·专家共识·

认知功能障碍疾病非药物干预中国专家共识(2025版)

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摘要 随着人口老龄化加剧,认知功能障碍相关疾病已成为威胁我国老年群体健康的重大公共卫生问题,加快构建循证导向、可及性强的认知功能障碍非药物干预体系是临床实践的迫切需求。本共识总结了神经调控技术[经颅直流电刺激(tDCS)、重复经颅磁刺激(rTMS)]、运动训练(有氧运动训练、抗阻训练、有氧-抗阻混合运动训练和运动联合其他任务的干预)、认知训练(传统纸笔训练、计算机化认知训练和个性化训练)、饮食干预(地中海饮食、生酮饮食和阻止高血压的饮食模式)、社会心理治疗(心理疗法、音乐运动训练、书法训练、音乐疗法、动物辅助治疗、玩偶疗法和回忆疗法)、中医疗法(针灸治疗、推拿治疗和气功练习)等认知功能障碍非药物干预方法,旨在增强各级医疗、管理机构和临床工作者对认知功能障碍非药物治疗的认知和重视程度,为认知功能障碍患者提供更多元、有效的治疗手段以及规范化的管理。

关键词 认知功能障碍;非药物干预;神经调控;认知训练;专家共识

认知功能障碍是一类以获得性、持续性认知功能损害为核心,并导致患者日常生活活动和工作能力减退、可伴有精神行为异常的综合征,按严重程度可以分为主观认知功能下降(subjective cognitive decline,SCD)、轻度认知功能障碍(mild cognitive impairment,MCI)和痴呆[1-6]。流行病学调查显示,2019年全球痴呆症患者人数为5 740万,预计到2050年,全球痴呆症患者将增加至1.528亿[7],与痴呆相关的死亡人数将增加至491万人[7-8]。我国60岁以上痴呆患者人数已达1 507万,MCI患者约3 877万,占全球认知功能障碍患者的25%,为世界之最[9]。约11%高血压患者会出现认知功能障碍[10],18.5%老年糖尿病患者合并MCI[9],在精神类疾病中,超过75%精神分裂症患者合并认知功能障碍[11]。因此,在一定程度上控制认知功能障碍的进展、减少由此带来的伤害具有重大的现实意义。

目前,认知功能障碍治疗药物主要以胆碱酯酶抑制剂和*N*-甲基-*D*-天冬氨酸受体拮抗剂为主,也有新研发药物(如Aβ单克隆抗体类药物)[12],但主要针对痴呆期患者,且药物治疗的依赖性高、部分患者对药物毒副作用反应大、疗效欠佳,因此越来越多研究将重点转向非药物治疗。近年来,针对认知功能障碍非药物治疗的研究有增加趋势,针对某一类型的非药物治疗方式进行指导的专家共识和指南也陆续发表,如认知训练[13]、运动训练[14]等,为认知功能障碍的诊断、预防、治疗和管理提供了有效的补充手段。因此,为进一步推动各级医疗及管理机构和临床工作者对认知功能障碍非药物治疗的认知和重视程度,为认知功能障碍患者提供更多元、有效的治疗手段以及规范化的管理,经国家重点研发计划项目《中国老年人常见运动、认知功能障碍评测及个性化干预前沿技术研究》(2023YFC3603

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800)项目组一致讨论,由首都医科大学附属北京康复医院牵头成立撰写委员会,共同制定《认知功能障碍疾病非药物干预中国专家共识(2025版)》。

1 共识制订方法学

1.1 共识专家组成员

本共识制定由首都医科大学附属北京康复医院发起,组织来自医疗机构、科研院所、监管部门及产业界从事神经病学、精神病学、认知神经科学、心理学研究等领域的51位专家,结合我国目前认知功能障碍治疗的实际情况,对目前已发表的认知功能障碍非药物干预研究进行系统梳理和评价,最终纳入206篇循证医学证据,涉及神经调控、运动训练、认知训练、饮食干预、社会/心理治疗、中医疗法等非药物治疗方式,经过多次专家讨论后于2025年4月定稿。

1.2 共识目的及适用人群

本共识旨在为康复医学科、神经科、老年科、全科医学、健康管理等相关科室提供更科学、全面的认知功能障碍防治策略和视角,有望改善患者的预后,减轻患者及其家庭,乃至全社会的负担。

本共识适用于指导各级医疗及管理机构组织开展认知功能障碍疾病防治工作。共识的使用者包括但不限于各级医疗机构参与认知功能障碍相关疾病的预防、治疗及管理的医护人员。

1.3 文献检索策略

本共识检索数据库包括PubMed、Web of Science(SCIE、SSCI)和EMbase等外文数据库以及中国知网、万方数据等中文数据库。检索时间范围均选择为2015年1月1日—2024年12月31日。

1.3.1 PubMed检索策略

1.3.3.1 认知功能障碍检索策略 ① 医学主题词:包括cognitive dysfunction、postoperative cognitive complications、cognition disorders。② 自由词检索词:包括cognitive impairment、dementia、delirium、MCI、cognitive decline、mental deterioration、cognitive complaints、cognitive deficiency、cognitive deficit、cognitive difficulties、cognitive disability、cognitive impairment、cognitive disturbance、cognitive problems、neurocognitive disorder、response interference。

1.3.3.2 非药物干预检索策略 ① 自由词检索词:包括non-drug treatments、non-drug interventions、non-drug therapies、non-pharmacological treatments、non-pharmacological interventions、non-pharmacological therapies。② 非药物干预方法检索词:包括Yoga、exercise、Tai Ji、aerobic exercise、physical training、dance movement therapy、cognitive behavioral therapy、cognitive training、paper language tasks、spaced retrieval training、errorless learning、fasting、antioxidants、ketogenic-diet、nutrition diet supplements、gastrointestinal health、nicotinic acid supplementation、animal assisted therapy、individualised social activities、reminiscence therapy、movement music therapy、Chinese calligraphy、doll therapy、psychological、psychosocial、stress reduction、mindfulness、traditional Chinese medicine、sleep hygiene、oxygen inhalation therapy、hyperbaric oxygenation、occupational therapy、life style、music therapy、aromatherapy、acupressure、detoxification hormonal health、hydrogen therapy、cognitive telerehabilitation、information technology、communication technology、massage therapy、sensory gardens、horticultural activities、validation therapy、simulated presence therapy、behavioral management techniques、special care units、supportive dining environment interventions、sound、light、electricity、transcranial direct current stimulation、transcranial magnetic stimulation、deep brain stimulation、Vagus nerve stimulation、phototherapy、multilingualism、snoezelen multisensory。在检索结果中筛选随机对照试验和综述。

1.3.2 Web of Science检索策略 认知功能障碍、非药物治疗及干预的检索词同"1.3.1"项,检索结果中筛选相同时间点的Article和Review Article。

1.3.3 EMbase检索策略 认知功能障碍、非药物治疗及干预的检索词同"1.3.1"项,筛选出相同时间点的随机对照试验和综述。

1.3.4 中国知网检索策略 主题为"认知功能障碍",来源类别为"北大中文核心、CSCD",研究层次是"技术研究-临床研究",从结果中人工筛选出"非药物干预"临床试验和综述的期刊论文。

1.3.5 万方数据库检索策略 主题为"认知功能障碍"AND主题为"临床",学科分类为"医药、卫生",核心为"北大中文核心、CSCD",从结果中人工筛选出"非药物干预"临床试验和综述的期刊论文。

对检索出的外文献采用R语言进行文献去重复处理,去重后的数据包括Web of Science数据库16 510篇,PubMed数据库7 771篇,EMbase数据库

2 914篇。检索出的中文文献共计123篇。对上述数据进行人工筛选,共筛选出与本研究密切相关的高质量文献206篇进行深入分析。

2 非药物干预方法

2.1 神经调控

神经调控技术是利用植入式和非植入式技术,采用多种手段改变神经系统活性,从而改善患者症状的治疗手段。现已经广泛应用于康复领域,尤其是神经系统疾病的康复,如认知功能障碍、运动障碍、情感障碍、言语及吞咽障碍等。

2.1.1 经颅直流电刺激 经颅直流电刺激(transcranial direct current stimulation,tDCS)是采用恒定、低强度直流电调节大脑皮层,通过影响膜电位和脑内电位来调节神经元活动;阳极tDCS能够兴奋神经元,而阴极tDCS能抑制神经元兴奋性[15];双极tDCS一般是将2个阳极分别放置在主要运动皮层和背外侧前额叶皮层2个区域[16]。tDCS治疗能够明显提高阿尔茨海默病(Alzheimer's disease,AD)、帕金森病(Parkinson's disease,PD)、老年抑郁症患者的整体认知能力[17-20];精神分裂症患者的工作记忆力[21]、处理信息能力[22]、注意力和社会认知能力[23];非临床精神病患者(存在精神症状但尚未达到精神病程度者)、PD患者的学习速度和执行水平[19,24];轻中度老年抑郁症患者的视觉空间记忆、视觉空间处理能力[25]、语言流畅性[20]。但tDCS治疗对老年抑郁症患者的注意力和执行力改善不明显[20,25];对重度抑郁症患者的认知能力基本无益[26]。目前推荐的参数如下:tDCS治疗阳极主要置于大脑左背外侧前额叶皮层,其次可置于颞叶和小脑;阴极置于大脑右背外侧前额叶皮层、对侧眶上缘、颞顶联合区、右侧三角肌。tDCS治疗的电流强度1~2 mA,单次治疗时长20~30 min,以2~6周为1个疗程。

2.1.2 重复经颅磁刺激 重复经颅磁刺激(repetitive transcranial magnetic stimulation,rTMS)是利用脉冲磁场作用于中枢神经系统,通过调节神经网络中相关神经元的兴奋性,纠正神经网络中神经元间的兴奋性失衡,达到新的平衡。低频rTMS(频率≤1 Hz)对神经主要起到抑制作用;而高频rTMS(频率>1 Hz),尤其是10或20 Hz对神经主要起到兴奋作用[16,27-28]。rTMS单独使用能够明显改善AD患者的整体认知功能[29-30],也能提高脑卒中后认知功能障碍(post-stroke cognitive impairment,PSCI)患者的注意力和记忆力[31],且多靶点刺激要优于单靶点刺激,20 Hz刺激优于10 Hz和1 Hz[27]。与tDCS比较,rTMS在改善AD整体认知功能方面更有效[32]。rTMS联合认知功能训练能够提高PSCI患者整体认知能力、执行力和工作记忆力[33];rTMS联合家庭干预能够改善精神分裂症患者多个认知领域,如处理速度、注意力/警觉性、工作记忆、推理和解决问题等[28]。目前推荐的参数如下:rTMS的作用位点为大脑左背外侧前额叶皮层和小脑,使用频率以20、10、5 Hz为主,单次治疗时长20 min,以2~12周为1个疗程。

间歇性θ波爆发式磁刺激(intermittent theta burst stimulation,iTBS)是rTMS的一种特殊形式,主要作用机制是通过提高大脑皮层兴奋性,从而影响脑功能活动和神经网络传输。与传统rTMS比较,iTBS的优势在于能够利用较低的刺激强度、较短的时间诱导出大脑皮层的兴奋性。iTBS能够明显提高PSCI、PD患者的整体认知功能,尤其是注意力、记忆力和视觉感知能力[34-35];老年抑郁症患者的执行能力,包括排序、组织、解决问题、规划、使用策略等能力[36-37]。目前推荐的参数如下:iTBS的作用位点为大脑左背外侧前额叶皮层或大脑双背外侧前额叶皮层;丛内频率50 Hz,丛间频率5 Hz,刺激时间2 s,间歇时间8 s,重复次数20次,每次刺激脉冲数600个,每次持续时间约190 s,刺激强度最大为静息运动阈值的120%,一般以4周共20次为1个疗程。

iTBS治疗多数情况下无明显毒副作用[34,38-39],但有文献报道iTBS治疗有65%以上的头痛率,可能与刺激强度快速达到静息运动阈值的120%、使用设备线圈直径较大有关[36-37],通常无需治疗,能够自行缓解。

此外,有证据表明,将特定频率正弦波形经颅交流电刺激用于目标脑区,能改善痴呆患者认知功能[40]。

2.2 运动训练

运动训练能够改善认知功能或降低痴呆风险,运动训练的形式多样,以有氧运动训练和抗阻训练为主,或结合其他任务的双重或多重干预。

2.2.1 有氧运动训练 有氧运动是运动训练最常用的任务形式,也包括我国太极拳、八段锦等特殊有氧运动形式。即使仅持续2周的短期训练也可以改善PSCI患者的工作记忆、视空间能力、执行功能和延迟记忆能力[41],更长时间的训练对多种疾病,如主观认知功能障碍、PSCI、精神疾病、多发性硬化

(multiple sclerosis,MS)、肿瘤导致的认知功能障碍均有改善[42-48],也可以提升延迟记忆能力[49]和语言学习能力[50]。有氧运动疗程持续时间多在2～54周,其中以12周最多。目前认为持续12周以上中等强度的有氧运动值得推荐。

2.2.2 抗阻训练 抗阻训练能够改善MCI和MS患者的认知功能[51-52],并可以加速术后认知功能障碍患者的认知功能恢复[53]。即使无认知功能障碍的健康老年人同样可以获益,其延迟性言语记忆能力也可得到改善[54]。抗阻训练持续时间常在6～12周。目前认为持续8周以上中等强度的抗阻训练值得推荐。

2.2.3 有氧-抗阻混合运动训练 有氧-抗阻混合运动训练可使认知功能障碍患者在认知能力、抑郁、疲劳状态和生活质量等多方面得到改善[49,55],尤其1年期的长期训练可以明显改善PSCI患者执行功能[56]。

2.2.4 运动联合其他任务的干预 除了单独运动训练,与其他任务联合的多因素干预也值得关注。认知-运动双重任务训练可以改善MCI及PSCI患者的认知功能[57-58],且较单一的认知训练在认知能力、独立生活技能、肌肉耐力、心血管健康方面获益更多[59];运动-认知-营养三重联合干预可以改善健康老年人的认知功能[60]。目前认为在条件允许情况下,混合不同运动形式和其他干预因素的多重任务训练模式值得推荐。

虽然运动训练获益得到越来越多的证据支持,但仍有少数Meta研究对此存疑[61-64],亟需通过更严谨的试验设计获得更权威结论。在研究人群方面,目前研究主要集中于痴呆前阶段,对痴呆患者的研究较为缺乏;运动训练时间局限在1年以内,因此干预时间更长的研究值得期待;不同运动干预形式间效应强弱的比较研究仍然较少[65],导致对运动强度和形式缺乏统一标准规范,理论依据不足,亟需定量化、数字化的运动评价标准和方法;在联合干预效应方面,虽然有不支持双重干预协同效果的研究[66],但多数研究发现联合运动训练的干预策略可以提高主干预效应。

2.3 认知训练

认知训练是指基于系统设计的干预任务,针对注意、记忆、执行功能、逻辑推理等认知域和认知加工过程展开训练,以提升认知功能和认知储备[67]。认知训练实施的方式包括传统纸笔训练、计算机化训练或个性化训练(以虚拟现实、可穿戴装备为载体,融合人工智能算法为患者提供基于视频、生物反馈等多种方式的训练)[68]。

2.3.1 传统纸笔训练 基于传统认知刺激治疗痴呆人群的研究结果显示,1 h/次、5次/周、持续8周的认知刺激可明显改善患者的整体认知功能和行为症状[69]。2次/周、持续15周的传统纸笔训练对痴呆人群的语言流畅性、加工速度、执行功能均有明显效果,且在日常生活活动能力的迁移方面更有优势[70]。

2.3.2 计算机化认知训练 计算机化认知训练可改善健康老年人、SCD患者认知功能[71-72]。30 min/次、5次/周、持续7周的自适应多认知域计算机认知训练可以有效提升非痴呆型血管性认知功能障碍患者和遗忘型认知功能障碍患者的认知功能,并明显增强脑网络功能连接[73-74]。计算机化认知训练可提高痴呆患者的认知功能和降低焦虑状态[75];提升PD患者的整体认知功能、工作记忆、加工速度和执行功能[76];也可以改善精神分裂症患者的注意力、工作记忆和执行功能[77]。

在干预剂量研究方面,一项8 709例大样本回顾性队列研究发现,计算机化自适应认知训练的最佳训练时间为6 d/周,60岁以下人群最佳训练时长为25～30 min/d,60岁及以上人群最佳训练时长为50～55 min/d[78]。

2.3.3 个性化训练 结合虚拟现实技术的认知训练对MCI和AD患者的日常生活活动能力和工具性日常生活活动能力均有明显改善效果,且对AD患者的改善效果更好,也可以维持MCI患者的工作记忆能力,降低认知功能退化率[79]。

2.4 饮食干预

合理的营养和良好的饮食结构对预防和治疗认知功能障碍有积极的作用。

2.4.1 地中海饮食 地中海饮食是世界卫生组织发布的《降低认知障碍和痴呆症风险指南》中推荐的一种饮食模式,该模式的特点是强调使用橄榄油作为主要的脂肪来源,并摄入丰富的水果、蔬菜、全谷物、健康脂肪,并辅以适量鱼类、禽肉、豆类、坚果和种子。研究表明,地中海饮食与认知功能明显相关,可降低痴呆的发生率[80]。6个月干预治疗可明显提升MCI患者的语言记忆和执行能力[81],长期坚持(≥2年)效果更明确[82]。

2.4.2 生酮饮食 生酮饮食是一种低碳水化合物、

中等蛋白质和高脂肪的饮食,其与老年AD患者的认知功能改善有关,效果取决于酮症的程度和持续时间,并且在AD早期阶段使用效果最佳[83]。但是,生酮饮食可能会导致微量元素缺乏等营养不良。

2.4.3 阻止高血压的饮食模式 阻止高血压的饮食模式(dietary approaches to stop hypertension,DASH)强调摄入富含水果、蔬菜、全谷物、低脂奶制品和瘦肉的均衡饮食,限制高盐、高脂肪和高糖食物,已被证实具有改善认知功能方面的潜力[84-85]。目前推荐采用6个月或者更长时间的DASH。

2.5 社会心理治疗

社会心理治疗是通过结合个人的心理和社会因素,帮助患者更好地理解自己的问题,学会更有效的应对策略,提高生活质量,实现个人成长和发展,其方法多种多样,可以根据治疗目标、患者需求和治疗背景进行选择和调整。

2.5.1 心理疗法 以正念为主的心理疗法可以降低SCD和MCI患者的焦虑、压力,提高生活质量[86],并减少痴呆患者的抑郁症状[87],在治疗广泛性焦虑障碍和预防抑郁症复发方面效果明显[88-89]。

2.5.2 音乐运动训练 单次时长1 h、持续12周使用乐器进行重复、有节奏的音乐运动训练,可以激活老年人的前额叶皮质,并改善老年MCI患者的认知表现[90]。

2.5.3 书法训练 以小组形式开展单次时长1.5 h、持续8周的中国书法写作训练对MCI患者的工作记忆和注意力控制功能有一定的改善作用[91]。

2.5.4 音乐疗法 音乐疗法可明显改善痴呆患者的认知能力、生活质量和神经精神症状[92];也可以提高精神分裂症患者的注意力、执行功能、语言、记忆力和处理速度[93]。

2.5.5 动物辅助治疗 动物辅助治疗可以明显减少痴呆患者以抑郁症状为主的痴呆行为和心理行为症状[94]。

2.5.6 玩偶疗法 玩偶疗法可以有效减少老年痴呆患者的心理行为症状,降低照顾者的痛苦[95],并改善AD患者的精神和认知状态、生活质量[96]。

2.5.7 回忆疗法 回忆疗法可以提高痴呆患者的认知功能和生活质量,减少抑郁和神经精神症状[97]。

2.6 中医疗法

2.6.1 针灸推拿治疗 针灸通过刺激穴位、激活经络,能够起到调整机体气血阴阳作用,常用的针灸治疗包括头针、眼针、温针灸、督脉针灸以及经皮穴位电刺激疗法(transcutaneous electric acupoint stimulation,TEAS)。推拿手法作用于特定穴位和部位,能够疏通经络、调节脏腑。督脉针灸、眼针、头针配合认知训练能够提高PSCI患者的认知功能[98-99]。单用针灸或颈部夹脊穴针灸配合足太阳膀胱经和督脉一指禅治疗能够提高SCD患者认知功能、记忆能力,增加海马体积和神经网络联系[100-101]。单用推拿手法可明显提高脑卒中后抑郁患者的认知功能[102]。术前1 d至术后3 d,TEAS治疗能够提高老年患者整体认知、定向力、记忆力、短期回忆力,并且能够降低术后认知功能障碍的发生率[103]。目前推荐针灸治疗疗程6周、推拿治疗疗程2~4周,20~30 min/次,配合认知训练疗效更佳。电针治疗推荐参数如下:采用疏密波、2/100 Hz、电流<10 mA。常用的穴位包括百会、大椎、印堂、神庭、风池、风府、水沟等。

2.6.2 气功练习 气功练习能够提高久坐年轻女性的认知功能[104];健康中年人群的注意力、脑反应速度[105];认知功能障碍患者的整体认知功能,包括记忆力、语言能力、执行功能、视觉空间能力、日常解决问题能力[106-108]。8周以上的气功练习值得推荐。

2.7 其他疗法

认知功能障碍的其他治疗方法还包括高压氧、减重和光照等疗法。高压氧是通过增加脑组织氧供的作用,明显改善血管性痴呆[109]。针对AD和MCI患者,推荐40 min/d、持续20 d的高压氧治疗,可在短期内改善认知功能[110]。减重能够改善超重和肥胖人群的注意力、记忆力、执行功能和言语功能等认知能力,中国老年人的身体质量指数维持25.5 kg/m^{2}时,认知功能障碍风险最低[111],其机制未来仍需进一步明确[112]。光照治疗能够补偿患者视觉感觉输入,调节昼夜节律,改善患者的认知功能[113]。持续4周每日清晨50 min/次、500 nm的蓝绿光照治疗可改善具有AD风险的中老年人的认知功能[114]。

3 小 结

随着人口老龄化的加剧,认知功能障碍已成为全球公共卫生的重要挑战。非药物治疗作为认知功能障碍干预体系的重要发展方向,凭借其安全性、个体化及多靶点调控的优势,逐渐成为临床实践与研究的焦点。

本共识对认知功能障碍非药物干预相关的循证证据与实践经验进行了系统梳理，发现神经调控、运动训练和认知训练是认知功能障碍治疗的主要非药物手段，饮食干预、社会心理治疗也越来越多地被应用于改善认知功能障碍症状的临床研究中，且不同干预手段结合具有协同增效潜力。人工智能技术创新驱动下出现的认知数字疗法，能够基于患者病因、病程阶段及功能保留特征制定分层认知训练干预方案，借助可穿戴设备监测及人工智能辅助诊疗系统的应用，均为认知功能障碍治疗的精准化与居家化提供了新路径。此外，中医疗法（针灸、推拿和气功疗法等）在改善认知功能表现出独特优势，但还需通过更多的研究手段阐明其科学内涵，扩大影响力。

由于部分干预手段的长期疗效证据不足，且缺乏针对不同亚型认知功能障碍的个性化方案，本共识内容仅作为该领域的阶段性认识，仅代表参与编写和讨论专家的观点，后续将会根据最新的临床证据进行补充更新。

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Chinese Expert Consensus on Non-Pharmacological Interventions for Cognitive Impairment (2025 Edition)

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ABSTRACT With the acceleration of population aging, cognitive dysfunction-related diseases have emerged as significant public health questions to the health of China's elderly population. There is an urgent clinical need to expedite the development of an evidence-based and accessible non-pharmacological intervention system for cognitive dysfunction. The consensus encompasses neuromodulation techniques [transcranial direct current stimulation (tDCS), repetitive transcranial magnetic stimulation (rTMS)], exercise interventions (aerobic exercise, resistance training, combined aerobic-resistance training, and integrated task-based interventions), cognitive training (conventional paper-and-pencil training, computer-assisted cognitive training, and tailored training), dietary interventions (Mediterranean diet, ketogenic diet, and dietary approaches to stop hypertension), psychosocial therapies (psychotherapy, music and movement therapy, calligraphy training, music therapy, animal-assisted therapy, doll therapy, and reminiscence therapy), and traditional Chinese medicine therapies (acupuncture, tuina massage, and Qigong) as non-pharmacological interventions for cognitive dysfunction. It aims to enhance the recognition and attention to non-pharmacological treatment of cognitive dysfunction in medical and management institutions at all levels, providing patients with more diverse and effective therapeutic options as well as standardized management.

KEY WORDS cognitive dysfunction; non-pharmacological interventions; neuromodulation; cognitive training; expert consensus
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