World Journal of Gastrointestinal Surgery

World J Gastrointest Surg 2024 July 27; 16(7): 1956-2364





Published by Baishideng Publishing Group Inc

WJG S

World Journal of Gastrointestinal Surgery

Contents

Monthly Volume 16 Number 7 July 27, 2024

EDITORIAL

- 1956 Unveiling the potential of electrocautery-enhanced lumen-apposing metal stents in endoscopic ultrasound-guided biliary drainage Chisthi MM
- 1960 Minimally invasive pelvic exenteration for primary or recurrent locally advanced rectal cancer: A glimpse into the future

Kehagias D, Lampropoulos C, Kehagias I

- 1965 Endoscopic submucosal dissection for early gastric cancer: A major challenge for the west Schlottmann F
- 1969 Impact of immunotherapy on liver metastasis Fu Z, Wang MW, Liu YH, Jiao Y
- 1973 Occurrence and prevention of incisional hernia following laparoscopic colorectal surgery Wu XW, Yang DQ, Wang MW, Jiao Y
- 1981 Role of endoscopic-ultrasound-guided biliary drainage with electrocautery-enhanced lumen-apposing metal stent for palliation of malignant biliary obstruction

Deliwala SS, Qayed E

REVIEW

1986 Pancreatic pseudocyst: The past, the present, and the future

Koo JG, Liau MYQ, Kryvoruchko IA, Habeeb TA, Chia C, Shelat VG

ORIGINAL ARTICLE

Case Control Study

2003 Diagnostic significance of serum levels of serum amyloid A, procalcitonin, and high-mobility group box 1 in identifying necrotising enterocolitis in newborns

Guo LM, Jiang ZH, Liu HZ, Zhang L

Retrospective Cohort Study

2012 Clinical efficacy and safety of double-channel anastomosis and tubular gastroesophageal anastomosis in gastrectomy

Liu BY, Wu S, Xu Y

2023 Application of radioactive iodine-125 microparticles in hepatocellular carcinoma with portal vein embolus Meng P, Ma JP, Huang XF, Zhang KL



Contents	5

R

letros	pective	Study	,
	peccive	ocua j	1

2031 Reproducibility study of intravoxel incoherent motion and apparent diffusion coefficient parameters in normal pancreas

Liu X, Wang YF, Qi XH, Zhang ZL, Pan JY, Fan XL, Du Y, Zhai YM, Wang Q

- 2040 Weight regain after intragastric balloon for pre-surgical weight loss Abbitt D, Choy K, Kovar A, Jones TS, Wikiel KJ, Jones EL
- 2047 Retrospective analysis based on a clinical grading system for patients with hepatic hemangioma: A single center experience

Zhou CM, Cao J, Chen SK, Tuxun T, Apaer S, Wu J, Zhao JM, Wen H

2054 Spleen volume is associated with overt hepatic encephalopathy after transjugular intrahepatic portosystemic shunt in patients with portal hypertension

Zhao CJ, Ren C, Yuan Z, Bai GH, Li JY, Gao L, Li JH, Duan ZQ, Feng DP, Zhang H

2065 Evaluation of the clinical effects of atropine in combination with remifentanil in children undergoing surgery for acute appendicitis

Li YJ, Chen YY, Lin XL, Zhang WZ

2073 The combined detection of carcinoembryonic antigen, carcinogenic antigen 125, and carcinogenic antigen 19-9 in colorectal cancer patients

Gong LZ, Wang QW, Zhu JW

2080 Clinical efficacy of laparoscopic cholecystectomy plus cholangioscopy for the treatment of cholecystolithiasis combined with choledocholithiasis

Liu CH, Chen ZW, Yu Z, Liu HY, Pan JS, Qiu SS

2088 Association between operative position and postoperative nausea and vomiting in patients undergoing laparoscopic sleeve gastrectomy

Li ZP, Song YC, Li YL, Guo D, Chen D, Li Y

2096 Preoperative albumin-bilirubin score predicts short-term outcomes and long-term prognosis in colorectal cancer patients undergoing radical surgery

Diao YH, Shu XP, Tan C, Wang LJ, Cheng Y

2106 Association of preoperative antiviral treatment with incidences of post-hepatectomy liver failure in hepatitis B virus-related hepatocellular carcinoma

Wang X, Lin ZY, Zhou Y, Zhong Q, Li ZR, Lin XX, Hu MG, He KL

2119 Effect of rapid rehabilitation nursing on improving clinical outcomes in postoperative patients with colorectal cancer

Song JY, Cao J, Mao J, Wang JL

2127 Interaction between the albumin-bilirubin score and nutritional risk index in the prediction of posthepatectomy liver failure

Qin FF, Deng FL, Huang CT, Lin SL, Huang H, Nong JJ, Wei MJ



Conton	World Journal of Gastrointestinal Surgery	
conten	Monthly Volume 16 Number 7 July 27, 2024	
2135	Effectiveness of magnetic resonance imaging and spiral computed tomography in the staging and treatment prognosis of colorectal cancer	
	Bai LN, Zhang LX	
2145	Correlation between abdominal computed tomography signs and postoperative prognosis for patients with colorectal cancer	
	Yang SM, Liu JM, Wen RP, Qian YD, He JB, Sun JS	
2157	Study on the occurrence and influencing factors of gastrointestinal symptoms in hemodialysis patients with uremia	
	Yuan D, Wang XQ, Shao F, Zhou JJ, Li ZX	
2167	"Hepatic hilum area priority, liver posterior first": An optimized strategy in laparoscopic resection for type III-IV hilar cholangiocarcinoma	
	Hu XS, Wang Y, Pan HT, Zhu C, Chen SL, Zhou S, Liu HC, Pang Q, Jin H	
2175	Impact of nutritional support on immunity, nutrition, inflammation, and outcomes in elderly gastric cancer patients after surgery	
	Chen XW, Guo XC, Cheng F	
2183	Therapeutic effects of Buzhong Yiqi decoction in patients with spleen and stomach qi deficiency after routine surgery and chemotherapy for colorectal cancer	
	Hu Q, Chen XP, Tang ZJ, Zhu XY, Liu C	
2194	1 Influencing factors and risk prediction model for emergence agitation after general anesthesia for primar liver cancer	
	Song SS, Lin L, Li L, Han XD	
2202	Potential applications of single-incision laparoscopic totally preperitoneal hernioplasty	
	Wang XJ, Fei T, Xiang XH, Wang Q, Zhou EC	
2211	Clinical significance of preoperative nutritional status in elderly gastric cancer patients undergoing radical gastrectomy: A single-center retrospective study	
	Zhao XN, Lu J, He HY, Ge SJ	
2221	Establishment and validation of a predictive model for peripherally inserted central catheter-related thrombosis in patients with liver cancer	
	Chen XF, Wu HJ, Li T, Liu JB, Zhou WJ, Guo Q	
	Observational Study	
2232	Effect of information-motivation-behavioral skills model based perioperative nursing on pain in patients with gallstones	
	Ma L, Yu Y, Zhao BJ, Yu YN, Li Y	
2242	Postoperative body weight change and its influencing factors in patients with gastric cancer	
	Li Y, Huang LH, Zhu HD, He P, Li BB, Wen LJ	
2255	Cost burden following esophagectomy: A single centre observational study	
	Buchholz V, Lee DK, Liu DS, Aly A, Barnett SA, Hazard R, Le P, Kioussis B, Muralidharan V, Weinberg L	



Contents

World Journal of Gastrointestinal Surgery

Monthly Volume 16 Number 7 July 27, 2024

Randomized Controlled Trial

2270 Effectiveness of colonoscopy, immune fecal occult blood testing, and risk-graded screening strategies in colorectal cancer screening

Xu M, Yang JY, Meng T

Clinical and Translational Research

2281 Construction of prognostic markers for gastric cancer and comprehensive analysis of pyroptosis-related long non-coding RNAs

Wang Y, Li D, Xun J, Wu Y, Wang HL

Basic Study

Yangyin Huowei mixture alleviates chronic atrophic gastritis by inhibiting the IL-10/JAK1/STAT3 2296 pathway

Xie SS, Zhi Y, Shao CM, Zeng BF

2308 Impacts of different pancreatic resection ranges on endocrine function in Suncus murinus Li RJ, Yang T, Zeng YH, Natsuyama Y, Ren K, Li J, Nagakawa Y, Yi SQ

SYSTEMATIC REVIEWS

2319 Impact of frailty on postoperative outcomes after hepatectomy: A systematic review and meta-analysis Lv YJ, Xu GX, Lan JR

CASE REPORT

2329 Multidisciplinary management of ulcerative colitis complicated by immune checkpoint inhibitorassociated colitis with life-threatening gastrointestinal hemorrhage: A case report

Hong N, Wang B, Zhou HC, Wu ZX, Fang HY, Song GQ, Yu Y

- 2337 Sequential bowel necrosis and large gastric ulcer in a patient with a ruptured femoral artery: A case report Wang P, Wang TG, Yu AY
- 2343 Colon signet-ring cell carcinoma with chylous ascites caused by immunosuppressants following liver transplantation: A case report

Li Y, Tai Y, Wu H

2351 Misdiagnosis of hemangioma of left triangular ligament of the liver as gastric submucosal stromal tumor: Two case reports

Wang JJ, Zhang FM, Chen W, Zhu HT, Gui NL, Li AQ, Chen HT

LETTER TO THE EDITOR

2358 Revolutionizing palliative care: Electrocautery-enhanced lumen-apposing metal stents in endoscopicultrasound-guided biliary drainage for malignant obstructions

Onteddu NKR, Mareddy NSR, Vulasala SSR, Onteddu J, Virarkar M



Conton		World Journal of Gastrointestinal Surgery
Conten	Mont	hly Volume 16 Number 7 July 27, 2024
2362	Preservation of superior rectal artery in laparoscopic co constipation?	electomy: The best choice for slow transit
	Liu YL, Liu WC	

Contents

World Journal of Gastrointestinal Surgery

Monthly Volume 16 Number 7 July 27, 2024

ABOUT COVER

Peer Reviewer of World Journal of Gastrointestinal Surgery, Hideki Aoki, MD, PhD, Chief Doctor, Surgeon, Department of Surgery, Iwakuni Clinical Center, Iwakuni 740-8510, Japan. aoki.hideki.hy@mail.hosp.go.jp

AIMS AND SCOPE

The primary aim of World Journal of Gastrointestinal Surgery (WJGS, World J Gastrointest Surg) is to provide scholars and readers from various fields of gastrointestinal surgery with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJGS mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal surgery and covering a wide range of topics including biliary tract surgical procedures, biliopancreatic diversion, colectomy, esophagectomy, esophagostomy, pancreas transplantation, and pancreatectomy, etc.

INDEXING/ABSTRACTING

The WJGS is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Current Contents/Clinical Medicine, Journal Citation Reports/Science Edition, PubMed, PubMed Central, Reference Citation Analysis, China Science and Technology Journal Database, and Superstar Journals Database. The 2024 Edition of Journal Citation Reports® cites the 2023 journal impact factor (JIF) for WJGS as 1.8; JIF without journal self cites: 1.7; 5-year JIF: 1.9; JIF Rank: 123/290 in surgery; JIF Quartile: Q2; and 5-year JIF Quartile: Q3.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Zi-Hang Xu; Production Department Director: Xiang Li; Cover Editor: Jia-Ru Fan.

NAME OF JOURNAL	INSTRUCTIONS TO AUTHORS
World Journal of Gastrointestinal Surgery	https://www.wjgnet.com/bpg/gerinfo/204
ISSN	GUIDELINES FOR ETHICS DOCUMENTS
ISSN 1948-9366 (online)	https://www.wjgnet.com/bpg/GerInfo/287
LAUNCH DATE	GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH
November 30, 2009	https://www.wjgnet.com/bpg/gerinfo/240
FREQUENCY	PUBLICATION ETHICS
Monthly	https://www.wjgnet.com/bpg/GerInfo/288
EDITORS-IN-CHIEF Peter Schemmer	PUBLICATION MISCONDUCT https://www.wjgnet.com/bpg/gerinfo/208
EDITORIAL BOARD MEMBERS	ARTICLE PROCESSING CHARGE
https://www.wjgnet.com/1948-9366/editorialboard.htm	https://www.wjgnet.com/bpg/gerinfo/242
PUBLICATION DATE	STEPS FOR SUBMITTING MANUSCRIPTS
July 27, 2024	https://www.wjgnet.com/bpg/GerInfo/239
COPYRIGHT	ONLINE SUBMISSION
© 2024 Baishideng Publishing Group Inc	https://www.f6publishing.com

© 2024 Baishideng Publishing Group Inc. All rights reserved. 7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA E-mail: office@baishideng.com https://www.wjgnet.com



S WŰ

World Journal of Gastrointestinal Surgery

Submit a Manuscript: https://www.f6publishing.com

World J Gastrointest Surg 2024 July 27; 16(7): 1969-1972

DOI: 10.4240/wjgs.v16.i7.1969

ISSN 1948-9366 (online)

EDITORIAL

Impact of immunotherapy on liver metastasis

Zhuo Fu, Ming-Wei Wang, Ya-Hui Liu, Yan Jiao

Specialty type: Gastroenterology and hepatology

Provenance and peer review: Invited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's classification Scientific Quality: Grade A, Grade C Novelty: Grade A, Grade C

Creativity or Innovation: Grade A, Grade C **Scientific Significance:** Grade A, Grade B

P-Reviewer: Datta-Mitra A, United States; Nashwan AJ, Qatar

Received: March 17, 2024 Revised: May 9, 2024 Accepted: May 28, 2024 Published online: July 27, 2024 Processing time: 126 Days and 20.8 Hours



Zhuo Fu, Medical College, Inner Mongolia Minzu University, Tongliao 028000, Inner Mongolia Autonomous Region, China

Ming-Wei Wang, Ministry of Health Key Laboratory of Radiobiology, School of Public Health of Jilin University, Changchun 130000, Jilin Province, China

Ya-Hui Liu, Yan Jiao, Department of Hepatobiliary and Pancreatic Surgery, General Surgery Center, The First Hospital of Jilin University, Changchun 130021, Jilin Province, China

Corresponding author: Yan Jiao, MD, PhD, Surgeon, Department of Hepatobiliary and Pancreatic Surgery, General Surgery Center, The First Hospital of Jilin University, No. 71 Xinmin Street, Changchun 130021, Jilin Province, China. lagelangri1@126.com

Abstract

This editorial discusses the article "Analysis of the impact of immunotherapy efficacy and safety in patients with gastric cancer and liver metastasis" published in the latest edition of the *World Journal of Gastrointestinal Surgery*. Immunotherapy has achieved outstanding success in tumor treatment. However, the presence of liver metastasis (LM) restrains the efficacy of immunotherapy in various tumors, including lung cancer, colorectal cancer, renal cell carcinoma, melanoma, and gastric cancer. A decrease in CD8+ T cells and nature killer cells, along with an increase in macrophages and regulatory T cells, was observed in the microenvironment of LM, leading to immunotherapy resistance. More studies are necessary to determine the best strategy for enhancing the effectiveness of immunotherapy in patients with LM.

Key Words: Immunotherapy; Liver metastasis; Tumor microenvironment; Resistance; T cells

©The Author(s) 2024. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: The liver is one of the most common sites for tumor metastasis. This editorial reviews the impact of liver metastasis on immunotherapy effectiveness and the possible mechanisms, with an aim to provide new clues for clinical treatment in liver metastatic patients receiving immunotherapy.

aishidena® WJGS https://www.wjgnet.com

Citation: Fu Z, Wang MW, Liu YH, Jiao Y. Impact of immunotherapy on liver metastasis. World J Gastrointest Surg 2024; 16(7): 1969-1972

URL: https://www.wjgnet.com/1948-9366/full/v16/i7/1969.htm DOI: https://dx.doi.org/10.4240/wjgs.v16.i7.1969

INTRODUCTION

Immunotherapy, including immune checkpoint inhibitors, aiming to enhance the anti-tumor response of the body's own immune system, has achieved remarkable success in treating various tumors[1]. However, despite the significant advances in immunotherapy, only a small subset of patients can benefit from it, while the majority of patients encounter the problem of drug resistance[2]. Up to now, a variety of mechanisms behind resistance to immunotherapy have been explored, and some clinical features are correlated with immune resistance.

Metastasis is a crucial characteristic of malignant tumors, and is also the primary cause of mortality in cancer patients [3]. The liver is one of the most frequent sites of metastasis in various tumors, including lung cancer, colon cancer, and melanoma^[4]. Several studies have investigated the influences of liver metastasis (LM) on immunotherapy, and one of them is an article titled "Analysis of the impact of immunotherapy efficacy and safety in patients with gastric cancer and liver metastasis" which was published in the latest issue of the World Journal of Gastrointestinal Surgery.

LM RESTRAINS EFFICACY OF IMMUNOTHERAPY

The efficacy of immunotherapy on advanced cancers with LM has been reported. In non-small cell lung cancer (NSCLC), an anti-programmed death ligand 1 (anti-PD-L1) monoclonal antibody, atezolizumab, could improve overall survival (OS) of patients with LM compared with standard therapy[5]. However, in several studies, patients with LM have a poorer prognosis compared to those without.

Studies have demonstrated that LM was an independent unfavorable prognostic factor in different tumors. In Komiya et al's[6] study on stage IV NSCLC, OS of patients with LM was significantly worse than that of patients without LM, which indicated that LM was a poor prognostic factor for immunotherapy in advanced lung cancer. Similarly, colorectal cancer patients without LM had better clinical response and superior progression-free survival (PFS) compared to patients with LM when treated with programmed death-1 or PD-L1 targeting therapy[7]. In research of renal cell carcinoma and melanoma, Kaplan-Meier analysis also presented longer OS and PFS in non-LM patients receiving systemic therapy [8,9]. In the latest issue of the World Journal of Gastrointestinal Surgery, Liu et al [10] found that immunotherapy was less effective in patients with advanced gastric cancer and LM, which expanded the findings to gastric cancer.

THE IMMUNOSUPPRESSIVE MICROENVIRONMENT OF LM

Although the precise mechanism on how LM weakens the benefits of immunotherapy has not been clearly defined, accumulating evidence has suggested that the tumor microenvironment (TME) played a critical role[11]. The TME is a complex system that mainly contains tumor cells, stromal cells, infiltrating immune cells, and the extracellular matrix [12]. Among them, infiltrating immune cells are strongly associated with tumor progression and immunotherapy responses.

T cells have been recognized as the center of tumor immunology. T cells can be divided into different subtypes, including cytotoxic T cells (CTLs), T helper (Th) cells, and regulatory T cells (Tregs)[13]. CD8+ CTLs are the major effector cells in the TME. CTLs could directly kill target cells via the interaction with Fas/Fas ligands, or indirectly via cytotoxic molecules such as perforin and granzymes[14]. Th cells are CD4+ T cells, and can be divided into Th1 and Th2 according to different cytokines secreted. Th1 cells secrete proinflammatory cytokines like interferon-gamma to play an antitumor role, while Th2 cells produce elevated levels of anti-inflammatory cytokines like interleukin-4 in order to suppress immune responses and facilitate tumor growth and metastasis^[15]. Tregs are important immunosuppressive cells in the TME, exerting immunosuppressive effects through direct contact and secretion of inhibitory cytokines, thereby suppressing antigen presenting process and pro-inflammatory cell activation, and ultimately promoting tumor progression[16].

Nature killer (NK) cells and macrophages belong to the innate immune system. NK cells, as a class of cytotoxic lymphocytes, eliminate cancer cells in an MHC-independent manner^[17]. Macrophages are phagocytic cells with diverse phenotypes and functions. M1 macrophages release inflammatory mediators that facilitate inflammatory reactions to enhance the anti-tumor immune responses, while M2 macrophages exhibit elevated expression of anti-inflammatory and growth factors which inhibit the function of CTLs and promote tumor growth and metastasis[18]. Tumor associated macrophages (TAMs) typically demonstrate an M2 phenotype and facilitate tumor progression[19].

The inhibitory TME of LM is characterized by the absence of effective cells and massive infiltration of inhibitory immune components (Figure 1). RNA-seq analysis showed the decreased immune cell infiltration, especially CD8+ T cells in LM from more than 16 cancer types[20]. Jakubowska et al[21] using histopathological examination confirmed the



WJGS https://www.wjgnet.com



Figure 1 The suppressive immune microenvironment of liver metastasis. The figure was created with Figdraw (www.figdraw.com).

reduction of tumor infiltrating lymphocytes in LM tissues compared with primary colorectal cancer. Besides, the percentage of NK cells was also reduced in mice with LM[22]. TAMs and Tregs, as important inhibitory cells, both were increased significantly in the LM microenvironment^[23,24]. In addition, Yu et al^[25] found that increased macrophages by LM expressing high levels of FasL, could recruit and induce the apoptosis of CD8+ T cells, leading to antigen specific T cell diminish in subcutaneous tumor, lymph nodes, and peripheral blood. The hepatic TME suppresses immune response, which in turn facilitates tumor progression and immunotherapy resistance[26].

CONCLUSION

In conclusion, the presence of LM is a poor prognostic factor in multiple tumors treated with immunotherapy. LM provides an immunosuppressive microenvironment with effect cell reduction and inhibitory cell activation, resulting in immunotherapy resistance. Further studies on the TME are needed to find the optimal combination strategy to improve the efficacy of immunotherapy.

FOOTNOTES

Author contributions: Jiao Y designed the overall concept and outline of the manuscript; Fu Z contributed to design and the initial draft of the manuscript; Wang MW contributed to the discussion; Liu YH reviewed the literature and revised the manuscript. All authors have read and approved the final manuscript.

Supported by Initiation Project of Science and Technology Department of Inner Mongolia Minzu University, No. KYQD23014.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

Country of origin: China

ORCID number: Zhuo Fu 0000-0001-6462-7695; Ya-Hui Liu 0000-0003-3081-8156; Yan Jiao 0000-0001-6914-7949.

S-Editor: Qu XL L-Editor: Wang TQ P-Editor: Zhang L

REFERENCES

Zhang Y, Zhang Z. The history and advances in cancer immunotherapy: understanding the characteristics of tumor-infiltrating immune cells and their therapeutic implications. Cell Mol Immunol 2020; 17: 807-821 [PMID: 32612154 DOI: 10.1038/s41423-020-0488-6]



- Schoenfeld AJ, Hellmann MD. Acquired Resistance to Immune Checkpoint Inhibitors. Cancer Cell 2020; 37: 443-455 [PMID: 32289269 2 DOI: 10.1016/j.ccell.2020.03.017]
- 3 Majidpoor J, Mortezaee K. Steps in metastasis: an updated review. Med Oncol 2021; 38: 3 [PMID: 33394200 DOI: 10.1007/s12032-020-01447-w]
- Park JH, Kim JH. Pathologic differential diagnosis of metastatic carcinoma in the liver. Clin Mol Hepatol 2019; 25: 12-20 [PMID: 30300991 4 DOI: 10.3350/cmh.2018.0067]
- Yin WJ, Ma SC, Dong ZY, Xu M, Mao W. Efficacy and Treatment Strategies in Advanced Cancers with Liver Metastasis Receiving 5 Atezolizumab Therapy. Cancer Manag Res 2021; 13: 4541-4551 [PMID: 34135631 DOI: 10.2147/CMAR.S310331]
- Komiya T, Takamori S, Shimokawa M. Impact of Liver Metastasis on First-Line Immunotherapy in Stage IV Non-Small Cell Lung Cancer. 6 World J Oncol 2023; 14: 234-245 [PMID: 37560341 DOI: 10.14740/wjon1625]
- 7 Wang C, Sandhu J, Ouyang C, Ye J, Lee PP, Fakih M. Clinical Response to Immunotherapy Targeting Programmed Cell Death Receptor 1/ Programmed Cell Death Ligand 1 in Patients With Treatment-Resistant Microsatellite Stable Colorectal Cancer With and Without Liver Metastases. JAMA Netw Open 2021; 4: e2118416 [PMID: 34369992 DOI: 10.1001/jamanetworkopen.2021.18416]
- Kim SH, Kim JK, Park EY, Joo J, Lee KH, Seo HK, Joung JY, Chung J. Liver metastasis and Heng risk are prognostic factors in patients with 8 non-nephrectomized synchronous metastatic renal cell carcinoma treated with systemic therapy. PLoS One 2019; 14: e0211105 [PMID: 30785902 DOI: 10.1371/journal.pone.0211105]
- Wang X, Ji Q, Yan X, Lian B, Si L, Chi Z, Sheng X, Kong Y, Mao L, Bai X, Tang B, Li S, Zhou L, Cui C, Guo J. The Impact of Liver 9 Metastasis on Anti-PD-1 Monoclonal Antibody Monotherapy in Advanced Melanoma: Analysis of Five Clinical Studies. Front Oncol 2020; 10: 546604 [PMID: 33117684 DOI: 10.3389/fonc.2020.546604]
- Liu K, Wu CX, Liang H, Wang T, Zhang JY, Wang XT. Analysis of the impact of immunotherapy efficacy and safety in patients with gastric 10 cancer and liver metastasis. World J Gastrointest Surg 2024; 16: 700-709 [PMID: 38577087 DOI: 10.4240/wjgs.v16.i3.700]
- 11 Vesely MD, Zhang T, Chen L. Resistance Mechanisms to Anti-PD Cancer Immunotherapy. Annu Rev Immunol 2022; 40: 45-74 [PMID: 35471840 DOI: 10.1146/annurev-immunol-070621-030155]
- Belli C, Trapani D, Viale G, D'Amico P, Duso BA, Della Vigna P, Orsi F, Curigliano G. Targeting the microenvironment in solid tumors. 12 Cancer Treat Rev 2018; 65: 22-32 [PMID: 29502037 DOI: 10.1016/j.ctrv.2018.02.004]
- Todryk S, Jozwik A, de Havilland J, Hester J. Emerging Cellular Therapies: T Cells and Beyond. Cells 2019; 8 [PMID: 30917514 DOI: 13 10.3390/cells8030284]
- 14 Farhood B, Najafi M, Mortezaee K. CD8(+) cytotoxic T lymphocytes in cancer immunotherapy: A review. J Cell Physiol 2019; 234: 8509-8521 [PMID: 30520029 DOI: 10.1002/jcp.27782]
- Wang JJ, Lei KF, Han F. Tumor microenvironment: recent advances in various cancer treatments. Eur Rev Med Pharmacol Sci 2018; 22: 15 3855-3864 [PMID: 29949179 DOI: 10.26355/eurrev_201806_15270]
- Li C, Jiang P, Wei S, Xu X, Wang J. Regulatory T cells in tumor microenvironment: new mechanisms, potential therapeutic strategies and 16 future prospects. Mol Cancer 2020; 19: 116 [PMID: 32680511 DOI: 10.1186/s12943-020-01234-1]
- Guillerey C. NK Cells in the Tumor Microenvironment. Adv Exp Med Biol 2020; 1273: 69-90 [PMID: 33119876 DOI: 17 10.1007/978-3-030-49270-0_4]
- 18 Zhang J, Zhou X, Hao H. Macrophage phenotype-switching in cancer. Eur J Pharmacol 2022; 931: 175229 [PMID: 36002039 DOI: 10.1016/j.ejphar.2022.175229]
- 19 Najafi M, Hashemi Goradel N, Farhood B, Salehi E, Nashtaei MS, Khanlarkhani N, Khezri Z, Majidpoor J, Abouzaripour M, Habibi M, Kashani IR, Mortezaee K. Macrophage polarity in cancer: A review. J Cell Biochem 2019; 120: 2756-2765 [PMID: 30270458 DOI: 10.1002/jcb.27646]
- Gao Y, Chen S, Wang H, Wu C, An R, Li G, Yang M, Zhou Y, Xie X, Yu H, Zhang J. Liver metastases across cancer types sharing tumor 20 environment immunotolerance can impede immune response therapy and immune monitoring. J Adv Res 2023 [PMID: 37619932 DOI: 10.1016/j.jare.2023.08.011
- Jakubowska K, Koda M, Kisielewski W, Kańczuga-Koda L, Famulski W. Tumor-infiltrating lymphocytes in primary tumors of colorectal 21 cancer and their metastases. Exp Ther Med 2019; 18: 4904-4912 [PMID: 31807155 DOI: 10.3892/etm.2019.8146]
- Zhang Q, Liu S, Liu Y, Bhatt D, Estrada J, Belmontes B, Ren X, Canon J, Ouyang W. Liver Metastasis Modulate Responses of Suppressive 22 Macrophages and Exhausted T Cells to Immunotherapy Revealed by Single Cell Sequencing. Adv Genet (Hoboken) 2022; 3: 2200002 [PMID: 36911291 DOI: 10.1002/ggn2.202200002]
- Huang X, Chen Z, Zhang N, Zhu C, Lin X, Yu J, Lan P, Wan Y. Increase in CD4(+)FOXP3(+) regulatory T cell number and upregulation of 23 the HGF/c-Met signaling pathway during the liver metastasis of colorectal cancer. Oncol Lett 2020; 20: 2113-2118 [PMID: 32782528 DOI: 10.3892/ol.2020.11785
- Lee JC, Mehdizadeh S, Smith J, Young A, Mufazalov IA, Mowery CT, Daud A, Bluestone JA. Regulatory T cell control of systemic immunity 24 and immunotherapy response in liver metastasis. Sci Immunol 2020; 5 [PMID: 33008914 DOI: 10.1126/sciimmunol.aba0759]
- Yu J, Green MD, Li S, Sun Y, Journey SN, Choi JE, Rizvi SM, Qin A, Waninger JJ, Lang X, Chopra Z, El Naqa I, Zhou J, Bian Y, Jiang L, 25 Tezel A, Skvarce J, Achar RK, Sitto M, Rosen BS, Su F, Narayanan SP, Cao X, Wei S, Szeliga W, Vatan L, Mayo C, Morgan MA, Schonewolf CA, Cuneo K, Kryczek I, Ma VT, Lao CD, Lawrence TS, Ramnath N, Wen F, Chinnaiyan AM, Cieslik M, Alva A, Zou W. Liver metastasis restrains immunotherapy efficacy via macrophage-mediated T cell elimination. Nat Med 2021; 27: 152-164 [PMID: 33398162 DOI: 10.1038/s41591-020-1131-x]
- Santhakumar C, Gane EJ, Liu K, McCaughan GW. Current perspectives on the tumor microenvironment in hepatocellular carcinoma. 26 Hepatol Int 2020; 14: 947-957 [PMID: 33188512 DOI: 10.1007/s12072-020-10104-3]

WJGS | https://www.wjgnet.com



Published by Baishideng Publishing Group Inc 7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA Telephone: +1-925-3991568 E-mail: office@baishideng.com Help Desk: https://www.f6publishing.com/helpdesk https://www.wjgnet.com

