

Literatura ACTA MEDICINAE 16/2024 Farmakologická léčba

- 2 **Role metotrexátu v kombinované léčbě psoriatické artritidy**
prof. MUDr. Karel Pavelka, DrSc. Revmatologický ústav, Praha
- 2 **Úspěšná léčba psoriatické artritidy biosimilárním infliximabem po selhání terapie blokující IL-17A – kazuistika**
prof. MUDr. Ladislav Šenolt, Ph.D. Revmatologický ústav a 1. LF UK, Praha
- 2 **Nové přístupy v léčbě atopické dermatitidy**
doc. MUDr. Jarmila Čelakovská, Ph.D. Klinika nemocí kožních a pohlavních, FN a LF UK, Hradec Králové
- 3 **Trendy v léčbě roztroušené sklerózy: kde jsme a kam směřujeme**
MUDr. Dominika Šťastná, Ph.D. Neurologická klinika a Centrum klinických neurověd, 1. LF UK a VFN v Praze
MUDr. Jana Seňavová I. interní klinika – hematologie, 1. LF UK a VFN v Praze, BIOCEV, 1. LF UK, Praha
prof. MUDr. Dana Horáková, Ph.D. Neurologická klinika a Centrum klinických neurověd, 1. LF UK a VFN v Praze
- 4 **Současné možnosti farmakoterapie Alzheimerovy choroby**
PharmDr. Marek Lapka, Ph.D. Ústav farmakologie, 3. LF UK, Praha
- 4 **Nové možnosti v léčbě idiopatických střevních zánětů**
doc. MUDr. Martin Bortlík, Ph.D. Gastroenterologické oddělení, Nemocnice České Budějovice; Interní klinika, 1. LF UK a ÚVN, Praha; Farmakologický ústav, 1. LF UK, Praha; Zdravotně sociální fakulta JU, České Budějovice
- 5 **Antimuskarinika v terapii syndromu hyperaktivního močového měchýře**
MUDr. Eva Burešová Urologická klinika, FN Olomouc
- 5 **Přínos momelotinibu v léčbě myelofibrózy**
MUDr. Natália Podstavková Interní hematologická a onkologická klinika, LF MU a FN Brno
- 5 **Neutropenie a farmakologické možnosti její léčby**
MUDr. Ivana Zubatá Karlová, Ph.D. | prof. MUDr. Tomáš Kozák, Ph.D., MBA | doc. MUDr. Jan Novák, Ph.D. |
MUDr. Veronika Řivnáčová | MUDr. Ľubica Gahérová Hematologická klinika, 3. LF UK a FNKV, Praha
MUDr. Petr Kafka Ph.D. Klinika anesteziologie a resuscitace, 3. LF UK a FNKV, Praha
MUDr. Denisa Viczénová Pracoviště laboratorních metod – oddělení klinické biochemie, 3. LF UK a IKEM, Praha
- 6 **Inovace v antibakteriální léčbě**
prof. MUDr. Helena Žemličková, Ph.D. Ústav mikrobiologie, 3. LF UK, FNKV a NRL pro antibiotika SZÚ, Praha
- 6 **Portugalská zkušenosť s léčbou HIV: různé scénáře se stejným úspěchem**
Reportáz GSK
- 6 **Stručný pohled na farmakologii antisense oligonukleotidů**
doc. MUDr. Jiří Slíva, Ph.D. Ústav farmakologie, 3. LF UK, Praha
- 6 **Výsledky studie post-MONICA, obezita a diabetes. Proč je česká populace ve vysokém kardiovaskulárním riziku a můžeme s tím něco udělat?**
prof. MUDr. Renata Cífková, CSc. Centrum kardiovaskulární prevence, 1. LF UK a FTN; II. interní klinika, 1. LF UK a VFN, Praha

Role metotrexátu v kombinované léčbě psoriatické artritidy

prof. MUDr. Karel Pavelka, DrSc. Revmatologický ústav, Praha

- 1 Coates, L. C. – Helliwell, P. S.: Psoriatic arthritis: state of the art review. *Clin Med*, 2017, 17, s. 65–70.
- 2 Gossec, L., et al.: EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2023 Update. *Ann Rheum Dis*, 2024, 83, s. 706–719.
- 3 Coates, L., et al.: Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA): updated treatment recommendations for psoriatic arthritis 2021. *Nat Rev Rheumatol*, 2022, 18, s. 465–479.
- 4 Pavelka, K. – Mann, H.: Výbor ČRS: Doporučení české revmatologické společnosti pro léčbu psoriatické artritidy. *Čes Revmatol*, 2023, 31, s. 63–74.
- 5 Gossec, L., et al.: EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2019 update. *Ann Rheum Dis*, 2020, 79, s. 700–712.
- 6 Coates, L. – Gossec, L.: The updated GRAPPA and EULAR recommendations for the management of psoriatic arthritis: Similarities and differences. *Joint Bone Spine*, 2023, 90, 105469.
- 7 Kingsley, G. H., et al.: A randomized placebo-controlled trial of methotrexate in psoriatic arthritis. *Rheumatology*, 2012, 51, s. 1368–1377.
- 8 Coates, L., et al.: Effect of tight control of inflammation in early psoriatic arthritis (TICOPA): a UK multicentre, open-label, randomised controlled trial. *Lancet*, 2015, 386, s. 2489–2498.
- 9 Mease, P. J. – Gladman, D. D. – Colier, et al.: Etanercept and methotrexate as monotherapy or in combination for psoriatic arthritis: primary results from randomized, controlled phase III trial. *Arthritis Rheumatol*, 2019, 71, s. 1112–1124.
- 10 Wiltz, T. D. – Whittle, S. L. – Thynne, T. Rj., et al.: Methotrexate for psoriatic arthritis (Review). *Cochrane Database Syst Rev*, 2019, 1, CD012722.
- 11 Nikiphorou, E., et al.: Indispensable or intolerable? Methotrexate in patients with rheumatoid and psoriatic arthritis: a retrospective review of discontinuation rates from a large UK cohort. *Clin Rheumatol*, 2014, 33, s. 609–614.
- 12 Lindström, U. – di Giuseppe, D. – Exarchou, S., et al.: Methotrexate treatment in early psoriatic arthritis in comparison to rheumatoid arthritis: an observational nationwide study. *RMD Open*, 2023, 9, e002883.
- 13 Smolen, J. S. – Schöls, M. – Braun, J., et al.: Treating axial spondyloarthritis and peripheral spondyloarthritis, especially psoriatic arthritis, to target: 2017 update of recommendations by an international task force. *Ann Rheum Dis*, 2018, 77, s. 3–17.
- 14 Lie, E. – van der Heijde, D. – Uhlig, T., et al.: Effectiveness and retention rates of methotrexate in psoriatic arthritis in comparison with methotrexate-treated patients with rheumatoid arthritis. *Ann Rheum Dis*, 2010, 69, s. 671–676.
- 15 Oggie, A. – Myers, K. – Mansfield, C., et al.: Experiences and treatment preferences in patients with psoriatic arthritis: a cross-sectional study in the arthritis power registry. *Rheumatol Ther*, 2022, 9, s. 735–751.
- 16 O'Dell, J. R., et al.: Treatment of rheumatoid arthritis with methotrexate and hydroxychloroquine, methotrexate and sulfasalazine, or a combination of the three medications: results of a two-year, randomized, double-blind, placebo-controlled trial. *Arthritis Rheum*, 2002, 46, s. 1164–1170.
- 17 Xie Y. – Liu, W. – Liu, Y.: Are biologics combined with methotrexate better than biologics monotherapy in psoriasis and psoriatic arthritis: A meta-analysis of randomized controlled trials. *Dermatol Ther*, 2021, 34, e14926.
- 18 Mease, P. J., et al.: Evaluating the efficacy of biologics with and without methotrexate in the treatment of psoriatic arthritis: a network meta-analysis. *RMD Open*, 2024, 10, DOI:10.1136/rmdopen-2023-003423.
- 19 Smolen, J., et al.: Efficacy and safety of ixekizumab with or without methotrexate in biologic-naïve patients with psoriatic arthritis: 52-week results from SPIRIT-H2 study. *Rheumatol Ther*, 2020, 7, s. 1021–1035.
- 20 Koehm, M., et al.: Methotrexate plus ustekinumab versus ustekinumab monotherapy in patients with active psoriatic arthritis (MUST): a randomised, multicentre, placebo-controlled, phase 3b, non-inferiority trial. *Lancet Rheumatol*, 2023, 5, s. e14–e23.
- 21 Lidström U. – Di Giuseppe, D. – Dlecoigne, B., et al.: Effectiveness and treatment retention of TNF inhibitors when used as monotherapy versus comedication with csDMARDs in 15 332 patients with psoriatic arthritis. Data from the EuroSpa collaboration. *Ann Rheum Dis*, 2021, 80, s. 1410–1418.
- 22 Fagerli, K. M., et al.: The role of methotrexate co-medication in TNF-inhibitor treatment in patients with psoriatic arthritis: results from 440 patients included in the NOR-DMARD study. *Ann Rheum Dis*, 2014, 73, s. 132–137.
- 23 Mease, P., et al.: Comparative effectiveness of biologic monotherapy versus combination therapy for patients with psoriatic arthritis: results from the Corrona registry. *RMD Open*, 2015, 1, e000181.
- 24 Nash, P., et al.: Tofacitinib as monotherapy following methotrexate withdrawal in patients with psoriatic arthritis previously treated with open-label tofacitinib plus methotrexate: a randomised, placebo-controlled substudy of OPAL Balance. *Lancet Rheumatol*, 2021, 3, s. e28–e39.
- 25 McInnes, I. B. – Kato, K. – Magrey, M., et al.: Efficacy and safety of upadacitinib in patients with psoriatic arthritis: 2-year results from the phase 3 SELECT-PsA 1 study. *Rheumatol Ther*, 2023, 10, s. 275–292.

Úspěšná léčba psoriatické artritidy biosimilárním infliximabem po selhání terapie blokující IL-17A – kazuistika

prof. MUDr. Ladislav Šenolt, Ph.D. Revmatologický ústav a 1. LF UK, Praha

- 1 Feldmann, M. – Maini, R. N. – Soriano, E. R., et al.: 25 years of biologic DMARDs in rheumatology. *Nat Rev Rheumatol*, 2023, 19, s. 761–766.
- 2 Smolen, J. S. – Emery, P.: Infliximab: 12 years of experience. *Arthritis Res Ther*, 2011, 13, suppl. 1, s. S2.
- 3 Schreiber, S. – Puig, L. – Gonçalves, J., et al.: Critical appraisal and future outlook on anti-inflammatory biosimilar use in chronic immune-mediated inflammatory diseases. *Semin Arthritis Rheum*, 2022, 55, 152023.
- 4 Yoo, D. H. – Hrycaj, P. – Miranda, P., et al.: A randomised, double-blind, parallel-group study to demonstrate equivalence in efficacy and safety of CT-P13 compared with innovator infliximab when coadministered with methotrexate in patients with active rheumatoid arthritis: the PLANETRA study. *Ann Rheum Dis*, 2013, 72, s. 1613–1620.
- 5 Park, W. – Hrycaj, P. – Jeka, S., et al.: A randomised, double-blind, multicentre, parallel-group, prospective study comparing the pharmacokinetics, safety, and efficacy of CT-P13 and innovator infliximab in patients with ankylosing spondylitis: the PLANETAS study. *Ann Rheum Dis*, 2013, 72, s. 1605–1612.
- 6 Kim, H. A. – Lee, E. – Lee, S. K., et al.: Retention rate and safety of biosimilar CT-P13 in rheumatoid arthritis: data from the Korean College of Rheumatology Biologics Registry. *Bio Drugs*, 2020, 34, s. 89–98.
- 7 Shirley, M.: Subcutaneous infliximab, CT-P13 SC: a profile of its use in the EU. *Clin Drug Investig*, 2021, 41, s. 1099–1107.
- 8 McConachie, S. – Wilhelm, S. M. – Kale-Pradhan, P. B.: Biosimilars in inflammatory bowel disease – accumulating clinical evidence. *Expert Rev Clin Pharmacol*, 2017, 10, s. 391–400.
- 9 Kim, H. – Alter, R. – Avedano, L., et al.: The future of biosimilars: maximizing benefits across immune-mediated inflammatory diseases. *Drugs*, 2020, 80, s. 99–113.

Nové přístupy v léčbě atopické dermatitidy

doc. MUDr. Jarmila Čelakovská, Ph.D. Klinika nemocí kožních a pohlavních, FN a LF UK, Hradec Králové

- 1 Wollenberg, A. – Barbarot, S. – Bieber, T., et al.: Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: part I. *J Eur Acad Dermatol Venereol*, 2018, 32, s. 657–682.
- 2 Bylund, S. – Kobyletzki, L. B. – Svalstedt, M., et al.: Prevalence and incidence of atop dermatitis: a systematic review. *Acta Derm Venereol*, 2020, 100, adv00160.
- 3 Bieber, T.: Atopic dermatitis: an expanding therapeutic pipeline for a complex disease. *Nat Rev Drug Discov*, 2022, 21, s. 21–40.
- 4 Lyons, J. J. – Milner, J. D. – Stone, K. D.: Atopic dermatitis in children: clinical features, pathophysiology, and treatment. *Immunol Allergy Clin N Am*, 2015, 35, s. 161–183.
- 5 Silverberg, N. B.: Typical and atypical clinical appearance of atopic dermatitis. *Clin Dermatol*, 2017, 35, s. 354–359.
- 6 Ali, F. – Vyas, J. – Finlay, A. Y.: Counting the burden: atop dermatitis and health-related quality of life. *Acta Derm Venereol*, 2020, 100, adv00161.
- 7 Koszorus, K. – Borza, J. – Gulácsi, L., et al.: Quality of life in patients with atop dermatitis. *Cutis*, 2019, 104, s. 174–177.
- 8 Wollenberg, A. – Barbarot, S. – Bieber, T., et al.: Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: part II. *J Eur Acad Dermatol Venereol*, 2018, 32, s. 850–878.
- 9 Silverberg, J. I. – Thyssen, J. P. – Fahrbach, K., et al.: Comparative efficacy and safety of systemic therapies used in moderate-to-severe atop dermatitis: a systematic literature review and network meta-analysis. *J Eur Acad Dermatol Venereol*, 2021, 35, s. 1797–1810.
- 10 Siegels, D. – Heratizadeh, A. – Abraham, S., et al.: Systemic treatments in the management of atop dermatitis: a systematic review and meta-analysis. *Allergy*, 2021, 76, s. 1053–1076.
- 11 van Zuuren, E. J. – Fedorowicz, Z. – Christensen, R., et al.: Emollients and moisturisers for eczema. *Cochrane Database Syst Rev*, 2017, 2, CD012119.
- 12 Weidinger, S. – Beck, L. A. – Bieber, T., et al.: Atopic dermatitis. *Nat Rev Dis Primers*, 2018, 4, s. 1.
- 13 Li, H. – Zhang, Z. – Zhang, H., et al.: Update on the pathogenesis and therapy of atop dermatitis. *Clin Rev Allergy Immunol*, 2021, 61, s. 324–338.
- 14 Boothe, D. W. – Tarbox, J. A. – Tarbox, M. B.: Atopic dermatitis: pathophysiology. *Adv Exp Med Biol*, 2017, 1027, s. 21–37.
- 15 Malik, K. – Heitmiller, K. D. – Czarnowicki, T.: An update on the pathophysiology of atop dermatitis. *Dermatol Clin*, 2017, 35, s. 317–326.
- 16 Wong, L. S. – Yen, Y. T. – Lee, C. H.: The implications of pruritogens in the pathogenesis of atop dermatitis. *Int J Mol Sci*, 2021, 22, s. 7227.
- 17 Ojetjen, L. K. – Mack, M. R. – Feng, J., et al.: Sensory neurons co-opt classical immune signaling pathways to mediate chronic itch. *Cell*, 2017, 171, s. 217–228.e13.
- 18 Feld, M. – Garcia, R. – Buddenkotte, J., et al.: The pruritus- and TH2-associated cytokine IL-31 promotes growth of sensory nerves. *J Allergy Clin Immunol*, 2016, 138, s. 500–508.e24.
- 19 Simpson, E. L. – Bieber, T. – Guttmann-Yassky, E., et al.: Two phase 3 trials of dupilumab versus placebo in atop dermatitis. *N Engl J Med*, 2016, 375, s. 2335–2348.
- 20 Silverberg, J. I. – Yosipovitch, G. – Simpson, E. L., et al.: Dupilumab treatment results in early and sustained improvements in itch in adolescents and adults with moderate to severe atop dermatitis: analysis of the randomized phase 3 studies SOLO 1 and SOLO 2, AD ADOL, and CHRONOS. *J Am Acad Dermatol*, 2020, 82, s. 1328–1336.
- 21 Cork, M. J. – Eckert, L. – Simpson, E. L., et al.: Dupilumab improves patient-reported symptoms of atop dermatitis, symptoms of anxiety and depression, and health-related quality of life in moderate-to-severe atop dermatitis: analysis of pooled data from the randomized trials SOLO 1 and SOLO 2. *J Dermatol Treat*, 2020, 31, s. 606–614.
- 22 Barbarot, S. – Wollenberg, A. – Silverberg, J. I., et al.: Dupilumab provides rapid and sustained improvement in SCORAD outcomes in adults with moderate-to-severe atop dermatitis: combined results of four randomized phase 3 trials. *J Dermatol Treat*, 2022, 33, s. 266–277.
- 23 Beck, L. A. – Deleuran, M. – Bissonnette, R., et al.: Dupilumab provides acceptable safety and sustained efficacy for up to 4 years in an open-label study of adults with moderate-to-severe atop dermatitis. *Am J Clin Dermatol*, 2022, 23, s. 393–408.
- 24 Simpson, E. L. – Flohr, C. – Eichenfield, L. F., et al.: Efficacy and safety of lebrikizumab (an anti-IL-13 monoclonal antibody) in adults with moderate-to-severe atop dermatitis inadequately controlled by topical corticosteroids: a randomized, placebo-controlled phase II trial (TREBLE). *J Am Acad Dermatol*, 2018, 78, s. 863–871.e11.
- 25 Guttmann-Yassky, E. – Blauvelt, A. – Eichenfield, L. F., et al.: Efficacy and safety of lebrikizumab, a high-affinity IL-13 inhibitor, in adults with moderate to severe atop dermatitis: a phase 2b randomized

- clinical trial. *JAMA Dermatol*, 2020, 156, s. 411–420.
- 26 Silverberg, J. I. – Toth, D. – Bieber, T., et al.: Tralokinumab plus topical corticosteroids for the treatment of moderate-to-severe atopic dermatitis: results from the doubleblind, randomized, multicentre, placebo-controlled phase III ECZTRA 3 trial. *Br J Dermatol*, 2021, 184, s. 450–463.
- 27 Blauvelt, A. – Langley, R. G. – Lacour, J. P., et al.: Long-term 2-year safety and efficacy of tralokinumab in adults with moderate-to-severe atopic dermatitis: interim analysis of the ECZTEND open-label extension trial. *J Am Acad Dermatol*, 2022, 87, s. 815–824.
- 28 Silverberg, J. I. – Pinter, A. – Pulka, G., et al.: Phase 2B randomized study of nemolizumab in adults with moderate-to-severe atopic dermatitis and severe pruritus. *J Allergy Clin Immunol*, 2020, 145, s. 173–182.
- 29 Silverberg, J. I. – Pinter, A. – Alavi, A., et al.: Nemolizumab is associated with a rapid improvement in atopic dermatitis signs and symptoms: subpopulation (EASI \geq 16) analysis of randomized phase 2B study. *J Eur Acad Dermatol Venereol*, 2021, 35, s. 1562–1568.
- 30 Kabashima, K. – Matsumura, T. – Komazaki, H., et al.: Nemolizumab JP01 and JP02 Study Group: Nemolizumab plus topical agents in patients with atopic dermatitis (AD) and moderate-to-severe pruritus provide improvement in pruritus and signs of AD for up to 68 weeks: results from two phase III, long-term studies. *Br J Dermatol*, 2022, 186, s. 642–651.
- 31 Reich, K. – Teixeira, H. D. – de Bruin-Weller, M., et al.: Safety and efficacy of upadacitinib in combination with topical corticosteroids in adolescents and adults with moderate-to-severe atopic dermatitis (AD Up): results from a randomised, double-blind, placebo-controlled, phase 3 trial. *Lancet*, 2021, 397, s. 2169–2181.
- 32 Silverberg, J. I. – de Bruin-Weller, M. – Bieber, T., et al.: Upadacitinib plus topical corticosteroids in atopic dermatitis: week 52 AD up study results. *J Allergy Clin Immunol*, 2022, 149, s. 977–987.e14.
- 33 Guttmann-Yassky, E. – Silverberg, J. I. – Nemoto, O., et al.: Baricitinib in adult patients with moderate-to-severe atopic dermatitis: a phase 2 parallel, double-blinded, randomized placebo-controlled multiple-dose study. *J Am Acad Dermatol*, 2019, 80, s. 913–921.e9.
- 34 Simpson, E. L. – Forman, S. – Silverberg, J. I., et al.: Baricitinib in patients with moderate-to-severe atopic dermatitis: results from a randomized monotherapy phase 3 trial in the United States and Canada (BREEZE-ADS). *J Am Acad Dermatol*, 2021, 85, s. 62–70.
- 35 Silverberg, J. I. – Simpson, E. L. – Wollenberg, A., et al.: Long-term efficacy of baricitinib in adults with moderate to severe atopic dermatitis who were treatment responders or partial responders: an extension study of 2 randomized clinical trials. *JAMA Dermatol*, 2021, 157, s. 691–699.
- 36 Wollenberg, A. – Nakahara, T. – Maari, C., et al.: Impact of baricitinib in combination with topical steroids on atopic dermatitis symptoms, quality of life and functioning in adult patients with moderate-to-severe atopic dermatitis from the BREEZE-AD7 phase 3 randomized trial. *J Eur Acad Dermatol Venereol*, 2021, 35, s. 1543–1552.
- 37 Lio, P. A. – Simpson, E. L. – Han, G., et al.: Improvement in sleep and itch and enhanced quality of life in adult patients with moderate-to-severe atopic dermatitis: results from a phase 3 trial of baricitinib therapy. *J Dermatolog Treat*, 2022, 33, s. 2057–2062.
- 38 Rosmarin, D. – Casillas, M. – Chen, S., et al.: Onset of symptom relief reported in daily diaries of patients with atopic dermatitis treated with baricitinib in a United States clinical trial (BREEZE-ADS). *J Cutan Med Surg*, 2022, 26, s. 262–266.
- 39 Simpson, E. L. – Sinclair, R. – Forman, S., et al.: Efficacy and safety of abrocitinib in adults and adolescents with moderate-to-severe atopic dermatitis (JADE MONO-1): a multicentre, double-blind, randomised, placebo-controlled, phase 3 trial. *Lancet*, 2020, 396, s. 255–266.
- 40 Bieber, T. – Simpson, E. L. – Silverberg, J. I., et al.: Abrocitinib versus placebo or dupilumab for atopic dermatitis. *N Engl J Med*, 2021, 384, s. 1101–1112.
- 41 Reich, K. – Thyssen, J. P. – Blauvelt, A., et al.: Efficacy and safety of abrocitinib in adults with moderate-to-severe atopic dermatitis: a randomised, double-blind, multicentre phase 3 trial. *Lancet*, 2022, 400, s. 273–282.
- 42 Shi, V. Y. – Bhutani, T. – Fonacier, L., et al.: Phase 3 efficacy and safety of abrocitinib in adults with moderate-to-severe atopic dermatitis after switching from dupilumab (JADE EXTEND). *J Am Acad Dermatol*, 2022, 87, s. 351–358.
- 43 Thyssen, J. P. – Yosipovitch, G. – Paul, C., et al.: Patient-reported outcomes from the JADE COMPARE randomized phase 3 study of abrocitinib in adults with moderate-to-severe atopic dermatitis. *J Eur Acad Dermatol Venereol*, 2022, 36, s. 434–443.

Trendy v léčbě roztroušené sklerózy: kde jsme a kam směřujeme

MUDr. Dominika Šťastná, Ph.D. Neurologická klinika a Centrum klinických neurověd, 1. LF UK a VFN v Praze

MUDr. Jana Seňavová I. interní klinika – hematologie, 1. LF UK a VFN v Praze, BIOCEV, 1. LF UK, Praha

prof. MUDr. Dana Horáková, Ph.D. Neurologická klinika a Centrum klinických neurověd, 1. LF UK a VFN v Praze

- 1 Weinshenker, B. G. – Bass, B. – Rice, G. P. A., et al.: The natural history of multiple sclerosis: a geographically based study. 2. Predictive value of the early clinical course. *Brain*, 1989, 112, s. 1419–1428.
- 2 Confavreux, C. – Vukusic, S.: Natural history of multiple sclerosis: a unifying concept. *Brain*, 2006, 129, s. 606–616.
- 3 Šťastná, D. – Menkyová, I. – Horáková, D.: Vysoce účinná terapie již od první ataky – důležitý posun v léčbě roztroušené sklerózy? *Neuro Prax*, 2023, 24, s. 40–44.
- 4 Rush, C. A. – Atkins, H. L. – Freedman, M. S.: Autologous hematopoietic stem cell transplantation in the treatment of multiple sclerosis. *Cold Spring Harb Perspect Med*, 2019, 9, a029082.
- 5 Peptide-coupled Red Blood Cells for the Treatment of Multiple Sclerosis. ClinicalTrials.gov. Dostupné z: <https://ctv.veeva.com/study/peptide-coupled-red-blood-cells-for-the-treatment-of-multiple-sclerosis>, vyhledáno 4. 10. 2024.
- 6 Safety and Immunogenicity of an Epstein-Barr Virus (EBV) gp350-Feritin Nanoparticle Vaccine in Healthy Adults With or Without EBV Infection | ClinicalTrials.gov. Dostupné z: <https://ctv.veeva.com/study/safety-and-immunogenicity-of-an-epstein-barr-virus-ebv-gp350-feritin-nanoparticle-vaccine-in-heal>, vyhledáno 4. 10. 2024.
- 7 Palmer, A. J. – Zhao, T. – Taylor, B. V., et al.: Exploring the cost-effectiveness of EBV vaccination to prevent multiple sclerosis in an Australian setting. *J Neurol Neurosurg Psychiatry*, 2024, 95, s. 401–409.
- 8 Maple, P. A. – Ascherio, A. – Cohen, J. I., et al.: The potential for EBV vaccines to prevent multiple sclerosis. *Front Neurol*, 2022, 13, 887794.
- 9 Dymett, D. A. – Dessa Sadovnick, A. – Ebers, G. C.: Genetics of multiple sclerosis. *Hum Mol Genet*, 1997, 6, s. 1693–1698.
- 10 Kim, W. – Patsopoulos, N. A.: Genetics and functional genomics of multiple sclerosis. *Semin Immunopathol*, 2022, 44, s. 63–79.
- 11 Beecham, A. H. – Patsopoulos, N. A. – Xifara, D. K., et al.: Analysis of immune-related loci identifies 48 new susceptibility variants for multiple sclerosis. *Nat Genet*, 2013, 45, s. 1353–1362.
- 12 Dobson, R. – Giovannoni, G.: Multiple sclerosis – a review. *Eur J Neurol*, 2019, 26, s. 27–40.
- 13 Barrie, W. – Irving-Pease, E. K. – Willerslev, E., et al.: Ancient DNA reveals evolutionary origins of autoimmune diseases. *Nat Rev Immunol*, 2024, 24, s. 85–86.
- 14 Sintzel, M. B. – Rametta, M. – Reder, A. T.: Vitamin D and multiple sclerosis: a comprehensive review. *Neurol Ther*, 2018, 7, s. 59–85.
- 15 Vitkova, M. – Diouf, I. – Malpas, C., et al.: Association of latitude and exposure to ultraviolet B radiation with severity of multiple sclerosis: an international registry study. *Neurology*, 2022, 98, s. E2401–E2412.
- 16 Wesnes, K. – Myhr, K. M. – Riise, T., et al.: Low vitamin D, but not tobacco use or high BMI, is associated with long-term disability progression in multiple sclerosis. *Mult Scler Relat Disord*, 2021, 50, 102801.
- 17 Bjornevik, K. – Cortese, M. – Healy, B. C., et al.: Longitudinal analysis reveals high prevalence of Epstein-Barr virus associated with multiple sclerosis. *Science*, 2022, 375, s. 296–301.
- 18 Alfredsson, L. – Olsson, T.: Lifestyle and environmental factors in multiple sclerosis. *Cold Spring Harb Perspect Med*, 2019, 9, a028944.
- 19 Soldan, S. S. – Jacobson, S.: Role of viruses in etiology and pathogenesis of multiple sclerosis. *Adv Virus Res*, 2001, 56, s. 517.
- 20 Sibley, W. A. – Bamford, C. R. – Clark, K.: Clinical viral infections and multiple sclerosis. *Lancet*, 1985, 325, s. 1313–1315.
- 21 Palacios, N. – Alonso, A. – Brønnom-Hansen, H., et al.: Smoking and increased risk of multiple sclerosis: parallel trends in the sex ratio reinforce the evidence. *Ann Epidemiol*, 2011, 21, s. 536–542.
- 22 Voskuhl, R. R.: The effect of sex on multiple sclerosis risk and disease progression. *Mult Scler*, 2020, 26, s. 554–560.
- 23 Šťastná, D.: Roztroušená skleróza – klinické a paraklinické markery pro sledování aktivity nemoci a faktory ovlivňující její průběh. Dizertační práce, vedoucí Dana Horáková, Praha, Neurologická klinika 1. LF UK v FN, 2023.
- 24 Bjornevik, K. – Munger, K. L. – Cortese, M., et al.: Serum neurofilament light chain levels in patients with presymptomatic multiple sclerosis. *JAMA Neurol*, 2020, 77, s. 58–64.
- 25 Martinsen, V. – Kursula, P.: Multiple sclerosis and myelin basic protein: insights into protein disorder and disease. *Amino Acids*, 2022, 54, s. 99–109.
- 26 Greer, J. M. – Trifilieff, E. – Pender, M. P.: Correlation between anti-myelin proteolipid protein (PLP) antibodies and disease severity in multiple sclerosis patients with PLP response-permissive HLA types. *Front Immunol*, 2020, 11, s. 1891.
- 27 Ayoglu, B. – Mitsios, N. – Kockum, I., et al.: Anoactinin 2 identified as an autoimmune target in multiple sclerosis. *Proc Natl Acad Sci U S A*, 2016, 113, s. 2188–2193.
- 28 Cree, B. A. C. – Oksenberg, J. R. – Hauser, S. L.: Multiple sclerosis: two decades of progress. *Lancet Neurol*, 2022, 21, s. 211–214.
- 29 Hatton, O. L. – Harris-Arnold, A. – Schaffert, S., et al.: The interplay between Epstein Barr virus and B lymphocytes: implications for infection, immunity, and disease. *Immunol Res*, 2014, 58, s. 268.
- 30 Luchetti, S. – Fransen, N. L. – van Eden, C. G., et al.: Progressive multiple sclerosis patients show substantial lesion activity that correlates with clinical disease severity and sex: a retrospective autopsy cohort analysis. *Acta Neuropathol*, 2018, 135, s. 511–528.
- 31 Giovannoni, G. – Popescu, V. – Wuerfel, J., et al.: Smouldering multiple sclerosis: the “real MS.” *Ther Adv Neurol Disord*, 2022, 15, 1056284211066751.
- 32 Macaron, G. – Ontaneda, D.: Diagnosis and management of progressive multiple sclerosis. *BioMedicine*, 2019, 7, s. 56.
- 33 Vaněčková, M. – Horáková, D. – Šťastná, D., et al.: Standardization of MRI in multiple sclerosis management consensus by the Czech Expert Radiology-Neurology Panel. *Česká a slovenská neurologie a neurochirurgie*, 2024, 87, s. 69–78.
- 34 Giovannoni, G. – Hawkes, C. H. – Lechner-Scott, J., et al.: CNS resilience in the progression of MS. *Mult Scler Relat Disord*, 2023, 77, 104937.
- 35 Mistry, N. – Hobart, J. – Rog, D., et al.: Reconciling lesions, relapses and smouldering associated worsening: A unifying model for multiple sclerosis pathogenesis. *Mult Scler Relat Disord*, 2024, 88, 10570.
- 36 Giovannoni, G.: Multiple sclerosis – can drugs exert meaningful action within the central nervous system? 2024. Dostupné z: <https://www.medscape.org/viewarticle/1001229>, vyhledáno 4. 10. 2024.
- 37 Bierhans, L. – Hartung, H. P. – Aktas, O., et al.: Thinking outside the box: non-canonical targets in multiple sclerosis. *Nat Rev Drug Discov*, 2022, 21, s. 578.
- 38 Spelman, T. – Magyari, M. – Piehl, F., et al.: Treatment escalation vs immediate initiation of highly effective treatment for patients with relapsing-remitting multiple sclerosis: data from 2 different national strategies. *JAMA Neurol*, 2021, 78, s. 1197–1204.
- 39 Buron, M. D. – Chalmer, T. A. – Sellebjerg, F., et al.: Initial high-efficacy disease-modifying therapy in multiple sclerosis: A nationwide cohort study. *Neurology*, 2020, 95, s. E1041–1051.
- 40 Harding, K. – Williams, O. – Willis, M., et al.: Clinical outcomes of escalation vs early intensive disease-modifying therapy in patients with multiple sclerosis. *JAMA Neurol*, 2019, 76, s. 536–541.
- 41 He, A. – Merkl, B. – Brown, J. W. L., et al.: Timing of high-efficacy therapy for multiple sclerosis: a retrospective observational cohort study. *Lancet Neurol*, 2020, 19, s. 307–316.
- 42 Luna, G. – Alping, P. – Burman, J., et al.: Infection Risks Among Patients With Multiple Sclerosis Treated With fingolimod, Natalizumab, Rituximab, and Injectable Therapies. *JAMA Neurol*. 2020 Feb;77(2):184–191.
- 43 Cerqueira, J. J. – Compston, D. A. S. – Gerald, R., et al.: Time matters in multiple sclerosis: can early treatment and long-term follow-up ensure everyone benefits from the latest advances in multiple sclerosis? *J Neurol Neurosurg Psychiatry*, 2018, 89, s. 844–850.
- 44 Kavaliunas, A. – Manouchehri, A. – Stawiarz, L., et al.: Importance of early treatment initiation in the clinical course of multiple sclerosis. *Mult Scler*, 2017, 23, s. 1233–1240.
- 45 Greenberg, B. M.: Bruton's tyrosine kinase inhibitors for multiple sclerosis treatment: a new frontier. *Neur Clin*, 2024, 42, s. 155–163.
- 46 A Study to Evaluate the Effect of SAR443820 on Serum Neurofilament Levels in Male and Female Adult Participants With Multiple Sclerosis. ClinicalTrials.gov. Dostupné z: <https://www.sanofistudies.com/us/en/listing/310277-a-study-to-evaluate-4/>, vyhledáno 4. 10. 2024.
- 47 A Study of Nasal Foralumab in Non-Active Secondary Progressive Multiple Sclerosis Patients | Clinical Trials.gov. Dostupné z: <https://ctv.veeva.com/study/a-study-of-nasal-foralumab-in-non-active-secondary-progressive-multiple-sclerosis-patients>, vyhledáno 4. 10. 2024.
- 48 Cree, B. A. C. – Hartung, H. P. – Barnett, M.: New drugs for multiple sclerosis: New treatment algorithms. *Curr Opin Neurol*, 2022, 35, s. 262–270.
- 49 Ioannides, Z. A. – Csurhes, P. A. – Douglas, N. L., et al.: Sustained clinical improvement in a subset of patients with progressive multiple sclerosis treated with Epstein-Barr virus-specific T cell therapy. *Front Neurol*, 2021, 12, 652811.
- 50 Rosso, M. – Chitnis, T.: Association between cigarette smoking and multiple sclerosis: a review. *JAMA Neurol*, 2020, 77, s. 245–253.
- 51 Arneth, B.: Multiple sclerosis and smoking. *Am J Med*, 2020, 133, s. 783–788.
- 52 Hernán, M. A. – Jick, S. S. – Logroscino, G., et al.: Cigarette smoking and the progression of multiple sclerosis. *Brain*, 2005, 128, s. 1461–1465.
- 53 Pedullà, L. – Santoyo-Medina, C. – Novotna, K., et al.: Physical activity in multiple sclerosis: meeting the Guidelines at the time of the COVID-19 pandemic. *J Neurol Physical Ther*, 2023, 47, s. 112–121.
- 54 Dalgas, U. – Langeskov-Christensen, M. – Stenager, E., et al.: Exercise as medicine in multiple sclerosis—time for a paradigm shift:

- preventive, symptomatic, and disease-modifying aspects and perspectives. *Curr Neurol Neurosci Rep*, 2019, 19, s. 1–12.
- 55 Sandroff, B. M. – Dlugonski, D. – Pilutti, L. A., et al.: Physical activity is associated with cognitive processing speed in persons with multiple sclerosis. *Mult Scler Relat Disord*, 2014, 3, s. 123–128.
- 56 Sánchez-Lastra, M. A. – Martínez-Aldao, D. – Molina, A. J., et al.: Pilates for people with multiple sclerosis: A systematic review and meta-analysis. *Mult Scler Relat Disord*, 2019, 28, s. 199–212.
- 57 Cramer, H. – Lauche, R. – Azizi, H., et al.: Yoga for multiple sclerosis: a systematic review and meta-analysis. *PLoS One*, 2014, 9, e112414.
- 58 Dalgas, U. – Stenager, E. – Ingemann-Hansen, T.: Review: multiple sclerosis and physical exercise: recommendations for the application of resistance-, endurance- and combined training. *Mult Scler*, 2008, 14, s. 35–53.
- 59 Motl, R. W. – McAuley, E. – Snook, E. M., et al.: Physical activity and quality of life in multiple sclerosis: Intermediary roles of disability, fatigue, mood, pain, self-efficacy and social support. *Psychol Health Med*, 2009, 14, s. 111–124.
- 60 Pilutti, L. A. – Platta, M. E. – Motl, R. W., et al.: The safety of exercise training in multiple sclerosis: A systematic review. *J Neurol Sci*, 2014, 343, s. 3–7.
- 61 Keclíková, L., et al.: Možnosti pohybových aktivit u pacientů s roztroušenou sklerózou mozkomíšní. *Česká a slovenská neurologie a neurochirurgie*, 2014, 77, s. 23–28.
- 62 Menkyová, I. – Šťastná, D. – Novotná, K., et al.: Effect of Tai-chi on balance, mood, cognition, and quality of life in women with multiple sclerosis: A one-year prospective study. *Explore*, 2024, 20, s. 188–195.
- 63 Alghanimy, A. – Work, L. M. – Holmes, W. M.: The glymphatic system and multiple sclerosis: An evolving connection. *Mult Scler Relat Disord*, 2024, 83, 105456.
- 64 Šťastná, D. – Šenárová, J. – Andělová, M., et al.: Interní komorbidita u komplikace terapie roztroušené sklerózy – nenechte se zaskočit! *Vnitř Lek*, 2023, 69, s. 294–298.

Současné možnosti farmakoterapie Alzheimerovy choroby

PharmDr. Marek Lapka, Ph.D. Ústav farmakologie, 3. LF UK, Praha

- 1 Reuben, D. B. – Kremen, S. – Maust, D. T.: Dementia prevention and treatment: a narrative review. *JAMA Intern Med*, 2024, 184, s. 563–572.
- 2 Jirkovská, B.: Nefarmakologické cesty k lepšímu životu s demencí. Česká alzheimerovská společnost, 2022. Dostupné z: <https://www.mediv.cz/link/MED00209147>, vyhledáno 18. 10. 2024.
- 3 Espeland, M. A. – Rapp, S. R. – Shumaker, S. A., et al.: Conjugated equine estrogens and global cognitive function in postmenopausal women: Women's Health Initiative Memory Study. *JAMA*, 2004, 291, s. 2959–2968.
- 4 LeBlanc, E. S. – Janowsky, J. – Chan, B. K., et al.: Hormone replacement therapy and cognition: systematic review and meta-analysis. *JAMA*, 2001, 285, s. 1489–1499.
- 5 Jaturaporn, D. – Isaac, M. G. E. K. N. – McCleery, J. – Tabet, N.: Aspirin, steroid and non-steroidal anti-inflammatory drugs for the treatment of Alzheimer's disease. *Cochrane Database Syst Rev*, 2012, CD006378.
- 6 Birks, J. – Grimley Evans, J.: Ginkgo biloba for cognitive impairment and dementia. *Cochrane Database Syst Rev*, 2009, CD003120.
- 7 Farina, F. D. L. – Llewellyn, D.: Vitamin E for Alzheimer's dementia and mild cognitive impairment. *Cochrane Database Syst Rev*, 2017, 4, CD002854.
- 8 Bao, W. – Xie, F. – Zuo, C., et al.: PET neuroimaging of Alzheimer's disease: radiotracers and their utility in clinical research. *Front Aging Neuroscience*, 2021, 13. Dostupné z: <https://www.frontiersin.org/journals/aging-neuroscience/articles/10.3389/fnagi.2021.624330/full>, vyhledáno 21. 11. 2024.
- 9 Bassil, N. – Grossberg, G. T.: Novel regimens and delivery systems in the pharmacological treatment of Alzheimer's disease. *CNS Drugs*, 2009, 23, s. 293–307.
- 10 Wilkinson, D.: Pharmacotherapy of Alzheimer's disease. *Psychiatry*, 2008, 7, s. 9–14.
- 11 Čolović, M. B. – Krstić, D. Z. – Lazarević-Pašti, T. D., et al.: Acetylcholinesterase inhibitors: pharmacology and toxicology. *Curr Neuropharmacol*, 2013, 11, s. 315–335.
- 12 Morris, J.: The Clinical Dementia Rating (CDR): current version and scoring rules. *Neurology*, 1993, 43, s. 2412–2414.
- 13 Birks, J. – Harvey, R. J.: Donepezil for dementia due to Alzheimer's disease. *Cochrane Database Syst Rev*, 2006, CD001190.
- 14 Birks, J. S. – Chomg, L. Y. – Evans, J. G.: Rivastigmine for Alzheimer's disease. *Cochrane Database Syst Rev*, 2017, 9, CD001191.
- 15 Howard, R. – McShane, R. – Lindesay, J., et al.: Donepezil and memantine for moderate-to-severe Alzheimer's disease. *N Engl J Med*, 2012, 366, s. 893–903.
- 16 Courtney, C. – Farrell, D. – Gray, R., et al.: Long-term donepezil treatment in 565 patients with Alzheimer's disease (AD2000): randomised double-blind trial. *Lancet*, 2004, 363, s. 2105–2115.
- 17 Cummings, J. L.: Use of cholinesterase inhibitors in clinical practice: evidence-based recommendations. *Am J Geriatr Psychiatry*, 2003, 11, s. 131–145.
- 18 Langa, K. M. – Foster, N. L. – Larson, E. B.: Mixed dementia: emerging concepts and therapeutic implications. *JAMA*, 2004, 292, s. 2901–2908.
- 19 Winblad, B. – Kildani, L. – Eriksson, S., et al.: Donepezil in patients with severe Alzheimer's disease: double-blind, parallel-group, placebo-controlled study. *Lancet*, 2006, 367, s. 1057–1065.
- 20 Black, S. E. – Doody, R. – Li, H., et al.: Donepezil preserves cognition and global function in patients with severe Alzheimer disease. *Neurology*, 2007, 69, s. 459–469.
- 21 Qaseem, A. – Snow, V. – Cross, J. T., et al.: Current pharmacologic treatment of dementia: a clinical practice guideline from the American College of Physicians and the American Academy of Family Physicians. *Ann Intern Med*, 2008, 148, s. 370–378.
- 22 Holmerová, I. – Nováková, M.: Modern pharmacotherapy of Alzheimer's disease. *Klin Farmakol Farm*, 2024, 38, s. 55–59.
- 23 Geldenhuys, W. J. – Darvesh, A. S.: Pharmacotherapy of Alzheimer's disease: Current and future trends. *Expert Rev Neurother*, 2015, 15, s. 3–5.
- 24 Kornhuber, J. – Weller, M. – Schoppmeyer, K., et al.: Amantadine and memantine are NMDA receptor antagonists with neuroprotective properties. *J Neural Transm Suppl*, 1994, 43, s. 91–104.
- 25 Ridha, B. H. – Josephs, K. A. – Rossor, M. N.: Delusions and hallucinations in dementia with Lewy bodies: worsening with memantine. *Neurology*, 2005, 65, s. 481–482.
- 26 Raina, P. – Santaguida, P. – Ismaila, A., et al.: Effectiveness of cholinesterase inhibitors and memantine for treating dementia: evidence review for a clinical practice guideline. *Ann Intern Med*, 2008, 148, s. 379–397.
- 27 McShane, R. – Areos Sastre, A. – Minakaran, N.: Memantine for dementia. *Cochrane Database Syst Rev*, 2006, CD003154.
- 28 Schneider, L. – Dagerman, K. S. – Higgins, J. P. T.: Lack of evidence for the efficacy of memantine in mild Alzheimer disease. *Arch Neurol*, 2011, 68, s. 991–998.
- 29 Dysken, M. W. – Sano, M. – Asthana, S., et al.: Effect of vitamin E and memantine on functional decline in Alzheimer disease: the TEAM-AD VA cooperative randomized trial. *JAMA*, 2014, 311, s. 33–44.
- 30 Reisberg, B. – Doody, R. – Stöffler, A., et al.: Memantine in moderate-to-severe Alzheimer's disease. *N Engl J Med*, 2003, 348, s. 1333–1341.
- 31 Chen, R. – Chan, P. T. – Chu, H., et al.: Treatment effects between monotherapy of donepezil versus combination with memantine for Alzheimer disease: A meta-analysis. *PLoS One*, 2017, 12, e0183586.
- 32 Tariot, P. N. – Farlow, M. R. – Grossberg, G. T., et al.: Memantine treatment in patients with moderate to severe Alzheimer disease already receiving donepezil: a randomized controlled trial. *JAMA*, 2004, 291, s. 317–324.
- 33 Porsteinsson, A. P. – Grossberg, G. T. – Mintzer, J., et al.: Memantine MEM-MD-12 Study Group: Memantine treatment in patients with mild to moderate Alzheimer's disease already receiving a cholinesterase inhibitor: a randomized, double-blind, placebo-controlled trial. *Curr Alzheimer Res*, 2008, 5, s. 83–89.
- 34 Barnes, P. M. – Bloom, B. – Nahin, R. L.: Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Report*, 2008, 12, s. 1–23.
- 35 Lin, J. H.: Evaluating the alternatives. *JAMA*, 1998, 279, s. 706.
- 36 Kellermann, A. J. – Kloft, C.: Is there a risk of bleeding associated with standardized Ginkgo biloba extract therapy? A systematic review and meta-analysis. *Pharmacotherapy*, 2011, 31, s. 490–502.
- 37 Le Bars, P. L. – Katz, M. M. – Berman, N., et al.: A placebo-controlled, double-blind, randomized trial of an extract of Ginkgo biloba for dementia. North American EGb Study Group. *JAMA*, 1997, 278, s. 1327–1332.
- 38 Schneider, L. S. – DeKosky, S. T. – Farlow, M. R., et al.: A randomized, double-blind, placebo-controlled trial of two doses of Ginkgo biloba extract in dementia of the Alzheimer's type. *Curr Alzheimer Res*, 2005, 2, s. 541–551.
- 39 Kanowski, S. – Herrmann, W. M. – Stephan, K., et al.: Proof of efficacy of the ginkgo biloba special extract EGb 761 in outpatients suffering from mild to moderate primary degenerative dementia of the Alzheimer type or multi-infarct dementia. *Pharmacopsychiatry*, 1996, 29, s. 47–56.
- 40 Butler, M. – Nelson, V. A. – Davila, H., et al.: Over-the-counter supplement interventions to prevent cognitive decline, mild cognitive impairment, and clinical Alzheimer-type dementia: a systematic review. *Ann Intern Med*, 2018, 168, s. 52–62.
- 41 Snitz, B. E. – O'Meara, E. S. – Carlson, M. C., et al.: Ginkgo biloba for preventing cognitive decline in older adults: a randomized trial. *JAMA*, 2009, 302, s. 2663–2670.
- 42 Solomon, P. R. – Adams, F. – Silver, A., et al.: Ginkgo for memory enhancement: a randomized controlled trial. *JAMA*, 2002, 288, s. 835–840.
- 43 Carlson, J. J. – Farquhar, J. W. – DiNucci, E., et al.: Safety and efficacy of a ginkgo biloba-containing dietary supplement on cognitive function, quality of life, and platelet function in healthy, cognitively intact older adults. *J Am Diet Assoc*, 2007, 107, s. 422–32.
- 44 Kleijnen, J. – Knipschild, P.: Ginkgo biloba. *Lancet*, 1992, 340, s. 1136–1139.
- 45 Hopfenmüller, W.: Evidence for a therapeutic effect of Ginkgo biloba special extract. Meta-analysis of 11 clinical studies in patients with cerebrovascular insufficiency in old age. *Arzneimittelforschung*, 1994, 44, s. 1005–1013.
- 46 Semlitsch, H. V. – Anderer, P. – Saletu, B., et al.: Cognitive psychophysiology in nootropic drug research: effects of Ginkgo biloba on event-related potentials (P300) in age-associated memory impairment. *Pharmacopsychiatry*, 1995, 28, s. 134–142.
- 47 van Dyck, C. H. – Swanson, C. J. – Aisen, P., et al.: Lecanemab in early Alzheimer's disease. *N Engl J Med*, 2023, 388, s. 9–21.
- 48 Sims, J. R. – Zimmer, J. A. – Evans, C. D., et al.: Donanemab in early symptomatic Alzheimer disease: The TRAILBLAZER-ALZ 2 randomized clinical trial. *JAMA*, 2023, 330, s. 512–527.
- 49 Seibert, M. – Holbrook, J. – von Arnim, C. A. F.: Pharmacotherapy of Alzheimer's disease (AD) and behavioral and psychological symptoms of dementia (BPSD) in frail older patients. In: *NeuroPsychopharmacotherapy*, 2022, s. 4429–4438.

Nové možnosti v léčbě idiopatických střevních zánětů

doc. MUDr. Martin Bortlík, Ph.D. Gastroenterologické oddělení, Nemocnice České Budějovice; Interní klinika, 1. LF UK a ÚVN, Praha; Farmakologický ústav, 1. LF UK, Praha; Zdravotní sociální fakulta JU, České Budějovice

- 1 Dušek, L. – Benešová, K. – Ngo, O., et al.: Epidemiologie idiopatických střevních zánětů v české populaci – časový vývoj a statistické predikce počtu pacientů. *Gastroent Hepatol*, 2019, 73, s. 257–264.
- 2 Oppmann, B. – Lesley, R. – Blom, B., et al.: Novel p19 protein engages IL-12p40 to form a cytokine, IL-23, with biological activities similar as well as distinct from IL-12. *Immunity*, 2000, 13, s. 715–725.
- 3 Neurath, M. F.: IL-23 in inflammatory bowel diseases and colon cancer. *Cytokine Growth Factor Rev*, 2019, 45, s. 1–8.
- 4 Noor, N. M. – Bourke, A. – Subramanian, S.: Review article – Novel therapies for inflammatory bowel disease – an update for clinicians. *Aliment Pharmacol Ther*, 2024, 60, s. 1244–1260.
- 5 Peyrin-Biroulet, L. – Chapman, J. C. – Colombel, J. F., et al.: Risankizumab versus ustekinumab for moderate-to-severe Crohn's disease. *N Engl J Med*, 2024, 391, s. 213–223.
- 6 Atreya, R., et al.: UEGW 2023. Poster #MP088.
- 7 Sandborn, W. J. – Feagan, B. G. – D'Haens, G., et al.: Ozanimod as induction and maintenance therapy for ulcerative colitis. *N Engl J Med*, 2021, 385, s. 1280–1291.
- 8 Schmitt, H. – Billmeier, U. – Dieterich, W., et al.: Expansion of IL-23 receptor bearing TNFR2+ T cells is associated with molecular resistance to anti-TNF therapy in Crohn's disease. *Gut*, 2019, 68, s. 814–828.
- 9 Feagan, B. G. – Sands, B. E. – Sandborn, W. J., et al.: Guselkumab plus golimumab combination therapy versus guselkumab or golimumab monotherapy in patients with ulcerative colitis (VEGA): a randomised, double-blind, controlled, phase 2, proof-of-concept trial. *Lancet Gastroenterol Hepatol*, 2023, 8, s. 307–320.

Antimuskarinika v terapii syndromu hyperaktivního močového měchýře

MUDr. Eva Burešová Urologická klinika, FN Olomouc

- 1 Abrams, P. – Cardoso, L. – Fall, M., et al.: The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. *Neurology Urodyn*, 2002, 21, s. 167–178.
- 2 Irwin, D. E. – Milson, I. – Hunskaar, S., et al.: Population-based survey of urinary incontinence, overactive bladder, and Other Lower Urinary Tract Symptoms in Five Countries: Results of the EPIC study. *Eur Urol*, 2006, 50, s. 1306–1315.
- 3 Caulfield, M. P. – Birdsall, N. J.: International Union of Pharmacology. XVII. Classification of muscarinic acetylcholine receptors. *Pharmacol Rev*, 1998, s. 279–290.
- 4 Andersson, K. E., et al.: Antimuscarinic mechanism and the overactive detrusor: an update. *Eur Urol*, 2011, 59, s. 377–386.
- 5 Scheifele, R. – Takeda, M.: Central nervous system safety of anticholinergic drugs for the treatment of overactive bladder in the elderly. *Clin Ther*, 2005, 27, s. 144–153.
- 6 Goepel, M. – Gronewald, A. – Krege, S., et al.: Muscarinic receptor subtypes in porcine detrusor: Comparison with humans and regulation by bladder augmentativ. *Urol Res*, 1998, 26, s. 149–154.
- 7 Matsui, M. – Griffin, M. T. – Shehnaz, D., et al.: Increased relaxant action of forskolin and isoproterenol against muscarinic agonist-induced contractions in smooth muscle from M2 receptor knockout mice. *J Pharmacol Exp Ther*, 2003, 305, s. 106–113.
- 8 Andersson, K. E. – Schröder, A.: Changes in muscarinic receptors of the aging bladder. *Urologe A*, 2004, 43, s. 552–556.
- 9 Agarwal, A., et al.: What is the most bothersome lower urinary tract symptom? Individual- and population-level perspectives for both men and women. *Eur Urol*, 2014, 65, s. 1211–1217.
- 10 Guidelines Urolithiasis. European Association of Urology. Výroční kongres, Paříž, 2024. Dostupné z: <https://uroweb.org/guidelines/urolithiasis/chapter/citation-information>, vyhledáno 12. 11. 2024.
- 11 Chancellor, M. B., et al.: Oxybutynin-associated cognitive impairment: evidence and implications for overactive bladder treatment. *Urology*, 2024, 186, s. 123–129.
- 12 Oelke, M. – Murgas, S. – Schneidr, T., et al.: Influence of propiverine ER 30 mg once daily on cognitive function in elderly female and male patients with overactive bladder: a non-interventional study to assess real life-data. Barcelona 2013. Dostupné z: <https://www.ics.org/2013/abstract/201>, vyhledáno 12. 11. 2024.
- 13 Yoshida, M. – Homma, Y. – Inadome, A., et al.: Age-related changes in cholinergic and purinergic neurotransmission in human isolated bladder smooth muscles. *Exp Gerontol*, 2001, 36, s. 99–109.
- 14 Masumori, N. – Miyamoto, S. – Tsukamoto, T., et al.: The efficacy and safety of propiverine hydrochloride in patients with overactive bladder symptoms who poorly responded to previous anticholinergic agents. *Adv Urol*, 2011, 2011, 714978.
- 15 Gray, S. L., et al.: Cumulative use of strong anticholinergics and incident dementia: a prospective cohort study. *JAMA Intern Med*, 2015, 175, vyhledáno 12. 11. 2024. 401–407.
- 16 Risacher, S. L., et al.: Association between anticholinergic medication use and cognition, brain metabolism, and brain atrophy in cognitively normal older adults. *JAMA Neurol*, 2016, 73, s. 721.
- 17 Mintzer, J. – Burns, A.: Anticholinergic side-effects of drugs in elderly people. *JR Soc Med*, 2000, 93, s. 457–462.
- 18 Salahudeen, M. S., et al.: Anticholinergic burden quantified by anticholinergic risk scales and adverse outcomes in older people: a systematic review. *BMC Geriatr*, 2015, 15, s. 31.
- 19 Netter, F. H.: *Netter's Atlas of the Urinary System in Overactive Bladder*. 2004, Novartis Pharmaceuticals Corp.

Přínos momelotinibu v léčbě myelofibrózy

MUDr. Natália Podstavková Interní hematologická a onkologická klinika, LF MU a FN Brno

- 1 Khouri, J. D. – Solary, E. – Abla, O., et al.: The 5th edition of the World Health Organization Classification of haematolymphoid tumours: myeloid and histiocytic/dendritic neoplasms. *Leukemia*, 2022, 36, s. 1703–1719.
- 2 Kralovics, R. – Passamonti, F. – Buser, A. S., et al.: A gain-of-function mutation of Jak2 in myeloproliferative disorders. *N Engl J Med*, 2005, 352, s. 1779–1790.
- 3 Tefferi, A. – Guglielmelli, P. – Larson, D. R., et al.: Long-term survival and blast transformation in molecularly annotated essential thrombocythemia, polycythemia vera, and myelofibrosis. *Blood*, 2014, 124, s. 2507–2513.
- 4 Cervantes, F.: How I treat myelofibrosis. *Blood*, 2014, 124, s. 2635–2642.
- 5 Savona, M. R.: Are we altering the natural history of primary myelofibrosis? *Leuk Res*, 2014, 38, s. 1004–1012.
- 6 Emanuel, R. M. – Dueck, A. C. – Geyer, H. L., et al.: Myeloproliferative neoplasm (MPN) symptom assessment form total symptom score: prospective international assessment of an abbreviated symptom burden scoring system among patients with MPNs. *J Clin Oncol*, 2012, 30, s. 4098–4103.
- 7 Dunbar, A. J. – Rampal, R. K. – Levine, R.: Leukemia secondary to myeloproliferative neoplasms. *Blood*, 2020, 136, s. 61–70.
- 8 Passamonti, F. – Cervantes, F. – Vannucchi, A. M., et al.: A dynamic prognostic model to predict survival in primary myelofibrosis: a study by the IWG-MRT (International Working Group for Myeloproliferative Neoplasms Research and Treatment). *Blood*, 2010, 115, s. 1703–1708.
- 9 Shallis, R. M. – Wang, R. – Davidoff, A., et al.: Epidemiology of the classical myeloproliferative neoplasms: The four corners of an expansive and complex map. *Blood Rev*, 2020, 42, 100706.
- 10 Harrison, C. N. – McLornan, D. P.: Current treatment algorithm for the management of patients with myelofibrosis, JAK inhibitors, and beyond. *Hematology Am Soc Hematol Educ Program*, 2017, 2017, s. 489–497.
- 11 Guglielmelli, P. – Lasho, T. L. – Rotunno, G., et al.: MIPSS70: mutation-enhanced international prognostic score system for transplantation-age patients with primary myelofibrosis. *J Clin Oncol*, 2018, 36, s. 310–318.
- 12 Barbui, T. – Tefferi, A. – Vannucchi, A. M., et al.: Philadelphia chromosome-negative classical myeloproliferative neoplasms: revised management recommendations from European LeukemiaNet. *Leukemia*, 2018, 32, s. 1057–1069.
- 13 Verstovsek, S. – Mesa, R. A. – Gotlib, J., et al.: A double-blind, placebo-controlled trial of ruxolitinib for myelofibrosis. *N Engl J Med*, 2012, 366, s. 799–807.
- 14 Harrison, C. – Kiladjian, J. J. – Al-Ali, H. K., et al.: JAK inhibition with ruxolitinib versus best available therapy for myelofibrosis. *N Engl J Med*, 2012, 366, s. 787–798.
- 15 Kuykendall, A. T. – Shah, S. – Talati, C., et al.: Between a rux and a hard place: evaluating salvage treatment and outcomes in myelofibrosis after ruxolitinib discontinuation. *Ann Hematol*, 2018, 3, s. 435–441.
- 16 Verstovsek, S. – Mesa, R. A. – Gotlib, J., et al.: COMFORT-I Investigators: Efficacy, safety, and survival with ruxolitinib in patients with myelofibrosis: results of a median 3-year follow-up of COMFORT-I. *Haematologica*, 2015, 100, s. 479–488.
- 17 Verstovsek, S. – Mesa, R. A. – Gotlib, J., et al.: COMFORT-I Investigators: Long-term treatment with ruxolitinib for patients with myelofibrosis: 5-year update from the randomized, double-blind, placebo-controlled, phase 3 COMFORT-I trial. *J Hematol Oncol*, 2017, 10, s. 55.
- 18 Villarino, A. V. – Kanno, Y. – O’Shea, J. J.: Mechanisms and consequences of Jak-STAT signaling in the immune system. *Nat Immunol*, 2017, 18, s. 374–384.
- 19 Pardanani, A. – Tefferi, A. – Masszi, T., et al.: Updated results of the placebo-controlled, phase III JAKARTA trial of fedratinib in patients with intermediate-2 or high-risk myelofibrosis. *Br J Haematol*, 2021, 195, s. 244–248.
- 20 Harrison, C. N. – Schaap, N. – Vannucchi, A. M., et al.: Fedratinib in patients with myelofibrosis previously treated with ruxolitinib: An updated analysis of the JAKARTA2 study using stringent criteria for ruxolitinib failure. *Am J Hematol*, 2020, 95, s. 594–603.
- 21 Chifotides, H.T. – Bose, P. – Verstovsek, S.: Momelotinib: an emerging treatment for myelofibrosis patients with anemia. *J Hematol Oncol*, 2022, 15, s. 7.
- 22 Naymagon, L. – Mascarenhas, J.: Myelofibrosis-related anemia: current and emerging therapeutic strategies. *Hemisphere*, 2017, 1, s. e1.
- 23 Verstovsek, S. – Mesa, R. – Gupta, V., et al.: Momelotinib long-term safety and survival in myelofibrosis: integrated analysis of phase 3 randomized controlled trials. *Blood Adv*, 2023, 7, s. 3582–3591.
- 24 Venugopal, S. – Mascarenhas, J.: Novel therapeutics in myeloproliferative neoplasms. *J Hematol Oncol*, 2020, 13, s. 162.

Neutropenie a farmakologické možnosti její léčby

MUDr. Ivana Zubatá Karlová, Ph.D. | prof. MUDr. Tomáš Kozák, Ph.D., MBA | doc. MUDr. Jan Novák, Ph.D. |

MUDr. Veronika Řivnáčová | MUDr. Ľubica Gahérová Hematologická klinika, 3. LF UK a FNKV, Praha

MUDr. Petr Kafka Ph.D. Klinika anestezioologie a resuscitace, 3. LF UK a FNKV, Praha

MUDr. Denisa Viczénová Pracoviště laboratorních metod – oddělení klinické biochemie, 3. LF UK a IKEM, Praha

- 1 Mayadas, T. N. – Cullere, X. – Lowell, C. A.: The multifaceted functions of neutrophils. *Annu Rev Pathol*, 2014, 9, s. 181–218.
- 2 Filippi, M. D.: Neutrophil transendothelial migration: updates and new perspectives. *Blood*, 2019, 133, s. 2149–2158.
- 3 Fioredda, F. – Dufour, C. – Höglund, P., et al.: Autoimmune neutropenia: update on clinical and biological features in children and adults. *Hemisphere*, 2022, 7, s. e814.
- 4 Vaillant, A. J. – Rout, P. – Reynolds, S. B., et al.: Neutropenia. *Mayo Clinic Medical Manual*, 2024, s. 661–665.
- 5 Horwitz, M. S. – Corey, S. J. – Grimes, H. L., et al.: ELANE mutations in cyclic and severe congenital neutropenia—genetics and pathophysiology. *Hematol Oncol Clin North Am*, 2013, 27, s. 19–41, vii.
- 6 Skokowa, J. – Dale, D. C. – Touw, I. P., et al.: Severe congenital neutropenias. *Nat Rev Dis Primers*, 2017, 3, 17032.
- 7 Vaillant, A. J. – Rout, P. – Reynolds, S. B., et al.: Neutropenia. *Mayo Clinic Medical Manual*, 2024, s. 661–665.
- 8 Mijović, A. – MacCabe, J. H.: Clozapine-induced agranulocytosis. *Ann Hematol*, 2020, 99, s. 2477.
- 9 Mart, G. – Malkan, U. Y. – Buyukasik, Y.: Determination of etiology in patients admitted due to isolated leukopenia. *Medicine*, 2022, 101, s. e30116.
- 10 Ha, V. H. – Ghosh, S. – Leyshon, C., et al.: Incidence of late onset neutropenia associated with rituximab use in B cell lymphoma patients undergoing autologous stem cell transplantation. *J Oncol Pharm Pract*, 2018, 24, s. 323–331.
- 11 Mijović, A. – MacCabe, J. H.: Clozapine-induced agranulocytosis. *Ann Hematol*, 2020, 99, s. 2477–2482.
- 12 Ozdemir, Z. C. – Kar, Y. D. – Kasaci, B., et al.: Etiological causes and prognosis in children with neutropenia. *North Clin Istanb*, 2021, 8, s. 236–242.
- 13 Fioredda, F. – Dufour, C. – Höglund, P., et al.: Autoimmune neutropenia: update on clinical and biological features in children and adults. *Hemisphere*, 2023, 7, s. E814.
- 14 Murphy, M. F. – Metcalfe, P. – Waters, A. H., et al.: Incidence and mechanism of neutropenia and thrombocytopenia in patients with human immunodeficiency virus infection. *Br J Haematol*, 1987, 66, s. 337–340.
- 15 Gibson, C. – Berliner, N., et al.: How we evaluate and treat neutropenia in adults. *Blood*, 2014, 124, s. 1251–1258.
- 16 Munshi, H. G. – Montgomery, R. B.: Severe neutropenia: a diagnostic approach. *West J Med*, 2000, 172, s. 248–252.
- 17 Giri, R. K. – Sahoo, R. K.: Febrile Neutropenia. *Onco-critical Care: An Evidence-based Approach*, 2023, s. 233–250.
- 18 Neumann, S. – Krause, S. W. – Maschmeyer, G., et al.: Primary prophylaxis of bacterial infections and *Pneumocystis jirovecii* pneumonia in patients with hematological malignancies and solid tumors: guidelines of the Infectious Diseases Working Party (AGIHO) of the German Society of Hematology and Oncology (DGHO). *Ann Hematol*, 2013, 92, s. 433–442.
- 19 Aapro, M. S. – Chaplin, S. – Cornes, P., et al.: Cost-effectiveness of granulocyte colony-stimulating factors (G-CSFs) for the prevention of febrile neutropenia (FN) in patients with cancer. *Support Care Cancer*, 2023, 31, s. 581.
- 20 Atallah, E. – Schiffer, C. A.: Granulocyte transfusion. *Curr Opin Hematol*, 2006, 13, s. 45–49.

Inovace v antibakteriální léčbě

prof. MUDr. Helena Žemličková, Ph.D. Ústav mikrobiologie, 3. LF UK, FNKV a NRL pro antibiotika SZÚ, Praha

- 1 Antimicrobial resistance in the EU/EEA (EARS-Net) – Annual Epidemiological Report 2022. European Centre for Disease Prevention and Control. Stockholm, ECDC, 2023. Dostupné z: <https://www.ecdc.europa.eu/en/publications-data/surveillance-antimicrobial-resistance-europe-2022>, vyhledáno 18. 10. 2024.
- 2 Global antimicrobial resistance and use surveillance system (GLASS) report 2022. Ženeva, WHO, 2022. Dostupné z: <https://www.who.int/publications/item/9789240062702>, vyhledáno 18. 10. 2024.
- 3 WHO Bacterial Priority Pathogens List, 2024: bacterial pathogens of public health importance to guide research, development and strategies to prevent and control antimicrobial resistance. Ženeva, WHO, 2024. Dostupné z: <https://www.who.int/publications/item/9789240093461>, vyhledáno 18. 10. 2024.
- 4 2023 Antibacterial agents in clinical and preclinical development: an overview and analysis. Ženeva, WHO, 2024. Dostupné z: <https://www.who.int/publications/item/9789240094000>
- 5 Bacterial vaccines in clinical and preclinical development: an overview and analysis. Ženeva, WHO, 2022. Dostupné na <https://www.who.int/publications/item/9789240052451>, vyhledáno 18. 10. 2024.
- 6 Prioritization of pathogens to guide discovery, research and development of new antibiotics for drug-resistant bacterial infections, including tuberculosis. Ženeva, WHO, 2017. Dostupné z: <https://www.who.int/publications/item/WHO-EMP-IAU-2017.12>, vyhledáno 18. 10. 2024.
- 7 Lomovskaya, O. – Sun, D. – Rubio-Aparicio, D., et al.: Vaborbactam: Spectrum of beta-lactamase inhibition and impact of resistance mechanisms on activity in Enterobacteriaceae. *Antimicrob Agents Chemother*, 2017, 61, pii, AAC.01443–17.
- 8 Veve, M. P. – Wagner, J. L.: Lefamulin: review of a promising novel pleuromutilin antibiotic. *Pharmacotherapy*, 2018, 38, s. 935–946.
- 9 Rodvold, K. A.: Introduction: lefamulin and pharmacokinetic/pharmacodynamic rationale to support the dose selection of lefamulin. *J Antimicrob Chemother*, 2019, 74, suppl. 3, s. iii2–iii4.
- 10 Lim Sazly, S. M. – Bruck Sime, F. – Roberts, J. A.: Multidrug-resistant Acinetobacter baumannii infections: Current evidence on treatment options and the role of pharmacokinetics/pharmacodynamics in dose optimisation. *Int J Antimicrobial Agents*, 2019, 53, s. 726–745.
- 11 Parsels, K. A. – Mastro, K. A. – Steele, J. M., et al.: Cefiderocol: a novel siderophore cephalosporin for multidrug-resistant Gram-negative bacterial infections. *J Antimicrob Chemother*, 2021, 76, s. 1379–1391.
- 12 Garcia-Salguero, C. – Rodriguez-Aval, I. – Picazo, J. J., et al.: Can plazomicin alone or in combination be a therapeutic option against carbapenem-resistant Acinetobacter baumannii? *Antimicrob Agents Chemother*, 2015, 59, s. 5959–5966.
- 13 Bassetti, M. – Righi, E. – Russo, A., et al.: New antibiotics for pneumonia. *Clin Chest Med*, 2018, 39, s. 853–869.
- 14 Barnes, M. D. – Bethel, C. R. – Alsop, J., et al.: Inactivation of the *Pseudomonas*-derived cephalosporinase-3 (PDC-3) by rebactam.
- 15 Ehmann, D. E. – Jahic, H. – Ross, P. L., et al.: Avibactam is a covalent, reversible, non-beta-lactam beta-lactamase inhibitor. *Proc Natl Acad Sci USA*, 2012, 109, s. 11663–11668.
- 16 Zhanel, G. G. – Lawrence, C. K. – Adam, H., et al.: Imipenem-relebactam and meropenem-vaborbactam: Two novel carbapenem-beta-lactamase inhibitor combinations. *Drugs*, 2018, 78, s. 65–98.
- 17 Mauri, C. – Maraoa, A. E. – Di Bella, S., et al.: The revival of aztreonam in combination with avibactam against metallo-β-lactamase-producing gram-negatives: A systematic review of in vitro studies and clinical cases. *Antibiotics*, 2021, 10, s. 1012.
- 18 Trebosc, V. – Schellhorn, B. – Schill, J., et al.: In vitro activity of rifabutin against 293 contemporary carbapenem-resistant Acinetobacter baumannii clinical isolates and characterization of rifabutin mode of action and resistance mechanisms. *J Antimicrob Chemother*, 2020, 75, s. 3552–3562.
- 19 Sader, H. S. – Carvalhaes, C. G. – Huband, M. D., et al.: Antimicrobial activity of ceftibuten-avibactam against a global collection of Enterobacteriales from patients with urinary tract infections 2021. *Eur Clin Microbiol Infect Dis*, 2023, 42, s. 453–459.
- 20 Ganesan, H. – Gupta, V. K. – Safir, M. C., et al.: Population pharmacokinetic analyses fortebipenem after oral administration of pro-drug tebipenem pivoxil hydrobromide. *Antimicrob Agents Chemother*, 2023, 67, e0145122.

Portugalská zkušenosť s léčbou HIV: různé scénáře se stejným úspěchem

Reportáž GSK

- 1 Maggiolo, F. – Valenti, D. – Teocchi, R., et al.: Adherence to and forgiveness of 3TC/DTG in a real-world cohort. *J Int Assoc Provid AIDS Care*, 2022, 21, 23259582221101815.

Stručný pohled na farmakologii antisense oligonukleotidů

doc. MUDr. Jiří Slíva, Ph.D. Ústav farmakologie, 3. LF UK, Praha

- 1 Acsadi, G. – Crawford, T. O. – Müller-Felber, W., et al.: Safety and efficacy of nusinersen in spinal muscular atrophy: The EMBRACE study. *Muscle Nerve*, 2021, 63, s. 668–677.
- 2 Hammond, S. M. – Aartsma-Rus, A. – Alves, S., et al.: Delivery of oligonucleotide-based therapeutics: challenges and opportunities. *EMBO Mol Med*, 2021, 13, e13243.
- 3 Egli, M. – Manoharan, M.: Chemistry, structure and function of approved oligonucleotide therapeutics. *Nucleic Acids Res*, 2023, 51, s. 2529–2573.
- 4 van Roon-Mom, W. – Ferguson, C. – Aartsma-Rus, A.: From failure to meet the clinical endpoint to U.S. food and drug administration approval: 15th Antisense Oligonucleotide Therapy Approved Qalsody (Tofersen) for Treatment of SOD1 Mutated Amyotrophic Lateral Sclerosis. *Nucleic Acid Ther*, 2023, 33, s. 234–237.
- 5 Zhang, M. M. – Bahal, R. – Rasmussen, T. P., et al.: The growth of siRNA-based therapeutics: Updated clinical studies. *Biochem Pharmacol*, 2021, 189, 114432.
- 6 Clarke, J. T. – Coyle, D. – Evans, G., et al.: Toward a functional definition of a “rare disease” for regulatory authorities and funding agencies. *Value Health*, 2014, 17, s. 757–761.
- 7 Committee for Orphan Medicinal Products (COMP). European Medicines Agency. Dostupné z: <https://www.ema.europa.eu/en/committees/committee-orphan-medicinal-products-comp>, vyhledáno 21. 10. 2024.
- 8 Kim, J. – Hu, C. – Moufawad, E., et al.: Patient-customized oligonucleotide therapy for a rare genetic disease. *N Engl J Med*, 2019, 381, s. 1644–1652.
- 9 Kim, J. – Woo, S. – de Gusmao, C. M., et al.: A framework for individualized splice-switching oligonucleotide therapy. *Nature*, 2023, 619, s. 828–836.
- 10 Monia, B. P. – Lesnik, E. A. – Gonzalez, C., et al.: Evaluation of 2'-modified oligonucleotides containing 2'-deoxy gaps as antisense inhibitors of gene expression. *J Biol Chem*, 1993, 268, s. 14514–14522.
- 11 Benson, M. D. – Waddington-Cruz, M. – Berk, J. L., et al.: Inotersen treatment for patients with hereditary transthyretin amyloidosis. *N Engl J Med*, 2018, 379, s. 22–31.
- 12 Marrosu, E. – Ala, P. – Muntoni, F., et al.: Gapmer antisense oligonucleotides suppress the mutant allele of COL6A3 and restore functional protein in ulrich muscular dystrophy. *Mol Ther Nucleic Acids*, 2017, 8, s. 416–427.
- 13 Havens, M. A. – Hastings, M. L.: Splice-switching antisense oligonucleotides as therapeutic drugs. *Nucleic Acids Res*, 2016, 44, s. 6549–6563.
- 14 Liang, X. H. – Sun, H. – Shen, W., et al.: Antisense oligonucleotides targeting translation inhibitory elements in 5'UTRs can selectively increase protein levels. *Nucleic Acids Res*, 2017, 45, s. 9528–9546.
- 15 Sasaki, S. – Sun, R. – Bui, H. H., et al.: Steric inhibition of 5'UTR regulatory elements results in upregulation of human CFTR. *Mol Ther*, 2019, 27, s. 1749–1757.

Výsledky studie post-MONICA, obezita a diabetes. Proč je česká populace ve vysokém kardiovaskulárním riziku a můžeme s tím něco udělat?

prof. MUDr. Renata Cífková, CSc. Centrum kardiovaskulární prevence, 1. LF UK a FTN; II. interní klinika, 1. LF UK a VFN, Praha

- 1 Visseren, F. L. J. – Mach, F. – Smulders, Y. M., et al.: ESC National Cardiac Societies; ESC Scientific Document Group: 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J*, 2021, 42, s. 3227–3337.
- 2 ÚZIS 2021. Standardizovaná úmrtnost podle příčin smrti. Dostupné z: <https://www.uzis.cz/cs/res/file/poskytne-informace/23-11-inf106-1999-odpoved.pdf>, vyhledáno 17. 9. 2024.
- 3 Rosolová, H. – Pelikánová, T. – Motovská, Z.: ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with EASD. Summary of the document prepared by the Czech Society of Cardiology. *Cor Vasa*, 2014, 56, s. e169–e189.
- 4 Bruthans, J. – Cífková, R. – Lánská, V., et al.: Explaining the decline in coronary heart disease mortality in the Czech Republic between 1985 and 2007. *Eur J Prev Cardiol*, 2014, 21, s. 829–839.
- 5 Cífková, R. – Bruthans, J. – Wohlfahrt, P., et al.: 30-year trends in major cardiovascular risk factors in the Czech population, Czech MONICA and Czech post-MONICA, 1985–2016/17. *PLoS One*, 2020, 15, e0232845.
- 6 Cífková, R. – Bruthans, J. – Wohlfahrt, P., et al.: Prevalence hlavních rizikových faktorů kardiovaskulárních onemocnění v české populaci v letech 2015–2018. Studie Czech post-MONICA. *Cor Vasa*, 2020, 62, s. 6–15.
- 7 Tremblay, J. – Haloui, M. – Attaoua, R., et al.: Polygenic risk scores predict diabetes complications and their response to intensive blood pressure and glucose control. *Diabetologia*, 2021, 64, s. 2012–2025.
- 8 Wells, J. C.: Commentary: The paradox of body mass index in obesity assessment: not a good index of adiposity, but not a bad index of cardio-metabolic risk. *Int J Epidemiol*, 2014, 43, s. 672–674.
- 9 Hall, M. E. – Cohen, J. B. – Ard, J. D., et al.: American Heart Association Council on Hypertension; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Lifestyle and Cardiometabolic Health; and Stroke Council: Weight-loss strategies for prevention and treatment of hypertension: a scientific statement from the American Heart Association. *Hypertension*, 2021, 78, s. e38–e50.
- 10 Messerli, F. H. – Makani, H. – Benjo, A., et al.: Antihypertensive efficacy of hydrochlorothiazide as evaluated by ambulatory blood pressure monitoring: a meta-analysis of randomized trials. *J Am Coll Cardiol*, 2011, 57, s. 590–600.
- 11 Hall, J. E. – do Carmo, J. M. – da Silva, A. A., et al.: Obesity-induced hypertension: interaction of neurohumoral and renal mechanisms. *Circ Res*, 2015, 116, s. 991–1006.
- 12 Di Angelantonio, E. – Kaptoge, S. – Wormser, D., et al.: Association of cardiometabolic multimorbidity with mortality. *JAMA*, 2015, 314, s. 52–60.
- 13 Widimsky, J. – Filipovsky, J. – Ceral, J., et al.: Diagnostické a léčebné postupy u arteriální hypertenze – verze 2022. Doporučení České společnosti pro hypertenci. Dostupné z: https://www.hypertension.cz/wp-content/uploads/2023/01/Widimsky_-guidelines-CSH-2022.pdf, vyhledáno 17. 9. 2024.
- 14 Czernichow, S. – Ninomiya, T. – Huxley, R., et al.: Impact of blood pressure lowering on cardiovascular outcomes in normal weight, overweight, and obese individuals: the Perindopril Protection Against Recurrent Stroke Study trial. *Hypertension*, 2010, 55, s. 1193–1198.
- 15 Brown, M. J. – Williams, B. – Morant, S. V., et al.: British Hypertension Society's Prevention, Treatment of Hypertension with Algorithm-based Therapy (PATHWAY) Studies Group: Effect of amiloride, or amiloride plus hydrochlorothiazide, versus hydrochlorothiazide on glucose tolerance and blood pressure (PATHWAY-3): a parallel-group, double-blind randomised phase 4 trial. *Lancet Diabetes Endocrinol*, 2016, 4, s. 136–147.