Medical Xpress

Cytisine may prove a safe and effective smoking cessation therapy

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Research published in the *Journal of Thoracic Oncology* shows cytisine may be a safe and effective smoking cessation therapy in lung cancer screening volunteers.

Cytisine is a plant-based alkaloid that is extracted from Cytisus

laburnum and is a selective partial agonist nicotinic acetylcholine receptors and has been licensed and used for smoking cessation in Europe since the 1960s. Current FDA-approved drugs for smoking cessation in the U.S. are varenicline and bupropion. In 2018, the Food and Drug Administration approved a trial in the United States to test the efficacy of cytisine.

To determine whether cytisine is a safe and effective smoking cessation therapy during low-dose computed tomography (LDCT) screening, researchers led by Dr. Ugo Pastorino, Fondazione IRCCS Istituto Nazionale dei Tumori, in Milan, Italy, established the single center, randomized controlled trial called Screening and Multiple Intervention on Lung Epidemics (SMILE) study.

Pastorino and colleagues randomized 869 current smokers—470 (54%) were assigned to the intervention arm including cytisine, and 399 (46%) were assigned to the control arm. The primary outcome was continuous smoking abstinence at 12 months, biochemically verified through carbon monoxide measurement.

At the 12-month follow-up, the quit rate was 32.1% (151 participants) in the intervention arm and 7.3% (29 participants) in the control arm. The adjusted odds ratio (OR) of continuous abstinence was 7.2 (95% confidence interval, 4.6 to 11.2). Self-reported adverse events occurred more frequently in the intervention arm (399 events among 196 participants) than in the control arm.

"The efficacy and safety observed in the SMILE RCT indicate that cytisine, a very low-cost medication, is a useful treatment option for smoking cessation and a feasible strategy to improve LDCT screening outcomes with a potential benefit for all-cause mortality," said Dr. Pastorino.

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More information: Josiah Voth Park et al, Tumor cells modulate macrophage phenotype in a novel in vitro co-culture model of the non-small cell lung cancer tumor microenvironment, *Journal of Thoracic Oncology* (2022). DOI: 10.1016/j.jtho.2022.06.011

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