Supplementary Table S1. Variables Included in the Diagnosis Procedure Combination Database.

Type of data	Variable
Discharge abstract data	Age Sex Body weight Body height Brinkman index (number of cigarettes smoked per day × number of years of smoking) Main diagnosis[a] Comorbidities at admission[a] Complications after admission[a]
Claims data	Interventional procedures Surgical procedures Daily records of drug administration

[a] Recorded using the International Classification of Diseases 10th revision codes and text data in Japanese.

Supplementary Table S2. Definition of Hepatic Cancer and Prophylactic Antibiotics.

	Definition
Hepatic cancer	Hepatic cancer included both hepatocellular carcinoma (ICD-10 code C22.0) Secondary malignant neoplasm of the liver and intrahepatic bile duct (ICD-10 code C78.7)
Prophylactic antibiotics	Monotherapy with the following antibiotics on the day of TACE First-generation cephalosporin Second-generation cephalosporin Third-generation cephalosporin without a beta lactamase inhibitor Cefoperazone-sulbactam, Ampicillin-sulbactam Oxacephem Cephamycin

ICD-10: International Classification of Diseases 10th revision, TACE: transarterial chemoembolization

Supplementary Table S3. Independent Variables in the Logistic Regression Model.

Independent variables in the logistic regression model.	
Basic variables	Age Sex BMI (kg/m2) (four categories: ≤18.4, 18.5–24.9, 25.0–34.9, and ≥35) Brinkman Index (four categories: 0, 1–399, 400–999, and ≥1000) CCI
Comorbidities	Chronic heart failure Cerebral stroke and paralytic disease Chronic pulmonary disease Diabetes Chronic kidney disease Severe liver disfunction
Cancer type (hepatocellular carcinoma or metastatic hepatic cancer)	
Lipiodol use	
History of liver abscess within 180 days	
Previous procedure (TACE, radiofrequency ablation, microwave ablation, hepatectomy) within 180 days	
Hospital type	
Hospital volume[a] (three categories: ≤50, 51–100, and ≥101)	
Presence of an infectious disease unit in each hospital	
Fiscal year of admission[b] (seven categories: 2010, 2011, 2012, 2013, 2014, 2015, 2016)	

[a] Number of TACE procedures performed annually at each hospital.

[b] Japanese fiscal year of admission begins in April and ends in March.

BMI: body mass index; CCI: Charlson comorbidity index; TACE: transarterial chemoembolization

Supplementary Table S4. Comparison of Outcomes between Groups with and without Antibiotics in All Eligible Patients.

Outcome	Antibiotics Group[a] (N = 134,712)		Non-Antibiotics Group[a] (N = 32,832)		Relative Risk (95% CI)	Risk Reduction (95% CI)	NNT (95% CI)	p-Value[b]
Liver abscess[c]	116	(0.09)	71	(0.22)	0.40 (0.30–0.53)	0.0013 (0.0008–0.0019)	768 (531–1,216)	<0.001
In-hospital mortality (≤30 days)	468	(0.35)	134	(0.41)	0.85 (0.70–1.03)	0.0006 (-0.0001–0.0014)	–	0.099
RBC transfusion (≤30 days)	2,937	(2.18)	636	(1.94)	1.13 (1.03-1.23)	-0.0024 (-0.0041–-0.0007)	-411 (-246–-1,422)	0.006
Length of stay[d] (day)	10 [12.4]	(8-14)	9 [11.3]	(8-12)	–	–	–	<0.001
Total cost of hospitalization[d] (€)	5,603 [6,181]	(4,925–6,616)	5,246 [5,787]	(4,613–6,187)	–	–	–	<0.001
CDI[e]	128	(0.10)	15	(0.05)	2.08 (1.22–3.55)	-0.0005 (-0.0007–-0.0002)	-2,027 (-1,338–-6,239)	0.006

[a]Data shown as n (%), unless otherwise specified.

[b]Using the Pearson's chi-squared test for proportions and the Mann-Whitney U test for the length of stay and total cost of hospitalization.

[c]Liver abscess requiring procedural intervention.

[d]Data shown as median [mean] (interquartile range).

[e]Defined by record of CDI (ICD-10 code: A047) after admission or need for oral vancomycin on the day of or after TACE.

CDI: *Clostridioides difficile* infection; CI: confidence interval; NNT: number needed to treat; RBC: red blood cell.