

příznaky pankreatitidy nebo jsou zjištěny patologické nálezy na CT, je doporučeno přerušit imunoterapii. Léčba těžké akutní pankreatitidy zahrnuje přerušení terapie ICI, intravenózní hydrataci a analgezii, přičemž role kortikosteroidů zůstává nejasná (2, 27).

Závěrem

Gastrointestinální nežádoucí účinky zůstávají jedním z nejvýznamnějších problémů spojených s onkologickou léčbou, zejména s moderními přístupy, jako jsou personalizovaná farmakoterapie a imunoterapie.

LITERATURA

- Bacon CG, Giovannucci E, Testa M, Glass TA, Kawachi I. The association of treatment-related symptoms with quality-of-life outcomes for localized prostate carcinoma patients. *Cancer*. Feb 01 2002;94(3):862-71. doi:10.1002/cncr.10248.
- Kiss I. *Modrá kniha České onkologické společnosti*. vol 30. Masarykův onkologický ústav; 2024.
- du Bois A, Meerpohl HG, Vach W, Kommiss FG, Fenzl E, Pfeleiderer A. Course, patterns, and risk-factors for chemotherapy-induced emesis in cisplatin-pretreated patients: a study with ondansetron. *Eur J Cancer*. 1992;28(2-3):450-7. doi:10.1016/s0959-8049(05)80075-9.
- NCCN. NCCN Guidelines Antiemesis. 1220232024. p. 81.
- Kennedy SKF, Goodall S, Lee SF, et al. 2020 ASCO, 2023 NCCN, 2023 MASCC/ESMO, and 2019 CCO: a comparison of antiemetic guidelines for the treatment of chemotherapy-induced nausea and vomiting in cancer patients. *Support Care Cancer*. Apr 10 2024;32(5):280. doi:10.1007/s00520-024-08462-x.
- NCCN. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) Colon Cancer. 2022. p. 1-198.
- Saito R, Takano Y, Kamiya HO. Roles of substance P and NK(1) receptor in the brainstem in the development of emesis. *J Pharmacol Sci*. Feb 2003;91(2):87-94. doi:10.1254/jphs.91.87.
- Gupta K, Walton R, Kataria S. Chemotherapy-induced nausea and vomiting: pathogenesis, recommendations, and new trends. *Cancer treatment and research communications*. 2021;26:100278.
- Herrstedt J, Clark-Snow R, Ruhlmann CH, et al. 2023 MASCC and ESMO guideline update for the prevention of chemotherapy- and radiotherapy-induced nausea and vomiting. *ESMO Open*. Feb 2024;9(2):102195. doi:10.1016/j.esmoop.2023.102195.
- Hesketh PJ. Chemotherapy-induced nausea and vomiting. *N Engl J Med*. Jun 5 2008;358(23):2482-94. doi:10.1056/NEJMra0706547 358/23/2482 [pii]
- Scotté F, Schwartzberg L, Iihara H, et al. 2023 updated MASCC/ESMO Consensus recommendations: Prevention of nausea and vomiting following moderately emetic risk antineoplastic agents. *Support Care Cancer*. Dec 20 2023;32(1):45. doi:10.1007/s00520-023-08222-3.
- (NCCN) NCCN. NCCN Guidelines Antiemesis. 1220232024. p. 366.
- Brygger L, Herrstedt J, (AgeCare) AoGCR. 5-Hydroxytryptamine₃ receptor antagonists and cardiac side effects. *Expert Opin Drug Saf*. Oct 2014;13(10):1407-22. doi:10.1517/14740338.2014.954546.
- Chow R, Tsao M, Chiu L, et al. Efficacy of the combination neurokinin-1 receptor antagonist, palonosetron, and dexamethasone compared to others for the prophylaxis of chemotherapy-induced nausea and vomiting: a systematic review and meta-analysis of randomized controlled trials. *Ann Palliat Med*. Apr 2018;7(2):221-233. doi:10.21037/apm.2018.03.09
- Popovic M, Warr DG, Deangelis C, et al. Efficacy and safety of palonosetron for the prophylaxis of chemotherapy-induced nausea and vomiting (CINV): a systematic review and meta-analysis of randomized controlled trials. *Support Care Cancer*. Jun 2014;22(6):1685-97. doi:10.1007/s00520-014-2175-6.
- Postow MA, Chesney J, Pavlick AC, et al. Nivolumab and ipilimumab versus ipilimumab in untreated melanoma. *N Engl J Med*. May 21 2015;372(21):2006-17. doi:10.1056/NEJMoa1414428.
- Shulgin B, Kosinsky Y, Omelchenko A, et al. Dose dependence of treatment-related adverse events for immune checkpoint inhibitor therapies: a model-based meta-analysis. *Oncoimmunology*. May 21 2020;9(1):1748982. doi:10.1080/2162402X.2020.1748982
- Jeay M, Carbone F, Robert C, Mussini C, Bellanger C, Meyer A. Chronic gastrointestinal immune-related adverse events in patients exposed to immune checkpoint inhibitors. *Clin Res Hepatol Gastroenterol*. Apr 2024;48(4):102311. doi:10.1016/j.clinre.2024.102311.
- Pernot S, Ramtohl T, Taieb J. Checkpoint inhibitors and gastrointestinal immune-related adverse events. *Curr Opin Oncol*. Jul 2016;28(4):264-8. doi:10.1097/CCO.0000000000000292
- Naidoo J, Page DB, Li BT, et al. Toxicities of the anti-PD-1 and anti-PD-L1 immune checkpoint antibodies. *Ann Oncol*. Jul 2016;27(7):1362. doi:10.1093/annonc/mdw141.
- Gupta A, De Felice KM, Loftus EV, Khanna S. Systematic review: colitis associated with anti-CTLA-4 therapy. *Aliment Pharmacol Ther*. Aug 2015;42(4):406-17. doi:10.1111/apt.13281
- Beck KE, Blansfield JA, Tran KQ, et al. Enterocolitis in patients with cancer after antibody blockade of cytotoxic T-lymphocyte-associated antigen 4. *J Clin Oncol*. May 20 2006;24(15):2283-9. doi:10.1200/JCO.2005.04.5716.
- Attia P, Phan GQ, Maker AV, et al. Autoimmunity correlates with tumor regression in patients with metastatic melanoma treated with anti-cytotoxic T-lymphocyte antigen-4. *J Clin Oncol*. Sep 01 2005;23(25):6043-53. doi:10.1200/JCO.2005.06.205.
- Tran T, Tran NGT, Ho V. Checkpoint Inhibitors and the Gut. *J Clin Med*. Feb 04 2022;11(3) doi:10.3390/jcm11030824.
- Thompson JA, Schneider BJ, Brahmer J, et al. Management of Immunotherapy-Related Toxicities, Version 1.2024, NCCN Clinical Practice Guidelines in Oncology. *J Natl Compr Canc Netw* 2024. p. 1-155.
- Schneider BJ, Naidoo J, Santomaso BD, et al. Management of Immune-Related Adverse Events in Patients Treated With Immune Checkpoint Inhibitor Therapy: ASCO Guideline Update. *J Clin Oncol*. Dec 20 2021;39(36):4073-4126. doi:10.1200/JCO.21.01440.
- Haanen J, Obeid M, Spain L, et al. Management of toxicities from immunotherapy: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up. *Ann Oncol*. Dec 2022;33(12):1217-1238. doi:10.1016/j.annonc.2022.10.001.
- De Velasco G, Je Y, Bossé D, et al. Comprehensive Meta-analysis of Key Immune-Related Adverse Events from CTLA-4 and PD-1/PD-L1 Inhibitors in Cancer Patients. *Cancer Immunol Res*. Apr 2017;5(4):312-318. doi:10.1158/2326-6066.CIR-16-0237.
- Larkin J, Hodi FS, Wolchok JD. Combined Nivolumab and Ipilimumab or Monotherapy in Untreated Melanoma. *N Engl J Med*. Sep 24 2015;373(13):1270-1. doi:10.1056/NEJMc1509660
- Larkin J, Del Vecchio M, Mandalá M, et al. Adjuvant Nivolumab versus Ipilimumab in Resected Stage III/IV Melanoma: 5-Year Efficacy and Biomarker Results from CheckMate 238. *Clin Cancer Res*. Sep 01 2023;29(17):3352-3361. doi:10.1158/1078-0432.CCR-22-3145.
- O'Reilly M, Mellotte G, Ryan B, O'Connor A. Gastrointestinal side effects of cancer treatments. *Ther Adv Chronic Dis*. 2020;11:2040622320970354. doi:10.1177/2040622320970354
- Heinzerling L, Goldering SM. A review of serious adverse effects under treatment with checkpoint inhibitors. *Curr Opin Oncol*. Mar 2017;29(2):136-144. doi:10.1097/CCO.0000000000000358.
- Shivaji UN, Jeffery L, Gui X, et al. Immune checkpoint inhibitor-associated gastrointestinal and hepatic adverse events and their management. *Therap Adv Gastroenterol*. 2019;12:1756284819884196. doi:10.1177/1756284819884196.
- Bergqvist V, Hertervig E, Gedeon P, et al. Vedolizumab treatment for immune checkpoint inhibitor-induced enterocolitis. *Cancer Immunol Immunother*. May 2017;66(5):581-592. doi:10.1007/s00262-017-1962-6.
- Postow M, Johnson D. Toxicities associated with immune checkpoint inhibitors. In: UpToDate, editor. 2024.
- Grover S, Rahma OE, Hashemi N, Lim RM. Gastrointestinal and hepatic toxicities of checkpoint inhibitors: algorithms for management. *American Society of Clinical Oncology Educational Book*. 2018;38:13-19.
- Aguilar-Nájera O, Velasco-Zamora JA, Torre A. Overlap syndromes of autoimmune hepatitis: diagnosis and treatment. *Rev Gastroenterol Mex*. 2015 Apr-Jun 2015;80(2):150-9. doi:10.1016/j.rgmx.2015.04.001.
- Tan CK, Ho D, Wang LM, Kumar R. Drug-induced autoimmune hepatitis: A minireview. *World Journal of Gastroenterology*. 2022;28(24):2654.
- NCCN. NCCN Clinical Practice Guidelines in Oncology: Management of Immunotherapy-Related Toxicities. Version 12024 — December 7, 20232024.
- Bhatia S, Huber BR, Upton MP, Thompson JA. Inflammatory enteric neuropathy with severe constipation after ipilimumab treatment for melanoma: a case report. *J Immunother*. 2009;32(2):203-5. doi:10.1097/JCI.0b013e318193a206.
- Gaudy-Marqueste C, Monestier S, Franques J, Cantais E, Richard MA, Grob JJ. A severe case of ipilimumab-induced guillain-barré syndrome revealed by an occlusive enteric neuropathy: a differential diagnosis for ipilimumab-induced colitis. *J Immunother*. Jan 2013;36(1):77-8. doi:10.1097/JCI.0b013e31827807dd.

Efektivní management těchto nežádoucích účinků, zahrnující preventivní opatření, včasnou identifikaci a adekvátní léčbu, je klíčový pro optimalizaci výsledků onkologické terapie. V důsledku může správný management pomoci pokračovat v terapii a především zvýšit kvalitu života. Sdílení znalostí a zkušeností mezi odbornou veřejností včetně farmaceutů je nezbytné pro zlepšení péče o pacienty a minimalizaci negativních dopadů léčby na jejich kvalitu života.

Tato publikace vznikla za podpory specifického vysokoškolského výzkumu (MUNI/A/1722/2024), kterou poskytl MŠMT.