

Changes in respiratory function and physical capacity among smokers of conventional cigarette and users of IQOS in a 5-year cohort study after one year of observation

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Abstract

a. Background

To determine if smokers who switched from combustible cigarettes (CC) to "heat-not-burn" tobacco product (IQOS), reduce their risk for health, we are conducting a 5-year prospective cohort study among IQOS users and CC smokers. We assess changes in lung capacity measured as forced vital capacity (FVC) and forced expiratory volume-one second (FEV1) as well as change of physical capacity measured by six-minute walk test (6MWT).

b. Methods

Two cohorts were recruited for the study: men and women age 40 – 59 residing in Almaty City of Kazakhstan. Among them, there are 800 CC users and 400 IQOS users matched by gender, age, education and pack-year smoking history. For this analysis we included 627 CC smokers and 308 IQOS users who remained on their respective tobacco product use during the first year observation. Spirometry measurements and 6MWT have been performed as part of the baseline and one-year clinical assessments. Statistical comparisons of mean one-year changes between the two cohorts were conducted by using independent t-test.

c. Findings

CC and IQOS users didn't have statistically significant differences in FEV1 and FVC measurements at baseline (FEV1: 3.15 and 3.22 liters, $p>0.1$; FVC: 3.83 and 3.79 liters, $p>0.1$). However, after one year observation, FEV1 was declined by 0.078 and 0.046 liters in CC and IQOS users, respectively ($p=0.078$). FVC was changed in different directions: by -0.098 liters in CC users and by 0.045 liters in IQOS users ($p<0.001$). Results of 6MWT were improved in two groups with greater increase in IQOS users (11.0 vs 19.4 meters in CC and IQOS groups, respectively, $p=0.004$).

d. Conclusion

IQOS users demonstrated better dynamic in forced vital capacity and physical capacity in comparison to CC smokers after one year of observation.



Biography:

Native of Kazakhstan and a citizen of the United States, Dr. Sharman has 30 years experience in the fields of biomedical science, clinical research, and healthcare management. As a researcher Dr. Sharman designed a methodology for integrated population-based HIV and anemia testing which was implemented in several developing countries and has become a standard methodology for the international demographic and health surveys. He was involved in university teaching as Associate at the Johns Hopkins University's Bloomberg School of Public Health.

Speaker Publications:

1. "Gold Nanoparticles Supported on Carbon Derived from Solid Olive Waste for Epoxidation of Cyclooctene"; Asian J. Chem. / 2018 / 30(8) /pp 1731-1735
2. "Adsorption, kinetic and thermodynamic studies of safranin and methylene blue on a novel adsorbent based on phosphorylated sawdust"; Desalination and Water Treatment/ Vol 151 (2019) 199–211
3. "Green synthesis of spongy Nano-ZnO productive of hydroxyl radicals for unconventional solar-driven photocatalytic remediation of antibiotic enriched wastewater"; Journal of Environmental Management/ Vol 271, 2020, 110961.
4. "Sulphydryl functionalized activated carbon for Pb(II) ions removal: kinetics, isotherms, and mechanism"; Journal of Separation Science and Technology/ Vol 55, 2020- Issue 7

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