

1. Medical condition proposed:

Treatment for Prevention of injury and rejection in Organ transplant patients

2. Provide justification for why this medical condition should be included as a qualifying debilitating medical condition for the use of medical marihuana. Be specific as to why medical marihuana should be used for this condition.

The US Department Of Health And Human Services has determined through thorough medical research and analysis that the cannabinoids including THC and CBD specifically from the marijuana plant can be used safely to treat disease caused by oxidative stress.

A method of treating diseases caused by oxidative stress, comprising administering a therapeutically effective amount of a cannabinoid that has substantially no binding to the NMDA receptor to a subject who has a disease caused by oxidative stress.

Oxidative associated diseases include, without limitation, free radical associated diseases, such as ischemia, ischemic reperfusion injury, inflammatory diseases, systemic lupus erythematosus, myocardial ischemia or infarction, cerebrovascular accidents (such as a thromboembolic or hemorrhagic stroke) that can lead to ischemia or an infarct in the brain, operative ischemia, traumatic hemorrhage (for example a hypovolemic stroke that can lead to CNS hypoxia or anoxia), spinal cord trauma, Down's syndrome, Crohn's disease, autoimmune diseases (e.g. rheumatoid arthritis or diabetes), cataract formation, uveitis, emphysema, gastric ulcers, oxygen toxicity, neoplasia, undesired cellular apoptosis, radiation sickness, and others.

This invention provides antioxidant compounds and compositions, such as pharmaceutical compositions, that include cannabinoids that act as free radical scavengers for use in prophylaxis and treatment of disease. The invention also includes methods for using the antioxidants in prevention and treatment of pathological conditions such as ischemia (tissue hypoxia), and in subjects who have been exposed to oxidant inducing agents such as cancer chemotherapy, toxins, radiation, or other sources of oxidative stress. The compositions and methods described herein are also used for preventing oxidative damage in transplanted organs, for inhibiting reoxygenation injury following reperfusion of ischemic tissues (for example in heart disease), and for any other condition that is mediated by oxidative or free radical mechanisms of injury. In particular embodiments of the invention, the compounds and compositions are used in the treatment of ischemic cardiovascular and neurovascular conditions, and neurodegenerative diseases. However the present invention can also be used as an antioxidant treatment in non-neurological diseases.

The compounds of the present invention are ideally administered as soon as a diagnosis is made of an ischemic event, or other oxidative insult. For example, once a myocardial

infarction has been confirmed by electrocardiograph, or an elevation in enzymes characteristic of cardiac injury (e.g. CKMB), a therapeutically effective amount of the cannabinoid drug is administered. A dose can also be given following symptoms characteristic of a stroke (motor or sensory abnormalities), or radiographic confirmation of a cerebral infarct in a distribution characteristic of a neurovascular thromboembolic event. The dose can be given by frequent bolus administration, or as a continuous IV dose. In the case of cannabidiol, for example, the drug could be given in a dose of 5 mg/kg active ingredient as a continuous intravenous infusion; or hourly intramuscular injections of that dose.

As used herein, a “cannabinoid” is a chemical compound (such as cannabinoI, THC or cannabidiol) that is found in the plant species Cannabis sativa (marijuana)

<http://www.google.com/patents/US6630507>

Maine’s legislature has passed a bill to protect medical marijuana patients from being excluded from organ transplant lists due to medical marijuana use.

<https://legiscan.com/ME/bill/LD764/2017>

3. Provide a summary of the evidence that the use of medical marijuana will provide palliative or therapeutic benefit for this medical condition or is a treatment for this condition.

1. <https://link.springer.com/article/10.1007/s11481-013-9485-1>

Together, these data support the potential of this class of compounds as useful therapies to prolong graft survival in transplant patients.

2. <https://www.ncbi.nlm.nih.gov/pubmed/26034207>

Together, our research shows, for the first time to our knowledge, that targeting cannabinoid receptors may provide a novel treatment modality to attenuate HvGD and prevent allograft rejection.

3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2923447/>

Here we suggest a theoretical role for the use of cannabinoids in preventing allograft rejection.

4. <https://www.ncbi.nlm.nih.gov/pubmed/21208899>

The case was in the evening news a few days later and generated much press coverage. Despite this, the transplant team held firm even when other physicians advocated for the patient and noted that there was no scientific literature showing any increased risk of organ damage or rejection from someone using marijuana. Tragically, the patient died of liver failure 3 weeks later, leaving behind his wife and 2 children, ages 8 and 12. In the actual case, the ethics team was never consulted or even formally made aware of this case. This

patient was following the state law, allowing him to use marijuana to treat his pain, nausea, and vomiting, which turned out to be the only thing that worked. Despite following state laws, this state funded university hospital turned him down for a liver transplant.

5. <https://www.ncbi.nlm.nih.gov/labs/articles/27491049/>

Marijuana use was not associated with worse primary outcomes by unadjusted (odds ratio 1.07, 95% CI 0.45-2.57, P=.87) or adjusted (odds ratio 0.79, 95% CI 0.28-2.28, P=.67) analysis. Ninety-two percent of grafts functioned at 1 year. Among these, the mean creatinine (1.52, 95% CI 1.39-1.69 vs 1.46, 95% CI 1.42-1.49; P=.38) and MDRD GFR (50.7, 95% CI 45.6-56.5 vs 49.5, 95% CI 48.3-50.7; P=.65) were similar between groups. Isolated recreational MJ use is not associated with poorer patient or kidney allograft outcomes at 1 year. Therefore, recreational MJ use should not necessarily be considered a contraindication to kidney transplantation.

4. Provide articles published in peer-reviewed scientific journals reporting the results of research on the effects of marihuana on the medical condition or treatment of the medical condition and supporting why the medical condition should be added to the list of debilitating medical conditions under the Medical Marihuana Act. Attach a copy of all articles that are discussed in this section. Please do not attach articles that are not discussed in this section.

See enclosed.

