Donepezil

The aim of a study of Mei et al. from Xining was done to investigate the effects of oxygen and acetylcholinesterase inhibitor (donepezil) therapy on dementia in patients with age-exacerbated chronic obstructive pulmonary disease (COPD) in China's northwestern high-altitude area.

A total of 145 patients with acute exacerbation of COPD admitted to the Gerontology Department of the First People's Hospital of Xining City were initially retrospectively screened. From among these 145 patients, we selected 33 cases with dementia and 33 patients without dementia through use of the Mini-Mental State Examination (MMSE), the Alzheimer's Disease Assessment Scale-Cognitive Subscale (ADAS-Cog), and Activities of Daily Living (ADL) Scale evaluated before, 7 days after, and at the end of the treatment after 3 months. Both patient groups received oxygen therapy for 7 days, but patients with dementia in the intervention group were medicated additionally with donepezil (5 mg/day for 1 week, followed by 10 mg/day for another 12 weeks). RESULTS Mild dementia was found in 35 of the 145 COPD patients. ADL, MMSE, and ADAS-Cog scores were all significantly lower in the intervention group before treatment, improved after the first 7 days, and continued to improve significantly until week 12 in the intervention group, but were still significantly lower than in the control group. CONCLUSIONS Dementia in elderly COPD patients was mainly manifested as decreased executive function, attention, language, and delayed recall, while oxygen and donepezil therapy had beneficial effects on the symptoms [1)].

Publications

2: Zhang N, Gordon ML. Clinical efficacy and safety of donepezil in the treatment of Alzheimer's disease in Chinese patients. Clin Interv Aging. 2018 Oct 11;13:1963-1970. doi: 10.2147/CIA.S159920. eCollection 2018. Review. PubMed PMID: 30349215; PubMed Central PMCID: PMC6187917.

3: Cho JS, Lee J, Jeong DU, Kim HW, Chang WS, Moon J, Chang JW. Effect of Placenta-Derived Mesenchymal Stem Cells in a Dementia Rat Model via Microglial Mediation: a Comparison between Stem Cell Transplant Methods. Yonsei Med J. 2018 May;59(3):406-415. doi: 10.3349/ymj.2018.59.3.406. PubMed PMID: 29611403; PubMed Central PMCID: PMC5889993.

4: Biswas J, Gupta S, Verma DK, Gupta P, Singh A, Tiwari S, Goswami P, Sharma S, Singh S. Involvement of glucose related energy crisis and endoplasmic reticulum stress: Insinuation of streptozotocin induced Alzheimer's like pathology. Cell Signal. 2018 Jan;42:211-226. doi: 10.1016/j.cellsig.2017.10.018. Epub 2017 Nov 7. PubMed PMID: 29126976.

5: Chamoun M, Sergeeva EG, Henrich-Noack P, Jia S, Grigartzik L, Ma J, You Q, Huppé-Gourgues F, Sabel BA, Vaucher E. Cholinergic Potentiation of Restoration of Visual Function after Optic Nerve Damage in Rats. Neural Plast. 2017;2017:6928489. doi: 10.1155/2017/6928489. Epub 2017 Aug 27. PubMed PMID: 28928986; PubMed Central PMCID: PMC5592016.

6: Gratton C, Yousef S, Aarts E, Wallace DL, D'Esposito M, Silver MA. Cholinergic, But Not Dopaminergic or Noradrenergic, Enhancement Sharpens Visual Spatial Perception in Humans. J Neurosci. 2017 Apr 19;37(16):4405-4415. doi: 10.1523/JNEUROSCI.2405-16.2017. Epub 2017 Mar 23. PubMed PMID: 28336568; PubMed Central PMCID: PMC5413181.

7: Perez-Lloret S, Peralta MC, Barrantes FJ. Pharmacotherapies for Parkinson's disease symptoms

related to cholinergic degeneration. Expert Opin Pharmacother. 2016 Dec;17(18):2405-2415. Epub 2016 Nov 7. Review. PubMed PMID: 27785919.

8: Fasano A, Appel-Cresswell S, Jog M, Zurowkski M, Duff-Canning S, Cohn M, Picillo M, Honey CR, Panisset M, Munhoz RP. Medical Management of Parkinson's Disease after Initiation of Deep Brain Stimulation. Can J Neurol Sci. 2016 Sep;43(5):626-34. doi: 10.1017/cjn.2016.274. Review. PubMed PMID: 27670207.

9: Alvarez XA, Alvarez I, Iglesias O, Crespo I, Figueroa J, Aleixandre M, Linares C, Granizo E, Garcia-Fantini M, Marey J, Masliah E, Winter S, Muresanu D, Moessler H. Synergistic Increase of Serum BDNF in Alzheimer Patients Treated with Cerebrolysin and Donepezil: Association with Cognitive Improvement in ApoE4 Cases. Int J Neuropsychopharmacol. 2016 Apr 7. pii: pyw024. doi: 10.1093/ijnp/pyw024. [Epub ahead of print] PubMed PMID: 27207906; PubMed Central PMCID: PMC4926802.

10: Dhermain F, Barani IJ. Complications from radiotherapy. Handb Clin Neurol. 2016;134:219-34. doi: 10.1016/B978-0-12-802997-8.00013-X. Review. PubMed PMID: 26948357.

11: Li G, Dahdaleh NS, Germanwala AV, Lam S, Choy W, Smith ZA, Yang I. Key perspectives on donepezil following brain irradiation, sacroiliac joint fusion, indocyanine green fluorescence endoscope in endonasal transsphenoidal surgery, postconcussion syndrome in young athletes. Surg Neurol Int. 2015 Dec 8;6(Suppl 26):S647-50. doi: 10.4103/2152-7806.171220. eCollection 2015. PubMed PMID: 26713171; PubMed Central PMCID: PMC4683793.

12: Kuzmickienė J, Kaubrys G. Cognitive Results of CANTAB Tests and Their Change Due to the First Dose of Donepezil May Predict Treatment Efficacy in Alzheimer Disease. Med Sci Monit. 2015 Dec 14;21:3887-99. PubMed PMID: 26656642; PubMed Central PMCID: PMC4684140.

13: Lassaletta A, Bouffet E, Mabbott D, Kulkarni AV. Functional and neuropsychological late outcomes in posterior fossa tumors in children. Childs Nerv Syst. 2015 Oct;31(10):1877-90. doi: 10.1007/s00381-015-2829-9. Epub 2015 Sep 9. PubMed PMID: 26351237.

14: Kuzmickienė J, Kaubrys G. Selective Ability of Some CANTAB Battery Test Measures to Detect Cognitive Response to a Single Dose of Donepezil in Alzheimer Disease. Med Sci Monit. 2015 Aug 31;21:2572-82. doi: 10.12659/MSM.895381. PubMed PMID: 26336931; PubMed Central PMCID: PMC4562612.

15: Vaitkevičius A, Kaubrys G, Audronytė E. Distinctive Effect of Donepezil Treatment on P300 and N200 Subcomponents of Auditory Event-Related Evoked Potentials in Alzheimer Disease Patients. Med Sci Monit. 2015 Jul 3;21:1920-7. doi: 10.12659/MSM.894940. PubMed PMID: 26138001; PubMed Central PMCID: PMC4501636.

16: Chen T, Hou R, Xu S, Wu C. Donepezil Regulates 1-Methyl-4-phenylpyridinium-Induced Microglial Polarization in Parkinson's Disease. ACS Chem Neurosci. 2015 Oct 21;6(10):1708-14. doi: 10.1021/acschemneuro.5b00026. Epub 2015 Aug 5. PubMed PMID: 26114860.

17: Dye NB, Gondi V, Mehta MP. Strategies for preservation of memory function in patients with brain metastases. Chin Clin Oncol. 2015 Jun;4(2):24. doi: 10.3978/j.issn.2304-3865.2015.05.05. Review. PubMed PMID: 26112810.

18: Kudoh C, Arita R, Honda M, Kishi T, Komatsu Y, Asou H, Mimura M. Effect of ninjin'yoeito, a Kampo (traditional Japanese) medicine, on cognitive impairment and depression in patients with Alzheimer's disease: 2 years of observation. Psychogeriatrics. 2016 Mar;16(2):85-92. doi: 10.1111/psyg.12125.

Epub 2015 Apr 27. PubMed PMID: 25918972.

19: Liu M, Zhang Y, Huo YR, Liu S, Liu S, Wang J, Wang C, Wang J, Ji Y. Influence of the rs1080985 Single Nucleotide Polymorphism of the CYP2D6 Gene and APOE Polymorphism on the Response to Donepezil Treatment in Patients with Alzheimer's Disease in China. Dement Geriatr Cogn Dis Extra. 2014 Nov 15;4(3):450-6. doi: 10.1159/000367596. eCollection 2014 Sep. PubMed PMID: 25538729; PubMed Central PMCID: PMC4264516.

20: Castellino SM, Ullrich NJ, Whelen MJ, Lange BJ. Developing interventions for cancer-related cognitive dysfunction in childhood cancer survivors. J Natl Cancer Inst. 2014 Jul 30;106(8). pii: dju186. doi: 10.1093/jnci/dju186. Print 2014 Aug. Review. PubMed PMID: 25080574; PubMed Central PMCID: PMC4155432.

1)

Mei L, Wu S, Wang D, Li H, Zhang H, Wang M. Epidemiology of Dementia in Elderly Chronic Obstructive Pulmonary Disease Patients Living in China's Northwestern High-Elevation Area. Med Sci Monit. 2018 Oct 29;24:7742-7749. doi: 10.12659/MSM.909501. PubMed PMID: 30372705.