

CHAIR'S INTRODUCTION

PROFESSOR COLIN BLAKEMORE

CHIEF EXECUTIVE OF THE MEDICAL RESEARCH COUNCIL IN THE UK AND WAYNFLETE
PROFESSOR OF PHYSIOLOGY AT OXFORD UNIVERSITY.

Professor Blakemore began the afternoon session by stating that it was important to share international expertise and experience on the therapeutic potential of illicit drugs. This did not necessarily have a direct bearing on the issue of their illicit use as recreational intoxicants or by dependent users. But drug policy should be informed by an understanding of toxicology and the effects of psychoactive substances on the human brain. There was growing evidence that drugs that are consumed illegally can have beneficial therapeutic uses in the treatment of a range of medical conditions.

THE MEDICAL POTENTIAL OF CANNABIS

PROFESSOR LESLIE IVERSEN

PROFESSOR OF PHARMACOLOGY AT UNIVERSITY OF OXFORD

'An entirely new biological signalling system has been discovered as a result of work on this psychoactive herbal substance, in the same way as research on morphine from the opium poppy a few decades earlier led to the discovery of a whole physiological system, whereby the brain makes its own morphine-like chemicals. It is the same with the cannabinoid receptors. This is a pretty exciting discovery. It offers opportunities to scientists to manipulate the system to get beneficial outcomes'.

Leslie Iversen

The medical potential of cannabis is currently a very exciting area of scientific research. It has also been the subject of a number of high profile investigations. These include a review by the House of Lords Select Committee on Science and Technology in the UK and the National Academy of Science in the USA.

There is nothing new about the medicinal use of cannabis. It was included in the pharmacopoea of the UK for 150 years, but dropped out in the 1970s. There has been a similar story in other Western countries.

POSSIBLE MEDICAL APPLICATIONS FOR CANNABIS

Cannabis acts on the higher brain centres as an intoxicant. But there is also good evidence for its effectiveness as an anti-emetic (a substance that reduces nausea and vomiting), appetite stimulant and controller of pain. It appears to be most effective for the treatment of neuropathic pain, caused by damage to the nervous system, and associated with medical conditions including diabetes and AIDS. This is important because neuropathic pain is often not responsive to conventional analgesic medicines, such as morphine. By contrast, it is less likely that cannabis products will be developed for the treatment of glaucoma or nausea, as there are already effective medicines on the market. It is a particularly effective appetite stimulant but this has a limited application, namely to treat wasting in AIDS patients, and most people with appetite disorders want to lose weight.

CURRENT PHARMACEUTICAL ALTERNATIVES

Products containing the principal active ingredient in cannabis – delta 9-tetrahydrocannabinol or THC - are available in both the UK and the USA for the treatment of a limited range of conditions. For example, nabilone, a synthetic analogue of THC (dronabinol), is licensed in the UK for prescription to patients with nausea or vomiting resulting from cancer chemotherapy, which is unresponsive to other drugs, and is used in some pain clinics. On advice from the World Health Organization, the UN Commission on Narcotic Drugs rescheduled dronabinol under the UN Convention on Psychotropic Substances 1971.

The pharmaceutical company GW Pharmaceuticals claims that clinical trials have shown that its herbal cannabis product has analgesic benefits for people suffering with Multiple Sclerosis (MS). The Canadian regulatory authorities have approved this product for use by MS patients and the UK government says that patients can have this treatment if they wish, but the product has to be imported from Canada.

Positive results were also found in the first major clinical trial of cannabis use in the treatment of MS, sponsored by the UK Medical Research Council, which published initial findings in 2003. More than six hundred MS patients were treated with a placebo, THC extract or herbal cannabis. Patients reported not only a reduction but also a positive impact on muscle spasm and quality of life measures, such as sleep patterns. Cannabis products appear to have a long-term beneficial effect on both subjective and objective measures, with THC producing better results than herbal cannabis. It is possible that cannabis may have a protective effect, slowing down the course of the disease.

EXPLORING & EXPLOITING THE PHYSIOLOGICAL EFFECTS OF CANNABIS

What is new in the past 10 years or so is the discovery that the brain contains specific protein receptors that recognise this plant, called cannabinoid receptors. Two types of cannabinoid receptor have been identified: the CB1 receptor and the CB2 receptor. CB1 receptors are present on nerve cells in the brain and spinal cord, as well as in some peripheral tissues (i.e. tissues outside the brain); CB2 receptors are found mainly on cells of the immune system and are not present in the brain. This means that an entirely new biological signalling system has been discovered as a consequence of work on a psychoactive herbal substance. This is an exciting development, as scientists can potentially manipulate this system to achieve beneficial outcomes for patients. In addition, animal experimentation suggests that the endogenous cannabinoid system interacts with the opiate system.

There is likely to be a wave of new research stemming from the discovery of these endogenous cannabinoid mechanisms in the human body, leading to the production of new drugs which interact with this system. For example, a French company is currently looking at a cannabinoid receptor antagonist drug called rimonabant, which is in the advanced stages of development, and is indicated for the treatment of obesity and smoking cessation. The discovery of the cannabinoid system also provides an alternative approach to one of the main problems in realising the medical benefits of cannabis, which is that the majority of patients want the therapeutic benefits but not the accompanying 'high'. Experiments appear to show that mice do not respond in the usual way to the psychoactive properties of THC if their CB1 receptors are knocked out.

KEY POINTS

Cannabis has a number of medical uses, including treatment of neuropathic pain.

Products containing the main active ingredient in cannabis (THC) are available in the UK and US, and the Canadian government has approved a herbal cannabis product for the treatment of Multiple Sclerosis.