S12 Fig

A. Asthma patients Melatonin vs Non melatonin Melatonin vs ARBs Melatonin vs ACEIs Lower Higher OR 95% CI Lower Higher OR 95% CI Lower Higher OR 95% CI 0.57 (0.36,0.89) 0.42 (0.27,0.66) 0.49 (0.30,0.80) 0.56 (0.35,0.89) 0.42 (0.26,0.66) 0.49 (0.30,0.81) 0.66 (0.39,1.11) 0.33 (0.20,0.56) 0.51 (0.29,0.88) 0.61 (0.36,1.06) 0.35 (0.19,0.61) 0.49 (0.27,0.90) 0.6 0.9 0.3 0.9 0.3 0.6 0.9 0.3 0.6 Carvedilol vs Non carvedilol Carvedilol vs ARBs Carvedilol vs ACEIs Lower Higher OR 95% CI Lower Higher Lower i Higher OR 95% CI OR 95% CI 1.08 (0.63, 1.82) 0.91 (0.50, 1.66) ÷ 0.78 (0.44,1.37) 0.91 (0.49,1.68) 1.07 (0.63, 1.83) 0.78 (0.44.1.38) 0.95 (0.50, 1.79) 0.56 (0.28,1.14) 1.06 (0.54,2.10) 0.93 (0.49,1.79) 1.04 (0.51,2.11) 0.53 (0.25.1.11) 0.5 1.0 1.5 2.0 0.5 1.0 1.5 2.0 0.5 1.0 1.5 2.0 B. Diabetes patients Melatonin vs Non melatonin Melatonin vs ARBs Melatonin vs ACEIs Lower Higher OR 95% CI Lower Higher OR 95% CI Lower Higher OR 95% CI 0.36 (0.24,0.53) 0.54 (0.39,0.75) 0.72 (0.50,1.03) 0.55 (0.40,0.76) 0.71 (0.50,1.03) 0.35 (0.24,0.52) 0.51 (0.36,0.74) 0.73 (0.48,1.11) 0.47 (0.30,0.74) 0.52 (0.36,0.75) 0.68 (0.44,1.05) 44 0.46 (0.29,0.73) 0.2 0.4 0.6 0.8 1.0 0.2 0.4 0.6 0.8 1.0 0.2 0.4 0.6 0.8 1.0 Carvedilol vs ACEIs Carvedilol vs Non carvedilol Carvedilol vs ARBs Lower Higher OR 95% CI Lower Higher OR 95% CI Lower Higher OR 95% CI ----0.68 (0.50,0.91) ÷-1.05 (0.73, 1.51) 0.61 (0.43,0.87) 0.66 (0.49,0.89) 1.05 (0.73,1.51) 0.60 (0.42,0.85) 0.86 (0.60, 1.23) 1.02 (0.67, 1.56) 1.00 (0.65, 1.53) + + 0.87 (0.61,1.25) 1.05 (0.68, 1.61) 0.99 (0.64, 1.52) 0.4 0.8 1.2 1.6 0.4 0.8 1.2 1.6 0.4 0.8 1.2 1.6 C. Hypertension patients Melatonin vs Non melatonin Melatonin vs ARBs Melatonin vs ACEIs Lower Higher OR 95% CI Lower Higher OR 95% CI Lower Higher OR 95% CI 0.60 (0.47,0.75) 0.71 (0.55,0.92) 0.53 (0.41,0.70) 0.53 (0.41,0.69) 0.60 (0.47,0.75) 0.70 (0.54,0.90) 0.79 (0.60,1.03) 0.65 (0.48,0.87) 0.69 (0.52,0.93) + 0.80 (0.61,1.05) 0.64 (0.47,0.87) 0.67 (0.49,0.90) 0.4 0.6 0.8 1.0 0.4 0.6 0.8 1.0 0.4 0.6 0.8 1.0 Carvedilol vs Non carvedilol Carvedilol vs ARBs Carvedilol vs ACEIs Lower Higher OR 95% CI Lower Higher OR 95% CI Lower Higher OR 95% CI 0.76 (0.59,0.99) 0.65 (0.50,0.85) 0.78 (0.62,0.98) 0.77 (0.59,1.00) 0.65 (0.50,0.86) 0.78 (0.62.0.99) 0.89 (0.64, 1.24) 0.75 (0.55,1.04) 0.79 (0.60,1.04) 0.78 (0.59,1.03) 0.90 (0.65, 1.26) 14 0.76 (0.55,1.05)

Propensity score matching using

age, sex, race, smoking

0.5 0.7 0.9 1.1

age, sex, race, smoking

- age, sex, race, smoking
- age, sex, race, smoking, coronary artery disease,

0.5 0.7 0.9 1.1

- diabetes, hypertension, and COPD
- diabetes, hypertension, and COPD

age, sex, race, smoking, coronary artery disease, age, sex, race, smoking, coronary artery disease, diabetes, hypertension, and COPD

0.5 0.7 0.9 1.1

Odds ratios of COVID-19 adjusted by

S12 Fig. Patient-based validation of drug repurposing for COVID-19 using three different disease subgroups. The disease subgroups are (A) asthma, (B) diabetes, and (C) hypertension. Four models were evaluated. These models were matched and adjusted using different variables as shown in the table. The variable that was used to extract each patient subgroup was not used for propensity score matching or odds ratio adjustment. ACEI, angiotensin-converting enzyme inhibitor. ARB, angiotensin II receptor blocker.