

[首页](#)[最新一期](#)[期刊动态](#)[过刊浏览](#)[医学视频](#)[在线投稿](#)[期刊检索](#)[期刊订阅](#)[合作科室](#)

期刊导读

8卷11期 2014年6月 [最新]



期刊存档

期刊存档

[查看目录](#)

期刊订阅



在线订阅



邮件订阅



RSS

作者中心



资质及晋升信息



作者查稿



写作技巧



投稿方式



作者指南

编委会

期刊服务



建议我们



会员服务



广告合作



继续教育

您的位置: [首页](#)>> [文章摘要](#)
[中文](#) [English](#)

脑白质疏松的研究进展

张小雨, 李见, 胡文立

100020 首都医科大学附属北京朝阳医院神经内科

胡文立, Email: huwl2013@163.com

摘要:脑白质疏松(LA)是老年人常见的影像学表现,其发生率随年龄增长而增加,可引起认知障碍和尿失禁,但其发病机制尚不清楚。目前,年龄和高血压是LA已经确定的危险因素。在发病机制起的白质缺血被认为是LA发生的主要原因;但脑室旁LA和皮质下LA的病理改变不同,其主要的发生近年来,影像学技术的发展为我们研究LA的发生机制提供新的手段。因此,本文就LA的危险因素及影像学表现等进行综述。

关键词:脑白质疏松症; 危险因素; 认知障碍; 磁共振成像; 病理改变; 脑小血管疾病

[评论](#) [收藏](#) [全](#)

文献标引:张小雨, 李见, 胡文立. 脑白质疏松的研究进展[J/CD]. 中华临床医师杂志: 电子版, 2014, 8(9): 1717

参考文献:

[1] Wen W, Sachdev PS, Li JJ, et al. White matter hyperintensities in the forties and topography in an epidemiological sample aged 44-48[J]. Hum Brain Mapp, 2009, 30(

[2] Wen W, Sachdev P. The topography of white matter hyperintensities on brain MRI in 64-year-old individuals[J]. Neuroimage, 2004, 22(1): 144-154.

[3] de Leeuw FE, de Groot JC, Achten E, et al. Prevalence of cerebral white matter hyperintensities in elderly people: a population based magnetic resonance imaging study. The Rotterdam Study. J Neurol Neurosurg Psychiatry, 2001, 70(1): 9-14.

[4] Basile AM, Pantoni L, Pracucci G, et al. Age, hypertension, and lacunar stroke: determinants of the severity of age-related white matter changes. The LADIS (Leukoaraiosis and Disability in the Elderly) Study[J]. Cerebrovasc Dis, 2006, 21(5/6): 315-322.

[5] Dufouil C, de Kersaint-Gilly A, Besancon V, et al. Longitudinal study of brain white matter hyperintensities - The EVA MRI cohort[J]. Neurology, 2001, 56(7): 921-9

[6] van den Heuvel DM, Admiraal-Behloul F, ten Dam VH, et al. Different progression of white matter hyperintensities in elderly men and women[J]. Neurology, 2004, 63(9): 1

- [7] Akisaki T, Sakurai T, Takata T, et al. Cognitive dysfunction associates with hyperintensities and subcortical atrophy on magnetic resonance imaging of the elderly Japanese elderly diabetes intervention trial (J-EDIT)[J]. *Diabetes Metab Res Rev*, 2007, 23(10): 1433-1440.
- [8] Park K, Yasuda N, Toyonaga S, et al. Significant association between leukoaraiosis and cognitive dysfunction in healthy subjects[J]. *Neurology*, 2007, 69(10): 974-978.
- [9] Streifler JY, Eliasziw M, Benavente OR, et al. Prognostic importance of leukoaraiosis in patients with symptomatic internal carotid artery stenosis[J]. *Stroke*, 2002, 33(6): 1553-1558.
- [10] Smith EE. Leukoaraiosis and stroke[J]. *Stroke*, 2010, 41(10 Suppl): S139-143.
- [11] Sachdev P, Parslow R, Salonikas C, et al. Homocysteine and the brain in midlife: implications for an increased risk of leukoaraiosis in men[J]. *Arch Neurol*, 2004, 61(9): 1369-1374.
- [12] Braffman BH, Zimmerman RA, Trojanowski JQ, et al. Brain MR: pathologic correlation of white matter hyperintensities and histopathology. 1. Lacunar infarction and Virchow-Robin spaces[J]. *AJR Am J Roentgenol*, 2000, 175(3): 551-558.
- [13] Fazekas F, Kleinert R, Offenbacher H, et al. The morphologic correlate of white matter hyperintensities on MR images[J]. *AJNR Am J Neuroradiol*, 1991, 12(5): 953-958.
- [14] Schmidt R, Schmidt H, Haybaeck J, et al. Heterogeneity in age-related white matter hyperintensities[J]. *Acta Neuropathol*, 2011, 122(2): 171-185.
- [15] Simpson JE, Fernando MS, Clark L, et al. White matter lesions in an unselected elderly population: astrocytic, microglial and oligodendrocyte precursor cell responses[J]. *Neurobiol Aging*, 2007, 28(4): 410-419.
- [16] Takao M, Koto A, Tanahashi N, et al. Pathologic findings of silent hyperintense lesions on MRI[J]. *J Neurol Sci*, 1999, 167(2): 127-131.
- [17] Gouw AA, Seewann A, Vrenken H, et al. Heterogeneity of white matter hyperintensities in Alzheimer's disease: post-mortem quantitative MRI and neuropathology[J]. *Brain*, 2008, 131(Pt 12): 3298-3308.
- [18] Young VG, Halliday GM, Kril JJ. Neuropathologic correlates of white matter hyperintensities[J]. *Neurology*, 2008, 71(11): 804-811.
- [19] Grinberg LT, Thal DR. Vascular pathology in the aged human brain[J]. *Acta Neuropathol*, 2005, 110(3): 277-290.
- [20] Brown WR, Moody DM, Challa VR, et al. Venous collagenosis and arteriolar tortuosity in leukoaraiosis[J]. *J Neurol Sci*, 2002, 193(2): 159-163.
- [21] 黄勇华, 张薇薇, 林琅, 等. 伴脑白质疏松的脑梗死患者脑小动脉定量研究[J]. *中华神经科杂志*, 2008, 41(9): 688-690.
- [22] Smith EE, Nandigam KR, Chen YW, et al. MRI markers of small vessel disease and leukoaraiosis in hemispheric intracerebral hemorrhage[J]. *Stroke*, 2010, 41(9): 1933-1938.

- [23] Pantoni L, Garcia JH. Pathogenesis of leukoaraiosis: a review[J]. Stroke, 1
- [24] Fernando MS, Simpson JE, Matthews F, et al. White matter lesions in an unselected elderly: molecular pathology suggests origin from chronic hypoperfusion injury[J]. Stroke, 2009, 40(12): 1391-1398.
- [25] Chung CP, Hu HH. Pathogenesis of leukoaraiosis: role of jugular venous reflux[J]. Stroke, 2010, 41(1): 85-90.
- [26] 王晨, 高培毅, 林燕, 等. 脑白质疏松的研究进展[J]. 中华老年心脑血管病杂志, 2009, 11(12): 1391-1398.
- [27] Schley D, Carare-Nnadi R, Please CP, et al. Mechanisms to explain the reverse transport of solutes out of the brain[J]. J Theor Biol, 2006, 238(4): 962-974.
- [28] Atwood LD, Wolf PA, Heard-Costa NL, et al. Genetic variation in white matter volume in the Framingham Study[J]. Stroke, 2004, 35(7): 1609-1613.
- [29] Paternoster L, Chen W, Sudlow CL. Genetic determinants of white matter hyperintensities on brain scans: a systematic assessment of 19 candidate gene polymorphisms in 46 studies[J]. Stroke, 2009, 40(6): 2020-2026.
- [30] Fornage M, Debette S, Bis JC, et al. Genome-wide association studies of cerebral white matter lesion burden: the CHARGE consortium[J]. Ann Neurol, 2011, 69(6): 928-939.
- [31] Brown WR, Moody DM, Challa VR, et al. Apoptosis in leukoaraiosis lesions[J]. Stroke, 2002, 33(1): 169-171.
- [32] Brickman AM, Zahra A, Muraskin J, et al. Reduction in cerebral blood flow in white matter hyperintensities on magnetic resonance imaging[J]. Psychiatry Res, 2009, 171(2): 169-171.
- [33] O'Sullivan M, Lythgoe DJ, Pereira AC, et al. Patterns of cerebral blood flow in white matter hyperintensities in patients with ischemic leukoaraiosis[J]. Neurology, 2002, 59(3): 321-326.
- [34] ten Dam VH, van den Heuvel DMJ, de Craen AJM, et al. Decline in total cerebral blood flow is not linked with increase in periventricular but not deep white matter hyperintensities[J]. Stroke, 2003, 34(1): 198-203.
- [35] Sachdev P, Wen W, Shnier R, et al. Cerebral blood volume in T2-weighted white matter hyperintensities using exogenous contrast based perfusion MRI[J]. J Neuropsychiatry, 2005, 16(1): 83-92.
- [36] Guo AC, MacFall JR, Provenzale JM. Multiple sclerosis: diffusion tensor MR evaluation of normal-appearing white matter[J]. Radiology, 2002, 222(3): 729-736.
- [37] Charlton RA, Barrick TR, McIntyre DJ, et al. White matter damage on diffusion tensor imaging correlates with age-related cognitive decline[J]. Neurology, 2006, 66(2): 217-222.
- [38] Song SK, Sun SW, Ju WK, et al. Diffusion tensor imaging detects and differentiates axonal and myelin degeneration in mouse optic nerve after retinal ischemia[J]. Neuroimage, 2003, 19(1): 148-157.
- [39] Inzitari D, Pracucci G, Poggesi A, et al. Changes in white matter as determinants of functional decline in older independent outpatients: three year follow-up of LADIS (Leukoaraiosis and Disability) Study[J]. Stroke, 2008, 39(12): 3111-3116.

disability) study cohort[J]. BMJ, 2009, 339: b2477.

[40] Vernooij MW, Ikram MA, Vrooman HA, et al. White matter microstructural integrity and cognitive function in a general elderly population[J]. Arch Gen Psychiatry, 2009, 66(5): 545-552.

[41] Silbert LC, Nelson C, Howieson DB, et al. Impact of white matter hyperintensities on cognitive progression on rate of cognitive and motor decline[J]. Neurology, 2008, 71(2): 108-114.

[42] Sakakibara R, Hattori T, Uchiyama T, et al. Urinary function in elderly people with leukoaraiosis: relation to cognitive and gait function[J]. J Neurol Neurosurg Psychiatry, 2008, 79: 658-660.

[43] Caprio FZ, Maas MB, Rosenberg NF, et al. Leukoaraiosis on magnetic resonance imaging is associated with worse outcomes after spontaneous intracerebral hemorrhage[J]. Stroke, 2013, 44(12): 3311-3316.

[44] Lou M, Al-Hazzani A, Goddeau RP, et al. Relationship between white-matter hyperintensities and hematoma volume and growth in patients with intracerebral hemorrhage[J]. Stroke, 2011, 42(12): 3471-3476.

[45] Neumann-Haefelin T, Hoelig S, Berkefeld J, et al. Leukoaraiosis is a risk factor for recurrent symptomatic intracerebral hemorrhage after thrombolysis for acute stroke[J]. Stroke, 2009, 40(12): 2460-2466.

[46] Arsava EM, Rahman R, Rosand J, et al. Severity of leukoaraiosis correlates with functional outcome after ischemic stroke[J]. Neurology, 2009, 72(16): 1403-1410.

综 述

线粒体解偶联蛋白在中枢神经系统中的作用

王迎青, 叶钦勇. .中华临床医师杂志: 电子版
2014;8(9):1703-1707.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

星形胶质细胞与阿尔茨海默病

吕田明, 史翠丽, 梁彦珊, 黄小玉. .中华临床医师杂志: 电子版
2014;8(9):1708-1713.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

睡眠限制国内研究现状分析

刘艳, 吴卫平. .中华临床医师杂志: 电子版
2014;8(9):1714-1716.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

脑白质疏松的研究进展

张小雨, 李见, 胡文立. .中华临床医师杂志: 电子版
2014;8(9):1717-1721.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

去铁胺治疗脑出血的研究进展

于垚, 高旭光. .中华临床医师杂志: 电子版
2014;8(9):1722-1725.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

髓母细胞瘤SHH信号通路及靶向抑制剂研究进展

林中啸, 蔡铭, 盛汉松, 张弩. .中华临床医师杂志: 电子版

2014;8(9):1726-1729.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

GCH1基因和神经源性疼痛以及相互作用机制方面的研究进展

李庆伟, 梁啸, 孟纯阳. . 中华临床医师杂志: 电子版

2014;8(9):1730-1733.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

KLF2调节内皮细胞功能的研究进展

刘铸容, 皮光环. . 中华临床医师杂志: 电子版

2014;8(9):1734-1738.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

高通量测序技术检测T&B细胞CDR3受体库在临床中的应用

张天, 孙素红. . 中华临床医师杂志: 电子版

2014;8(9):1739-1742.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

可溶性白细胞分化抗原14在脓毒症中的研究进展

杨吉林, 吴先正. . 中华临床医师杂志: 电子版

2014;8(9):1743-1747.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

缺血性心脏病微血管再生临床研究进展

马晓磊, 吕安林, 艾世宜, 邱翠婷, 姜晓宇, 郭显, 李珊, 李芹. . 中华临床医师杂志:

2014;8(9):1748-1752.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

小细胞肺癌c-kit蛋白表达及小细胞肺癌化疗后维持治疗探讨

展峰峰, 韩福才. . 中华临床医师杂志: 电子版

2014;8(9):1753-1757.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

循环肿瘤细胞的检测在结直肠癌中的应用

陈媛媛, 程勃然, 王振盟, 杨帅龙, 张春晓, 万璐, 熊斌. . 中华临床医师杂志: 电

2014;8(9):1758-1762.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

糖尿病视网膜病变的防治进展

梁卫强, 王丽聪. . 中华临床医师杂志: 电子版

2014;8(9):1763-1766.

[摘要](#) [FullText](#) [PDF](#) [评论](#) [收藏](#)

[编委会](#) | [联系我们](#) | [合作伙伴](#) | [友情链接](#) |

© 2014版权声明 中华临床医师杂志(电子版)编辑部
网站建设: 北京华夏世通信息技术有限公司 京ICP备0
北京市公安局西城分局备案编号: 110102000676