Supplementary Table 2. Characteristics of studies included in meta-analysis

Study	Article / abstract	Cohort characteristics	HCC cohort size included in analysis	MAFLD	Steatosis	Country
Vitale et al.[2] (2023)	Article	ITA.LI.CA HCC registry enrolled HCC cases (2002–2019)	7,816	Overweight/obesity (BMI>25 kg/m^2) T2DM Elevated fasting glucose, trigs, low HDL, HTN (No data on CRP, waist circumference, HOMA-IR)	No steatosis data	Italy
Myers et al.[3] (2021)	Article	Geneva HCC registry consecutively enrolled HCC cases (1990–2014)	920	Overweight/obesity (BMI>25 kg/m^2) T2DM or "evidence of metabolic dysregulation"	Histology, biomarker or radiology	Switzerland
Lin et al.[4] (2022)	Article	BCLC-0/A HCC receiving curative hepatectomy from Chang Gung Research Database (CGRD) in Taiwan (2009–2018)	1,653	Overweight/obesity, T2DM, or >2 features metabolic dysregulation (Elevated fasting glucose, trigs, low HDL, HTN, elevated CRP, waist circumference (≥90/80 cm in Asian men and women), HOMA-IR)	Histological	Taiwan
Kim et al.[5] (2022)	Abstract	63,000 patients with viral hepatitis undergoing health examinations in 2009, follow up median 8.4 years. (HCV subgroup only in analysis)	606	Overweight/obesity (BMI >23 kg/m^2) T2DM or metabolic dysregulation (>2 features)	Biomarker	Republic of Korea
Shaikh et al.[6] (2022)	Abstract	UNOS database, patients listed for liver transplant for HCC (2015–2021)	23,245	Overweight/obesity (BMI>25 kg/m^2) or T2DM	No steatosis data	USA
Xiong et al.[7] (2022)	Article	HBV HCC patients undergoing hepatectomy at Meng Chao Hepatobiliary Hospital, China (2019–2021)	514	Overweight/obesity (BMI>23 kg/m^2), T2DM, or >2 features metabolic dysregulation	Histological	Mainland China
Xiong et al.[8] (2022)	Article	Patients who underwent radical HCC resection at Mengchao Hepatobiliary Hospital (China) (2015–2018)	576	BMI>23, T2DM or 2 metabolic risk factors.	Histological	Mainland China
Shimose et al.[9] (2023)	Article	Patients with advanced HCC from 7 institutions in Japan and Italy treated with lenvatinib (2018–2021)	320	Overweight/obese, T2DM, or "metabolic risk abnormalities"	Radiological or biomarker	Japan, Italy

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Supplementary Table 2. Continued

Study	Article / abstract	Cohort characteristics	HCC cohort size included in analysis	MAFLD	Steatosis	Country
Nakagawa et al.[10] (2023)	Article	Patients receiving atezolizumab + bevacizumab in seven Japanese institutions for advanced HCC (2020–2021)	123	Referenced consensus statement "Based on latest definitions".	Not reported	Japan
Yun et al.[11] (2022)	Article	Korean Health Insurance registry cohort, HBV related HCC (2010–2018)	13,771	BMI>23, diabetes or >2 metabolic risk factors.	Biomarker	Republic of Korea
Xue et al.[22] (2022)	Article	Chinese single centre HBV related HCC cohort Guangdong Provincial Hospital (2010–2022)	549	BMI>23, T2DM or >2 metabolic abnormalities	Radiological or histological	Mainland China
Amano et al.[13] (2022)	Abstract	Retrospective cohort study, HCC with e antigen negative HBV on antiviral therapy single centre (median observation period 9.0 years [2.1–19.6 years])	34	"combines fatty liver and metabolic abnormalities"	Not reported	Japan
Clark-Dickson et al.[14] (2022)	Abstract	Single centre retrospective Australian HCC cohort (2018–2020)	38	Consensus statement definitions (author clarification).	Not reported	Australia
Iyer et al.[15] (2022)	Abstract	Single centre retrospective Australian HCC cohort (2018–2020)	137	Consensus statement definitions (author clarification).	Not reported	Australia
Lin et al.[16] (2021)	Article	Taiwan single centre cohort with BCLC stage 0/A HBV related HCC undergoing curative resection (2010–2019)	812	BMI>23, T2DM, >2 metabolic abnormalities	Histological	Taiwan
Liu et al.[17] (2022)	Article	Patients undergoing curative liver resection of HCC at 2 centres in China (2014–2018)	1,258	Overweight/obese (BMI>23), T2DM, >2 metabolic abnormalities	Radiological or histological	Mainland China
Liu et al.[18] (2022)	Article	UK biobank participants, Caucasian ethnic background only. Participants recruited 2006–2010 who developed HCC with median follow up 8.2 years [7.5–8.9 years]	453	Overweight or obesity (BMI>25), T2DM or presence of at least 2 metabolic abnormalities	Biomarker	United Kingdom
Rodrigues et al.[19] (2021)	Abstract	Consecutive HCC cases at single centre in Victoria (2019–2021)	50	Overweight/obesity, diabetes or >2 metabolic risk factors	Not reported	Australia

Supplementary Table 2. Continued

Study	Article / abstract	Cohort characteristics	HCC cohort size included in analysis	MAFLD	Steatosis	Country
van Kleef et al.[20] (2021)	Article	Multicentre retrospective cohort, HBV positive patients who underwent liver biopsy at centre in Toronto (2005–2016) or Rotterdam (1985–2002) who developed HCC during median follow up 9.8 years [6.6–14.0 years].	36	BMI >23 in Asians, >25 non-Asians, T2DM or >2 metabolic abnormalities	Histological	Canada/ Netherlands
Vanlerberghe et al.[21] (2023)	Article	Patients with HCC on liver explant who underwent liver transplant for ALD at single centre in Belgium (1990–2020)	142	Steatosis plus overweight, diabetes or >2 metabolic risk factors (HTN, dyslipidaemia or prediabetes)	Not reported	Belgium
Xie et al.[22] (2022)	Article	Patients with HCC at Second Affiliated Hospital of Kunming Medical University, China between 2015–2020	2,965	Overweight / obese (BMI>23), T2DM or "metabolic syndrome"	Histological or radiological or biomarker	Mainland China
Gonzalez-Chagolla et al.[23] (2021)	Article	Retrospective cohort from six tertiary care centres in Central Mexico evaluating cirrhosis aetiology, HCC cohort of 547 patients (2000–2019)	547	BMI>25, T2DM, >2 features of metabolic dysfunction.	Not reported	Mexico

HCC, hepatocellular carcinoma; BMI, body mass index; HDL, High-density lipoprotein; HTN, Hypertension; HOMA-IR, Homeostasis model assessment for insulin resistance; T2DM, type 2 diabetes mellitus; HCV, hepatitis C virus; UNOS, United Network for Organ Sharing; HBV, hepatitis B virus; ALD, alcohol-related liver disease.

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