Jamaica is becoming pivotal in discussions of the socio-medico-legal question. To assist in this process, the International Cannabis Research Institute (ICRI) has been launched and registered in Jamaica. Its remit is to promote research, awareness and education on the Cannabis plant.

Major Research done in Jamaica

In the early 1950s, in a book titled *Ganja,* W Barrett published a review on the use and effects of *marijuana* from the findings in his Jamaican study of *marijuana* smoking. By the mid-1970s, Vera Rubin and Lambros Comitas contributed significantly to the development of literature on the subject as a result of their extensive studies in Jamaica. Their works included: *The Ganja Vision in Jamaica*; *Ganja in Jamaica: A Medical-Anthropological Study of Chronic Marijuana Use*. John Hall in 1974 was invited by the Senate of the United States of America to report on his findings in his Jamaican study of *marijuana* smoking.

By the late 1980s, Manley West and Albert Lockhart reported on early work which had begun with an associate researcher, Henry Lowe, and which eventually resulted in an extract from Cannabis which lowered intraocular pressure when administered to the eye topically. This extract has been marketed as *canasol* and now awaits further identification and characterization. In combination with the beta-blocker, *timolol,* it is now available as *cantimol.* Also it is reportedly effective in reducing bronchospasm. Local psychiatric studies on its medicinal properties have been reported by Frederick Hickling *et al*.

All these works have been cited and collated in the comprehensive work *Marijuana, Cannabis, Ganja: the Jamaican Connection* by Lowe and Morrison, 2001 (1).

The Current International Research Thrust

When one examines the literature (2,3), there are hundreds of references to the medical potential of *marijuana* and its by-products. Amid the controversy on *marijuana*, scientific research has intensified worldwide. Not only does this research include laboratory-based studies but, in some countries, government sanctions have been secured for clinical trials to be conducted in state hospitals.

The research landscape indicates that funding is increasingly being deployed to medical cannabis research and the following list of on-going projects in some countries points to heightened interest by the worldwide scientific community:

- John Zajicek- University of Plymouth in collaboration with Plymouth Hospitals (United Kingdom)
  Research into the effect of Cannabis to reduce muscle stiffness and improving mobility in patients with multiple sclerosis.
- William Norcutt – James Palt Hospital (United Kingdom)
  Study of Medicinal Cannabis Extracts for Chronic Pain and Chronic Neurological Disabilities.
- Patrick Stone – St George's Hospital Medical School (United Kingdom)
  Study to investigate the long term safety and tolerability of cannabis based medicine extracts in patients with cancer related pain.
- Ashis Banerjee – Whittington Hospital Department of Accident and Emergency (United Kingdom)

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Estimating the prevalence of problem drug use – multiple methods in three sites in England.

- Anita Holdcroft – Hammersmith Hospital, London (United Kingdom)
  A clinical trial as part of the principle of the analgesic effectiveness of cannabinoids on postoperative pain.
- Harold Hosker – Airedale General Hospital, West Yorkshire (United Kingdom)
  Study to assess safety, tolerability and rate of absorption from a single dose of a cannabis based medicine extract administered in four different dosage forms.
- Dennis Israelski – San Mateo County Hospital (USA)
  Study to evaluate Marijuana's ability to mitigate symptoms of the AIDS wasting syndrome.
- San Diego Medical Center – University of California (USA)
  Study of effects of Marijuana on patients with multiple sclerosis and patients who suffer from neuropathy and nerve pain associated with AIDS.
- Bureau of Medical Cannabis in collaboration with Free University Medical Centre, Amsterdam (Netherlands)
  Study of effects of Marijuana on patients with multiple sclerosis.
- Biopsychology Research Laboratory – University of New England (Australia)
  Study of the neural, behavioural and cognitive effects of cannabinoids.
  Long Term alterations in neural functioning by cannabinoids: an immunohistochemical examination of the gateway hypothesis.
  An investigation into the ability of newly developed cannabinoid antagonist drugs to treat addiction.

In the case of Canada, research into the medicinal potential of Cannabis is being coordinated by Health Canada in collaboration with the Canadian Institutes of Health Research (CIHR). Health Canada has developed a framework within which research is to be conducted. The following is a short extract from the Health Canada/CIHR Medical Marijuana Research Plan*:*

> *It is the primary focus of this plan to address clinical treatment of such patients with smoked and non-smoked marijuana and cannabinoids. It is envisioned that through this program, a better understanding of the safety and efficacy of using cannabinoids to control these symptoms will be forthcoming.*

Medical Uses

Amongst the most common claims identified in the modern literature (2) on medical marijuana, beneficial effects from inhalation have been seen in: depression and anxiety states; analgesia for spasmodic, migrainous and inflammatory pain; glaucoma – lowering of intraocular pressure; asthma – reduction in bronchospasm; anorexia – through its appetite stimulation; gastrointestinal disorders, *eg* nausea, vomiting and diarrhoea and movement disorders such as tonic-clonic seizures.

Adverse effects are also attributed to inhalation, such as: reduced psychomotor activity, de-motivational syndrome, coughing paroxysms, reddened eyes, orthostatic hypotension and hypoglycaemia.

Medical research has so far resulted in the synthesis of the most common cannabinoid, tetrahydrocannabinol (THC) marketed as *marinol*, which is an oral preparation restricted for use in nausea and vomiting as well as for the side effects in cancer chemotherapy.

Administration Mode

One of the major challenges for the potential medicinal applications of *marijuana* or its chemical constituents is the mode of administration. There is variation in efficacy between the oral and inhaled modes of administration. In particular, the inhaled route avoids overdose since the rapid onset of effects permits the user to cease intake of the drug when the desirable response is obtained. On the other hand, the oral route is slow in onset and absorption is variable after ingestion.

The literature indicates that overdose and intoxication are more common by the oral route and become evident only after three or more hours of ingestion. The overdose effects described are due to stimulation and sedation of the central nervous system, with flooding of ideas and images, which are vivid and transient. Attention and concentration are markedly impaired and there is distortion of perception of both time and space, and feelings of detachment.

Dependence

This is one of the potential side effects leading to clinically significant impairment or distress as manifested by:

- Tolerance, the need for increased dosage for the desired effect
- Withdrawal symptoms such as irritability, insomnia, nausea and cramps
- Unsuccessful efforts to control cannabis use
- Pursuit of, and persistence in sourcing and using *marijuana* despite knowledge of its increasingly adverse effects
- Change in social, occupational or recreational activity

Abuse is perhaps the major reason for the restriction of medical research on *marijuana* in some countries. Abuse can be defined as the state of clinically significant impairment or distress as manifested by:

- Recurrent use and socio-emotional maladjustment resulting in physical hazards to oneself or others, such as driving under its influence. Also, there may result recurrent legal problems such as cannabis-related disorderly conduct.

All of the above and more constitute much of the debate for and against *marijuana* use for medical purposes.

The International Cannabis Research Institute

It is noteworthy that the research efforts of the local scientific community have not been included in the listings of medical cannabis research projects. It is important that an organization be formed to provide some stimuli to the local scientific community to enter the arena and become active participants in the international research effort. The International Cannabis Research Institute (ICRI) has been formed to satisfy this need.

The ICRI wishes to participate in the elucidation of the medical horizons for *marijuana* and, consequently, ICRI directors believe and intend to pursue the following objectives:

- Research should increase *re* the physiological and pharmacological effects of synthetic and plant-derived cannabinoids
- Clinical trials should be encouraged:
  i) to ascertain best practices and develop rapid-onset, reliable and safe delivery systems
  ii) to assess the psychological effects of cannabinoids such as anxiety reduction and sedation, and short-and long-term effects
- Studies should be pursued to define the individual health risks of *marijuana* use
- Establishment of a museum to exhibit the history of its use/misuse and abuse to the public and to be a source of information through collections of books, written materials and web-based publications.
- The holding of an annual international meeting to review scientific findings and to foresight future directions, with publication of the proceedings of these deliberations in journal format.

The establishment of ICRI is timely, especially so in the Jamaican context wherein a recent national commission on Ganja (4) recommended, inter alia,

"... that, in order that Jamaica be not left behind, a Cannabis Research Agency be set up, in collaboration with other countries, to coordinate research into all aspects of cannabis, including its epidemiological and psychological effects, and importantly as well, its pharmacological and economic potential, such as is being done by many other countries, not least including some of the most vigorous in its suppression and ..."

REFERENCES

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3. Marijuana Medical Handbook ed. Tod Mikuriya, at *www.druglibrary.org/schaffer/hemp/mjmedhb.htm.*
4. Report of the National Commission on Ganja, Jamaica, 2001.