Medical Biotechnology and Alzheimer's Disease: New Hopes

Alzheimer's Disease (AD), the leading cause of dementia worldwide, is an irreversible progressive neurodegenerative disorder characterized by cognitive impairment and functional disability [1-3]. Devastating nature of AD leads to serious social and economic impacts on the healthcare systems which implies the necessity of its proper management [1-3]. It has been demonstrated that patients' quality of life and their overall prognosis has a significant negative correlation with the severity of AD. Patients with severe AD need full-time care and assistance with some basic activities of daily living such as feeding and dressing in addition to severe deterioration in various domains of their cognitive functioning. Progress to a cure for AD has been hampered by the lack of information about the biology of the disease. The therapies currently approved for Alzheimer's disease work by treating the patients' symptoms, improving their cognitive and overall functions [4-8]. Increasingly, however, experts are intent on slowing or halting the disease process, before it has ravaged patients' brains. A lot of data is being generated on changes in imaging biomarkers before patients really become clinically significantly impaired. For example, there has been a lot of great work done in identifying patients early based on these biomarkers. The current therapeutic market is valued at $3 to $4 billion, shared among drugs that temporarily delay disease progression or address the symptoms but do not alter the underlying disease. Currently, medical biotechnology has brought new hopes in the treatment of Alzheimer's disease. For example one of the ongoing trials is related to bapineuzumab. Bapineuzumab is a monoclonal antibody (mAb) to target and clear ß-amyloid. This vaccine is the first new drug aimed at slowing or even halting AD progression.

References

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