

## **Is Smoking Marijuana Safe? The Effects of Smoking Cannabis on the Chest**

### **PURPOSE**

To prospectively investigate the effects of marijuana (MJ) smoking on the lungs and chest wall (gynecomastia), by examining the CT chest images in regular marijuana smokers.

### **METHODS AND MATERIALS**

This was a multi centered, prospective study involving 3 different hospitals. Inclusion criteria for the study included patients who regularly smoke MJ (at least 2-year history, 4x a month) and who have had a CT chest. Exclusion criteria included patients who use MJ as edibles or oral drops. Outcomes for the study included: Emphysema, Mucous plugging, Bronchial wall thickening, Gynecomastia. We had 4 cohorts: non-smokers, cigarette smokers, MJ smokers, MJ and cigarette smokers. We used Fisher's exact test and logistic regression using a generalized linear model and Tukey's contrasts.

### **RESULTS**

The proportion of patients with paraseptal emphysema is higher in the MJ & Smoker and Smoker Only groups. The association of a MJ only smoker with paraseptal emphysema is 5-7x higher than non-smokers. Association of a MJ & Smoker with bronchial wall thickening is 4 times more than non-smokers. No association between gynecomastia and MJ smoking group.

### **CONCLUSIONS**

The association of MJ only smokers with paraseptal emphysema is higher than with nonsmokers. The mean number of MJ smoking years was less than compared to cigarette smokers, however, they may have an increased effect on the lungs as the marijuana smoked is often unfiltered. Proportion of patients with centrilobular and paraseptal emphysema is higher in MJ/cigarette smoking and cigarette smoking groups. The association between MJ and smoking with bronchial wall thickening is significant, but interestingly, association with MJ only and smoking only with bronchial wall thickening was not, suggesting that the combination of cigarette smoking and MJ smoking may have a synergistic role on the lung/airways. Interestingly, there was no association between gynecomastia and MJ use.

### **CLINICAL RELEVANCE/APPLICATIONS**

Marijuana is the most widely used illicit psychoactive substance in the world, and use has increased in Canada since legalization of non-medical marijuana in 2018. Currently, not much research exists in the effects of marijuana smoking on the lungs. There is a common public misconception that marijuana smoking is not as "harmful" as cigarette smoking. More research needs to be done in this area so the public can make an informed decision on their recreational usage of marijuana. With our study, we show that there are physical effects of marijuana smoking on the lungs, and that cigarette smoking and marijuana smoking may have a combined damaging effect on the lungs.