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Depression and Alzheimer's Disease: Loss of Control and Communication

Yixin Yang[1,a,*]

[1]*Shanghai Shangde Experimental School, Shanghai, 201315, China*
a. jaguar_yang@163.com
**corresponding author*

Abstract: This work describes depression, Alzheimer's disease, and the relationship between the two in terms of pathology and psychology, and the harm that can be caused to the patient by these conditions. In addition, this article also describes how difficult it is for researchers to distinguish the symptoms of depression in Alzheimer's patients, and how depression is treated in Alzheimer's patients. From this work, we can find it is very difficult to simply abstract the depressive symptoms from the symptoms of Alzheimer's disease, and it is difficult for us to simply distinguish whether an Alzheimer's patient is suffering from depression from a behavioral point of view, and to take the corresponding treatment.

Keywords: Depression, Alzheimer's disease, symptoms

1. Introduction

Alzheimer's disease is a very common topic in terms of neurodegenerative disease. Patients with Alzheimer often show a symptom of progressively deteriorating memory, which is associated with some psychiatric disturbances [1]. The general explanation of symptoms of Alzheimer's disease is inability to form short-term memory but long-term memory. The annual cases of Alzheimer's disease are over 360000 and keep increasing tremendously [2,3]. Today, the causes of Alzheimer remain a mystery. Most of people believe that the main risk factor for Alzheimer's disease is age as individuals who are over 85 years old have 8.4% chance to contract Alzheimer's disease [1]. Plus, the other factors in terms of family history of dementia, head trauma, and inheritance might also play a role as causes of Alzheimer's disease. However, it cannot be ruled out that it is a brain lesion caused by specific genes in a person's body, as Alzheimer's disease can also be transmitted genetically. It's still causing further or continuous neural disease in themselves and considerable pressure on their families until patients die. Most patients with Alzheimer's disease might die because of their inability to care for themselves and complications. For their parents, they must need face to tremendous pressure as they have to take care on the patients.

Depression is also a widely discussed topic in the areas of psychology, biology, and neuroscience. Different researchers from different fields would explain depression differently. For instance, behavioral psychologists would explain depression as individuals exhibiting behaviors such as loss of interest and even suicide. Neuroscientists, on the other hand, would explain depression as an individual's emotional dysregulation caused by the lack of serotonin in the brain. Basically or generally, depression refers to a state or condition of mood. Individuals with 'depression' or 'depressed' suffer from a low mood, or 'press down' [4]. Plus, depression will also be characterized

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by a loss of happiness or interest on some activity that individuals used to enjoy, worthlessness, a lack of concentration, a sleep bottleneck, and reduced arousal. The causes of depression are both the external environment and the internal status. Externally, a huge range of life experiences and issues such as addiction, pressure, trauma, or anxiety may be contributors to depression [5]. Internally, depression could be inheritable, like Alzheimer's disease, and depression also could be transmitted genetically. The symptoms of depression make it a disorder, as it makes patients feel negative physically, chemically, and psychologically. It also may cause hallucination or Somatization. Depression would predominantly be defined as a primary mental disorder by the Western mental health system [6]. The general treatment of disorders is the consumption of SSRI, the drugs that improve the serotonin levels of individuals.

90% of individuals with Alzheimer's disease are affected by psychiatric disturbances [7-11]. These disturbances might be non-cognitive and hard to distinguish as the symptom of Alzheimer's disease also show some similarities with depression, such as inability of cognition and non-active communication. When psychiatric disturbances take place, there are several different forms of symptom, including hallucination, insomnia, aggression and depression. The U.S. population sample proves that 24% of individuals with dementia are suffered from depression which is very common for them [12]. In order to better take care of patients with Alzheimer, it is important to learn how psychological states affect them.

2. Depression and Alzheimer

Depression and Alzheimer look to have a very strong layer of correlation. Depression is very common among patients with Alzheimer's [2,3]. There is a huge rate of depression in the population with Alzheimer's in the U.S [13]. The major consequence of depression through Alzheimer disease is lower life quality and less control of themselves. The evidence of the presence of depression in Alzheimer's patients is the drugs of anti-psychotics can resolve some of the mental symptoms of them. Not only depression but also others. Although there are still different arguments regarding the psychological disease of Alzheimer's patients, most researchers recognize the seriousness of the psychotics' problem on them and try to ensure there are some solutions to these psychotics.

Depression is one of the first symptoms of Alzheimer's disease. Mild cognitive impairment, which is also a symptom of depression, can also be considered as a determination between general aging and Alzheimer's disease [14]. In 2002, Lyketsos & Olin states that there is no direct correlation between Alzheimer's disease and depression, which means patients may not be depressed because they recognized they have Alzheimer disease, but the neuropathological features of Alzheimer's disease show an impact on the psychological state of patients, biologically [15]. For instance, there is a reduction of noradrenergic cells and dorsal raphe serotonergic nuclei selectively from the coeruleus of the brain [16,17]. This neuropathological difference may cause depression in Alzheimer's patients, as they are biologically much more likely to get the mental disease with less production of hormone which prevent people from getting depression. However, as the current understanding regarding neurodegenerative disease is increasingly mature, patients may also be easier to be depressed when they initially act like Alzheimer's disease patients. That's basically because of the biological difference between health person and patients with Alzheimer's disease.

Basically, there are different stages of Alzheimer's disease. Initially, patients may feel anxious as they recognized they are getting an uncontrollable, continuously worsening neurodegenerative disease which would make them gradually lose all functioning and memorization of their brain and their life. Nowadays technology also can do nothing with this. Without any solution to disease, individuals will easily be exposed to a worse mental condition and therefore have a higher probability face to negative emotion such as depression or anxious. In the later stage, the patients will not only

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suffer from depression coming from lack of control of normal life and over-dependence on the family members of patients but also the neuropathological change in the brain.

Overall, although there is no very strong separation of depression or Alzheimer's disease on the individual based on experimental data, the numerical or quantitative data still show a moderate correlation between depression and Alzheimer's disease.

3. Difficulty of Detecting Depression in Alzheimer

The detection of depression in Alzheimer is not simple and straightforward. The reasons both coming from depression and Alzheimer themselves. To begin with, there are a very various symptom of depression, including communication problems, instability of emotion, insomnia, apathy and extra. These symptoms will both occur on depressed or non-depressed individuals. Plus, Many of the symptoms will also happen on patients with dementia and Alzheimer's disease [18]. Therefore, without a conclusive factor or technique to help researchers explain the symptom of Alzheimer's disease and depression separately, no one could directly decide the theory between them. In this way, the most significant overlap symptom between Alzheimer's disease and depression is apathy.

Apathy is a very common complication of Alzheimer's disease because of a degeneration of brain functioning of Alzheimer's disease patients. Their skills of communication and understanding will aggravate. Therefore, patients with Alzheimer's disease will become less willing to communicate or speak with others, that's not only because patients with Alzheimer's disease unwilling to communicate but also because of their inability of communicate. The symptom of apathy also would happen on patients with depression. Based on research in past, there is 56.4% of patients with Alzheimer's disease perform apathy [15]. There are also lots of other symptom that both occurring on depression and Alzheimer's disease patients. Behaviour like loss of interest and psychomotor retardation from Alzheimer's disease also happen on patients with depression. Therefore, it is hard to deal with these symptoms differently [19].

Moreover, there is only a little psychological report from the Alzheimer's disease patients, especially for the elder patients. Most of Alzheimer's disease patients are elder people as one of the main reasons of Alzheimer's disease is aging. By aging, the patients' basic brain function will change and even become useless. Nevertheless, older patients with depression always deny that they are suffered from depression and explain some behaviour with a general loss of interest on some activity [20]. In addition, while Alzheimer's disease keep progression, the symptom caused by depression in these patients may also keep changing as age and environment changed. Finally, the patients with Alzheimer's disease may hard to express themselves as they might undergo aphasia and communication inability. The biological change on brain of patients will cause irreversible change of the ability of Alzheimer's disease patients. As a result, even if patients with Alzheimer's wanted to articulate their state and feel, they would be unable to express themselves because of aphasia and difficulty to speak. In the end, researchers also had to make judgments by observing the patients' behavior which is a very inaccurate approach in science. As human, patients may fraud on their personal feeling or interpret the process of life differently from their own state of being When all factors explained above combine together, it is by no means surprising to see that the general clinical understanding is very hard to form on the relationship or formal theory between depression and Alzheimer's disease, because people cannot simply separate these symptom into two different diseases and therefore explaining their relationship. That's also explains why patients with Alzheimer's disease can not bee easily evaluated as such patients with mental disease. Additionally, there is no universal assessment of how researchers determine depression from Alzheimer's disease patients.

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4. Treatment

Depression in Alzheimer's disease is not merely a psychological response to cognitive decline but is also influenced by biological factors. Both conditions share neurobiological underpinnings, including neurotransmitter imbalances, inflammation, and neurodegeneration. Understanding these common pathways can inform treatment strategies. There are several ways to treat patients with Alzheimer's and become depression.

Firstly, some traditional drugs that are used to treat traditional depression can also be used to treat depression in Alzheimer's disease as well. These treatments include traditional medicine that focuses on depression, behavioral treatment, electroconvulsive therapy or extra [18]. Plus, Antidepressant medications, such as selective serotonin reuptake inhibitors so-called SSRIs or serotonin-norepinephrine reuptake inhibitors so-called SNRIs, are often prescribed to alleviate depressive symptoms in Alzheimer's disease patients, as it can also used in general treatment of depression patients. Nonetheless, careful consideration of potential drug interactions and side effects is essential. Although there are 8 ways already discovered that can help the treatment of depression, through deep discussion and experiment, 5 of them had been reported as no positive impact on the treatment of depression.

Furthermore, cognitive-behavioral therapy (CBT) and supportive psychotherapy can be adapted for Alzheimer's disease patients. These therapies could help individuals identify and manage negative thought patterns and develop coping strategies to improve their mood and quality of life without medical impact. These ways of treatment will have less effect on patients' because of less potential drug side effect that are posed on patients' biological states.

In addition, regular physical activity has been shown to have a positive impact on mood and cognition in Alzheimer's disease patients. Engaging in activities tailored to an individual's abilities and preferences can boost self-esteem and reduce depressive symptoms. Sports or teamwork activities can not only solve the problem of depression in patients, in terms of unlimited sadness of patients which could be solved by sense of achievement and engagement from such creative activity, but also reduce the dis-function and effectiveness lose in brain of patients with Alzheimer's disease and depression. Because the brain's functions are still being used continuously, it is possible to reduce the decline in brain function due to aging.

Plus, encouraging social interactions with family, friends, or support groups can alleviate feelings of isolation and loneliness. Caregivers play a crucial role in facilitating social engagement for Alzheimer's disease patients. This treatment maybe effective for early Alzheimer's disease patients who still retain their skills of communication and thinking.

Overall, there are tremendous numbers of ways that can help patients overcome depression disease. However, the treatment of depression in AD patients is not one-size-fits-all. A holistic approach that considers the unique needs and preferences of each individual is essential. This approach involves collaboration between healthcare professionals, caregivers, and patients themselves to develop a comprehensive treatment plan. Sometimes, drug treatment is inevitable as the biological mechanism of patients has been changed by disease. A suitable combination of drug treatment and behavioral helping is required.

5. Conclusion

To sum up, patients with Alzheimer's disease will have a higher probability of developing depression. That's based on both psychological and neuropathological evidence. As a continuous neural disease, the concomitant symptoms will cause tremendous stress and change for patients. The risk of Alzheimer's disease and depression is very dangerous and needs to be highly understood.

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Furthermore, both Alzheimer's disease and depression included problems in terms of detection: aphasia will cause patients to find it hard to express themselves or be unwilling to.

Depression in Alzheimer's disease patients is a complex and challenging comorbidity that demands a multifaceted approach. Recognizing the interplay between biological and psychosocial factors, healthcare professionals should employ a combination of pharmacological, psychotherapeutic, and lifestyle interventions to improve the well-being of Alzheimer's disease patients. A patient-centered, holistic approach that takes into account individual needs and preferences is essential for successfully treating depression in this vulnerable population.

By addressing depression alongside AD, we can enhance the quality of life for patients, slow cognitive decline, and offer hope and support to individuals and their families facing this challenging journey. Further research is needed to refine treatment strategies and improve our understanding of the intricate relationship between depression and Alzheimer's disease.

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