

Supplementary Table 10. Stratification analysis of the incident risk of cholecystitis and cholangitis following zoster vaccination in the propensity score-matched cohort

Cholecystitis, cholangitis	Events, n (%)	Incidence rate ^{b)}	aHR (95% CI)	
			Model 1 ^{c)}	Model 2 ^{d)}
Sex				
Male				
Unvaccinated	4,292 (1.35)	1.05	1.0 (reference)	1.0 (reference)
Vaccinated	3,079 (0.96)	0.83	0.77 (0.74 to 0.81) ^{e)}	0.76 (0.73 to 0.80) ^{e)}
Female				
Unvaccinated	4,884 (1.18)	1.19	1.0 (reference)	1.0 (reference)
Vaccinated	4,118 (1.01)	1.12	0.88 (0.85 to 0.92) ^{e)}	0.87 (0.84 to 0.91) ^{e)}
Age (yr)				
< 60				
Unvaccinated	3,338 (1.72)	0.82	1.0 (reference)	1.0 (reference)
Vaccinated	2,417 (1.23)	0.66	0.75 (0.71 to 0.79) ^{e)}	0.74 (0.70 to 0.78) ^{e)}
≥ 60				
Unvaccinated	5,838 (1.09)	1.43	1.0 (reference)	1.0 (reference)
Vaccinated	4,780 (0.89)	1.30	0.88 (0.85 to 0.91) ^{e)}	0.87 (0.84 to 0.91) ^{e)}
Region of residence				
Urban				
Unvaccinated	4,247 (1.25)	1.04	1.0 (reference)	1.0 (reference)
Vaccinated	3,400 (1.00)	0.92	0.84 (0.80 to 0.88) ^{e)}	0.83 (0.80 to 0.87) ^{e)}
Rural				
Unvaccinated	4,929 (1.26)	1.20	1.0 (reference)	1.0 (reference)
Vaccinated	3,797 (0.97)	1.03	0.82 (0.79 to 0.86) ^{e)}	0.82 (0.78 to 0.85) ^{e)}
Household income				
Low (0th–39th percentile)				
Unvaccinated	2,703 (1.28)	0.66	1.0 (reference)	1.0 (reference)
Vaccinated	2,046 (0.97)	0.55	0.81 (0.77 to 0.86) ^{e)}	0.81 (0.76 to 0.85) ^{e)}
Middle (40th–79th percentile)				
Unvaccinated	3,297 (1.25)	0.81	1.0 (reference)	1.0 (reference)
Vaccinated	2,597 (0.99)	0.70	0.85 (0.81 to 0.90) ^{e)}	0.84 (0.80 to 0.89) ^{e)}
High (80th–100th percentile)				
Unvaccinated	3,176 (1.24)	0.78	1.0 (reference)	1.0 (reference)
Vaccinated	2,554 (0.99)	0.69	0.83 (0.79 to 0.87) ^{e)}	0.82 (0.78 to 0.87) ^{e)}
Body mass index (kg/m ²)				
< 23.0				
Unvaccinated	2,355 (1.23)	0.58	1.0 (reference)	1.0 (reference)
Vaccinated	1,967 (1.03)	0.53	0.88 (0.83 to 0.93) ^{e)}	0.87 (0.82 to 0.92) ^{e)}
23.0–24.9				
Unvaccinated	2,499 (1.25)	0.61	1.0 (reference)	1.0 (reference)
Vaccinated	1,911 (0.96)	0.52	0.82 (0.77 to 0.87) ^{e)}	0.81 (0.76 to 0.86) ^{e)}
≥ 25.0				
Unvaccinated	4,322 (1.27)	1.06	1.0 (reference)	1.0 (reference)
Vaccinated	3,319 (0.97)	0.90	0.81 (0.77 to 0.85) ^{e)}	0.80 (0.77 to 0.84) ^{e)}

Supplementary Table 10. Continued

Cholecystitis, cholangitis	Events, n (%)	Incidence rate ^{b)}	aHR (95% CI)	
			Model 1 ^{c)}	Model 2 ^{d)}
Smoking status ^{a)}				
Non-smoker				
Unvaccinated	6,063 (1.20)	1.48	1.0 (reference)	1.0 (reference)
Vaccinated	4,873 (0.97)	1.32	0.85 (0.82 to 0.88) ^{e)}	0.84 (0.81 to 0.88) ^{e)}
Smoker				
Unvaccinated	3,113 (1.38)	0.76	1.0 (reference)	1.0 (reference)
Vaccinated	2,324 (1.01)	0.63	0.79 (0.75 to 0.83) ^{e)}	0.78 (0.74 to 0.83) ^{e)}
Alcohol consumption (day per week)				
< 1				
Unvaccinated	4,068 (1.00)	0.99	1.0 (reference)	1.0 (reference)
Vaccinated	2,931 (0.73)	0.79	0.77 (0.73 to 0.81) ^{e)}	0.77 (0.73 to 0.80) ^{e)}
1–4				
Unvaccinated	4,900 (1.56)	1.20	1.0 (reference)	1.0 (reference)
Vaccinated	4,106 (1.31)	1.11	0.87 (0.84 to 0.91) ^{e)}	0.87 (0.83 to 0.90) ^{e)}
≥ 5				
Unvaccinated	208 (1.72)	0.051	1.0 (reference)	1.0 (reference)
Vaccinated	160 (1.21)	0.043	0.77 (0.63 to 0.95) ^{e)}	0.76 (0.61 to 0.93) ^{e)}
Physical activity				
Insufficient physical activity				
Unvaccinated	7,144 (1.27)	1.75	1.0 (reference)	1.0 (reference)
Vaccinated	5,481 (0.99)	1.49	0.82 (0.79 to 0.85) ^{e)}	0.81 (0.78 to 0.84) ^{e)}
Sufficient physical activity				
Unvaccinated	2,032 (1.19)	0.50	1.0 (reference)	1.0 (reference)
Vaccinated	1,716 (0.98)	0.47	0.87 (0.82 to 0.93) ^{e)}	0.86 (0.81 to 0.92) ^{e)}
Medication use for coronary artery disease				
No				
Unvaccinated	8,739 (1.24)	2.14	1.0 (reference)	1.0 (reference)
Vaccinated	6,833 (0.97)	1.85	0.83 (0.80 to 0.85) ^{e)}	0.82 (0.79 to 0.85) ^{e)}
Yes				
Unvaccinated	437 (1.67)	0.11	1.0 (reference)	1.0 (reference)
Vaccinated	364 (1.41)	0.10	0.89 (0.77 to 1.02)	0.89 (0.77 to 1.02)
Medication use for hypertension				
No				
Unvaccinated	5,950 (1.22)	1.45	1.0 (reference)	1.0 (reference)
Vaccinated	4,578 (0.96)	1.24	0.84 (0.80 to 0.87) ^{e)}	0.83 (0.80 to 0.86) ^{e)}
Yes				
Unvaccinated	3,226 (1.32)	0.79	1.0 (reference)	1.0 (reference)
Vaccinated	2,619 (1.04)	0.71	0.82 (0.78 to 0.86) ^{e)}	0.81 (0.77 to 0.86) ^{e)}

Supplementary Table 10. Continued

Cholecystitis, cholangitis	Events, n (%)	Incidence rate ^{b)}	aHR (95% CI)	
			Model 1 ^{c)}	Model 2 ^{d)}
Medication use for diabetes				
No				
Unvaccinated	7,858 (1.24)	1.92	1.0 (reference)	1.0 (reference)
Vaccinated	6,054 (0.96)	1.64	0.83 (0.80 to 0.86) ^{e)}	0.82 (0.79 to 0.85) ^{e)}
Yes				
Unvaccinated	1,318 (1.36)	0.32	1.0 (reference)	1.0 (reference)
Vaccinated	1,143 (1.11)	0.31	0.84 (0.78 to 0.91) ^{e)}	0.84 (0.77 to 0.91) ^{e)}
Medication use for hyperlipidemia				
No				
Unvaccinated	7,785 (1.24)	1.90	1.0 (reference)	1.0 (reference)
Vaccinated	6,027 (0.97)	1.63	0.83 (0.80 to 0.86) ^{e)}	0.82 (0.80 to 0.85) ^{e)}
Yes				
Unvaccinated	1,391 (1.32)	0.34	1.0 (reference)	1.0 (reference)
Vaccinated	1,170 (1.05)	0.32	0.82 (0.75 to 0.88) ^{e)}	0.81 (0.75 to 0.88) ^{e)}

aHR, adjusted hazard ratio; CI, confidence interval.

^{a)}Non-smoker indicates individuals who do not currently smoke.

^{b)}Incidence rate expressed as per 1,000 person-years.

^{c)}Models 1: adjusted for age (50–54, 55–59, 60–64, and ≥ 65 years) and sex.

^{d)}Model 2: adjusted for age (50–54, 55–59, 60–64, and ≥ 65 years); sex; household income (low income, middle income, and high income); region of residence (urban and rural); Charlson comorbidity index (0, 1, and ≥ 2); obesity (underweight [$< 18.5 \text{ kg/m}^2$], normal [$18.5\text{--}22.9 \text{ kg/m}^2$], overweight [$23.0\text{--}24.9 \text{ kg/m}^2$], and obese [$\geq 25.0 \text{ kg/m}^2$]); blood pressure (systolic blood pressure $< 140 \text{ mmHg}$ and diastolic blood pressure $< 90 \text{ mmHg}$ and systolic blood pressure $\geq 140 \text{ mmHg}$ or diastolic blood pressure $\geq 90 \text{ mmHg}$); fasting blood glucose (< 100 and $\geq 100 \text{ mg/dL}$); glomerular filtration rate (< 60 , $60\text{--}89$, and $\geq 90 \text{ mL/min/1.73 m}^2$); smoking status (non-, ex-, and current smoker); alcohol consumption (drinks; < 1 , $1\text{--}2$, $3\text{--}4$, and ≥ 5 days per week); aerobic physical activity (sufficient and insufficient); and history of medication use for coronary artery disease, diabetes mellitus, dyslipidemia, and hypertension.

^{e)}Significant differences ($p < 0.05$).