**Title of Dataset:** Data from: Increased vulnerability to atrial and ventricular arrhythmias caused by different types of inhaled tobacco or marijuana products

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**DATA & FILE OVERVIEW**

These data aimed to answer whether the use of novel tobacco products or marijuana can cause the development of proarrhythmic substrate and eventually lead to arrhythmias. Rats were exposed to smoke from tobacco, marijuana, or cannabinoid-depleted marijuana, or to aerosol from electronic cigarettes or heated tobacco products, once per day for 8 weeks following by assays of systolic blood pressure, echocardiography, heart rate variability, susceptibility to arrhythmias, ex vivo optical mapping, and histology.

**Including folders of datasets:**

Fig. 1: Systolic blood pressure and serum levels of angiotensin and norepinephrine

Fig. 2: Echocardiographic parameters

Fig. 3: Parameters of heart rate variability
Fig. 4: Susceptibility to atrial fibrillation, ventricular tachycardias and the effective refractory period

Fig. 5: Action potential duration and calcium transient duration at 80% repolarization

Fig. 6: Fibrosis and fibrotic biomarkers

Fig. 7: Density of microvessels

Fig. 8: Density of tyrosine hydroxylase and choline acetyltransferase

Note: In the current study, rats were exposed to one of the following products: Marlboro Red tobacco cigarettes (CIG), heated tobacco products (IQOS), electronic cigarettes (JUUL, Virginia Tobacco flavor, 5% nicotine), marijuana (MJ, ~10% delta-9-tetrahydrocannabinol (THC)), or “Placebo marijuana” (pb-MJ, cannabinoid-depleted marijuana, <.01% THC). Therefore, all of files have the same six variables.

**METHODOLOGICAL INFORMATION:** see Supplemental Materials of the article

**DATA SPECIFIC INFORMATION**

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| --- |
| Fig. 1 folder |
| Number of files | 7 |
| File description | SBP, single exposure  | Systolic blood pressure (SBP) before and after a single exposure; Unit: mmHg. |
| SBP, 2wp exposure | SBP on the end of the 2nd, 4th, 6th, and 8th week was measured twice, both before and after that day’s single exposure; Unit: mmHg.  |
| SBP, 4wp exposure |
| SBP, 6wp exposure |
| SBP, 8wp exposure |
| Serum level of angiotensin | Unit: μg/mL. N=7, 8, 6, 8, 8, and 9 respectively inAir, CIG, JUUL, IQOS, MJ, and pb-MJ. |
| Serum level of norepinephrine | Unit: pg/Ml; N=7, 8, 6, 7, 7, and 8 respectively in Air, CIG, JUUL, IQOS, MJ, and pb-MJ. |
| Fig. 2 folder |
| Number of files | 8 |
| File description | Simp-EF | Cardiac function and structure before and after 4 and 8 weeks of exposure; Unit: %, μL, mg, or mm. EF, ejection fraction; FAC, Fractional area change; LVESV, left ventricular end-systolic volume; LVEDV, left ventricular end-diastolic volume; LV, left ventricle; LAD, left atrial diameter; SV, stroke volume; Simp, Simpson’s method (see supplementary material for full detail). |
| Simp-FS |
| FAC |
| Simp-LVEDV |
| Simp-LVESV |
| Simp-SV |
| LA |
| LV Mass corrected |
| Fig. 3 folder |
| Number of files | 10 |
| File description | NN interval | Heart rate variability (HRV). HRV analyzed by time domain method. Unit: ms, count, or %. |
| SDNN |
| RMSSD |
| NN9 |
| pNN9 |
| TP | HRV analyzed by frequency domain method. Unit: PSD. |
| LF |
| HF |
| L-HF |
| Abbreviation used | NN interval, the normal-to-normal RR interval; SDNN, the standard deviation of the NN intervals; RMSSD, the root mean square of successive differences between normal heart beats; NN9, the number of pairs of successive NN intervals that differ by more than 9 ms; pNN9, the proportion of NN9 divided by the total number of NN intervals; TP, total power; VLF, very low frequency; LF, low frequency; HF, high frequency; LF/HF, ratio of LF to HF; PSD, power spectral density. |
| Fig. 4 folder |
| Number of files | 5 |
| File description | AF Total Inducibility | Data of the atrial fibrillation inducible rate; Unit: %. |
| VT Inducibility | ventricular tachycardias inducible rate; Unit: %. |
| LA ERP | Effective refractory period of thel eft atrium, right atrium and left ventricle. Unit: ms. |
| LV ERP |
| RA ERP |
| Abbreviation used | AF, atrial fibrillation; VT, ventricular tachycardias; LA, Left atrium; RA, right atrium; LV, left ventricle; ERP, effective refractory period. |
| Fig. 5 folder |
| Number of files | 9 |
| File description | LA\_APD | Action potential duration and calcium transient duration at 80% repolarization of the left atrium, right atrium and left ventricle. Unit: ms. |
| LA\_CaTD |
| LA\_CaTD-APD |
| LV\_APD |
| LV\_CaTD |
| LV\_CaTD-APD |
| RA\_APD |
| RA\_CaTD |
| RA\_CaTD-APD |
| Abbreviation used | Ca: calcium transient duration; V: action potential duration; CaTD-APD: difference of calcium transient duration to action potential duration. PCL, pacing circle length. |
| Fig. 6 folder |
| Number of files | 7 |
| File description | LA Fibrosis | Fibrosis and fibrotic biomarkers. Fibrosis data of LA, RA, and LV and biomarkers including Gal-3, TIMP-1, and MMP9 are provided. Unit: % or pg/mL. |
| LV Fibrosis |
| RA Fibrosis |
| Serum level of Gal-3 |
| Serum level of MMP-9 |
| Serum level of TIMP-1 |
| Ratio of TIMP1 to MMP9 |
| Abbreviation used | Gal-3, galectin-3; MMP-9, matrix metalloproteinase-9; TIMP1, endogenous tissue inhibitor-1 of MMP9. |
| Fig. 7 folder |
| Number of files | 2 |
| File description | % Area of Microvessel | Density of microvessels. Unit: Count/mm2 or %. |
| Number of Microvessel |
| Fig. 8 folder |
| Number of files | 8 |
| File description | ChAT-LA | Distribution of sympathetic and parasympathetic nerves on the LA, RA, and LV. Unit: %. N = 6 each group. |
| ChAT-LV |
| ChAT-RA |
| ChAT-RV |
| TH-LA |
| TH-LV |
| TH-RA |
| TH-RV |
| Abbreviation used | TH, tyrosine hydroxylase; ChAT, choline acetyltransferase. |