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Traditional Medicine Treatment for Alzheimer's

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Abstract

Alzheimer's disease (AD) is one of the most common conditions in elderly people with a high prevalence of dementia at roughly 60 – 80. The pathogenesis of AD was relatively complicated and presently there's no unified conclusion in the academic community, so no efficiently clinical treatment is available. In recent years, with the development of traditional Chinese drug (TCM), experimenters have proposed the idea of relying on TCM to prevent and treat AD based on the specific of multiple targets of TCM. This study reviewed the pathological thesis of AD and the implicit biomarkers set up in the current researches. And the implicit targets of berberine and evodiamine from Evodia rutaecarpa in AD were summarized and further anatomized. A emulsion- targets- pathway network was carried out to clarify the medium of action of berberine and evodiamine for AD. Likewise, the limitations of current inquiries on the TCM and AD were discussed. It's hoped that this review will give some references for development of TCM in the prevention and treatment of AD.

Keywords: Alzheimer's complaint; Oriental herbal drug; Herbal formulae; madness

Introduction

Traditional Chinese drugs have been extensively delved for the treatment of Alzheimer's disease(AD) because none of the current therapies either the cholinesterase impediments or antagonist of N- methyl- d- aspartate receptors has profound effects on halting the progression of AD [1]. In recent times, scientists have insulated numerous active composites from herbs, which can palliate dementia and neurodegenerative pattern with smaller side goods than conventional medicines and, therefore, are regarded as promising drug candidates for announcement remedy. In this review, we summarize the rearmost exploration progress on six herbs for announcement remedy- Huperzia serrata, Amaryllidaceae family, Ginkgo biloba, Uncaria rhynchophylla, Polygala tenuifolia, and Salvia officinalis- and concentrate on the analysis of their active factors and possible mechanisms of pharmacological conduct on AD [2].

Alzheimer's complaint (AD), the most major cause of dementia, is a progressive neurodegenerative complaint involving characteristic pathologic changes, including the accumulation of β- amyloid(Aβ) and neurofibrillary tangles(NFT) [3]. AD results in ruinous health-related consequences, similar as profitable burden, dropped quality of life for the cases and their caregivers and social problems [4]. Because the number of AD cases continues to grow, numerous pharmacological and non-pharmacological interventions to ameliorate the symptoms as well as meliorate the pathologic changes of AD have been delved. These interventions directly target acetyl cholinesterase (pang), Aβ peptide, or tau proteins [5] and/ or modulate the signalling pathways underpinning Aβ oligomer conformation, tau hyper phosphorylation, or other announcement- related pathologies, similar as inflammation, oxidative stress and bloodied adult neurogenesis [6]. Presently, only symptom- relieving medicines, similar as pain inhibitors (donepezil, galantine and rivastigmine) and N- methyl D- aspartate (NMDA) receptor blocker (memantine), have been approved for use by the Food and Drug Administration (FDA). Also, despite on-going preclinical/ clinical trials, no cure for AD has been developed [7].

Based on the lack of complaint- modifying drugs for AD, traditional drugs, similar as natural herbal products, have been used to enhance treatment of the symptoms and pathologic processes of AD. Traditional Oriental drugs (TOMs), including herbs, from East

Asian countries have long been used to treat the symptoms of madness [8]. Recent studies have revealed that the pharmacologic composites in TOMs have potent remedial goods in announcement. Still, these studies have substantially concentrated on TOM composites or constituents. Indeed, the formulae of traditional drugs from East Asian countries, including China, Korea and Japan, generally correspond of multiple sauces [9]. Also, the formulae of traditional drugs from East Asian countries conforming of the same herbs can differ considerably. Therefore, the goods of fusions of standardized formulae of TOMs need to be evaluated [10].

Inflammation in neurons is also considered an important factor in the development of AD. Microglia and astrocytes are two major glial cell types in the pathogenesis of AD Microglia cells are immune effector cells of central nervous system (CNS) and play an important part in the vulnerable response [11]. Astrocytes are the most abundant glial cells in the CNS. They can regulate the pH value, ion homeostasis, oxidative stress and blood inflow, perform fine control of the environment, and give nutritive and metabolic support for neurons. Glial cells are highly heterogeneous [12], and their activation can cover the brain by responding quickly to brain injury. Still, unbridled and prolonged activation would have the contrary effect. In this case, microglia acquires apro-inflammatory phenotype [13]. The release ofpro-inflammatory motes, reactive oxygen species (ROS), and nitric oxide will beget neuronal death. The pathways of the excrescence necrosis factor (TNF, inflammatory factor) have been well studied. TNF generally circulates in the blood, enters the ventricle by passing through the blood- brain hedge(BBB), and affects original cells through excrescence necrosis factor receptor, causing activation of the c- Jun N-terminal kinase pathway and nuclear factor κ- light- chain- enhancer of activated B-

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cell(NFκB) waterfall and leading to increased TNF product [14]. also, TNF can increase glycogen synthase kinase 3β(GSK- 3β) by acting on phosphoinositide 3- kinases(PI3K) and mitogen- actuated protein kinases(MAPK), leading to amyloid deposit. Other studies have also demonstrated that TNF- α can increase the phosphorylation of active protein 1 as a catalyst, an exertion that's directly related to P- Tau. Also, amyloid β can activate NADPH oxidase to enhance the product of ROS in astrocytes [15]; leading to mitochondrial dysfunction and astrocytes consumption numerous researchers believe that this interaction between the CNS inflammatory response and amyloid protein is the core of AD.

Discussion

TCM plays a crucial part in numerous diseases and at various molecular situations. Multiherb formulas, rather than single herbs, are common in TCM drug. Each condiment in a formula has a specific part, including autonomous, minister, adjunct, and courier. Still, many studies have been conducted on whether there will be toxin and side goods after mixed administration. In addition, utmost TCMs acted as precursor medicines, which will present a series of metabolic responses, including hydrolysis, oxidation and sulfonylation after immersion. And medicine responses are frequently largely variable and greatly told by an existent's capability to metabolize. Thus, identification and evaluation of efficacity and toxin of metabolites were relatively important for application of TCMs. TCM is generally taken by oral administration, but the target of the complaint is distributed throughout the whole body, especially for the brain complaint of AD. The distribution of TCMs after administration, similar as whether they can pass through the BBB, is good to study. Fortunately, nano-drug delivery systems have come a exploration hotspot in the field of medicine delivery in recent times. Nano-carriers can be designed into different sizes, shapes and face charges, and their penetration and targeting abilities can be enhanced through revision. thus, the nano-medicine delivery system has come the most promising means to reach the target point through the BBB for the treatment of AD.

Conclusions

TCM has a long history of treating neurodegenerative conditions, and the composition and medium of some TCMs have gradually been proven. This review epitomized several pathogenic mechanisms and implicit biomarkers of AD, as well as the pharmacological efficacity and medium of action of berberine and evodiamine fromE. rutaecarpa for AD. Also, the limitations of current studies on AD and TCM were also bandied; the medicine metabolism, model beast and experimental period should be considered. The review lays a foundation for the posterior expansion of remedial targets of AD and could promote the development of effective disease- modifying TCM monomers or extracts.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Brooks LRK, Mias GI (2019) Data-driven analysis of age, sex, and tissue effects on gene expression variability in Alzheimer's disease. Front Neurosci 13:392.

2. Feng L, Liao YT, He JC, Xie CL, Chen SY, et al. (2018) Plasma long non-coding RNA BACE1 as a novel biomarker for diagnosis of Alzheimer disease. BMC Neurol 18:4.

3. Atri A (2019) Current and future treatments in Alzheimer's disease. Semin Neurol 39:227–40.

4. Goedert M, Spillantini MG (2017) Propagation of Tau aggregates. Mol Brain 10:18.

5. Steardo L Jr, Bronzuoli MR, Iacomino A, Esposito G, Steardo L, et al. (2015) Does neuroinflammation turn on the flame in Alzheimer's disease?Focus on astrocytes. Front Neurosci 9:259.

6. Iadecola C, Nedergaard M (2007) Glial regulation of the cerebral microvasculature. Nat Neurosci 10:1369–76.

7. Luc M, Wozniak M, Helemejko M, Rymaszewska J(2019)Tackling Alzheimer's disease: Hypothetical synergism between anti-inflammatory and anti-diabetic agents. Life Sci. 2019.

8. Lezi E, Swerdlow RH (2012) Mitochondria in neurodegeneration. Adv Exp Med Biol 942:269–86.

9. Standridge JB (2006) Vicious cycles within the neuropath physiologic mechanisms of Alzheimer's disease. Curr Alzheimer Res 3:95–108.

10. Edison P, Donat CK, Sastre M (2018) In vivo imaging of glial activation in Alzheimer's disease. Front Neurol 9:625.

11. Knopman DS, Petersen RC, Cha RH (2006) Incidence and causes of nondegenerative nonvascular dementia: a population-based study. Arch Neurol 63: 218-221.

12. Sasaki H, Ishii K, Kono AK (2007) Cerebral perfusion pattern of idiopathic normal pressure hydrocephalus studied by SPECT and statistical brain mapping. Ann Nucl Med 21: 39-45.

13. Jarrell JT, Gao L, Cohen DS, Huang X (2018) Network Medicine for Alzheimer's Disease and Traditional Chinese Medicine. Molecules 11: 1143.

14. Liu J, Wang LN (2020) Neurogenic dysphagia in traditional Chinese medicine. Brain Behav 10: e01812.

15. Liu J, Wang LN, Tian JZ (2012) Recognition of dementia in ancient China. Neurobiol Aging 33: 11-3.