

General Revision Worksheet: Alzheimer's Disease

Updates in Alzheimer's disease: from basic research to diagnosis and therapies

Alzheimer's disease (AD) is the most common neurodegenerative disorder, characterized pathologically by extracellular deposition of β -amyloid ($A\beta$) into senile plaques and intracellular accumulation of hyperphosphorylated tau (pTau) as neurofibrillary tangles. Clinically, AD patients show memory deterioration with varying cognitive dysfunctions. The exact molecular mechanisms underlying AD are still not fully understood, and there are no efficient drugs to stop or reverse the disease progression. In this review, we first provide an update on how the risk factors, including APOE variants, infections and inflammation, contribute to AD; how $A\beta$ and tau become abnormally accumulated and how this accumulation plays a role in AD neurodegeneration. Then we summarize the commonly used experimental models, diagnostic and prediction strategies, and advances in periphery biomarkers from high-risk populations for AD. Finally, we introduce current status of development of disease-modifying drugs, including the newly officially approved $A\beta$ vaccines, as well as novel and promising strategies to target the abnormal pTau. Together, this paper was aimed to update AD research progress from fundamental mechanisms to the clinical diagnosis and therapies.

1. Choose the correct verb form

1. AD ____ the most common neurodegenerative disorder. → is / was
2. Patients ____ memory problems. → show / showed
3. The authors ____ experimental models. → summarize / summarized
4. Scientists ____ efficient drugs. → haven't found / didn't find
5. New therapies ____ developed. → are being / are
6. Tau proteins ____ inside neurons. → accumulate / accumulated
7. The review ____ current progress in AD treatment. → highlights / highlighted
8. Researchers ____ new strategies to target pTau. → are exploring / explored

2. Passive voice

1. Researchers develop strategies. → Strategies are developed / Strategies develop
2. Scientists are testing vaccines. → Vaccines are tested / Vaccines are being tested
3. They have introduced therapies. → Therapies have been introduced / Therapies introduced

3. Modals

1. Patients ____ experience memory loss. → can / must
2. Therapies ____ target A β or pTau. → may / should
3. No drug ____ reverse the disease. → can / has to
4. Future treatments ____ include more strategies. → might / must

4. Connectors

1. ____ mechanisms remain unclear, research continues. → Although / Because
2. A β and tau accumulate abnormally, ____ contributing to AD. → therefore / whereas
3. There are no efficient drugs, ____ the disease progresses. → so / but
4. Infections may increase risk, ____ not all patients show signs. → although / since

5. Reported speech

1. "We summarize models." → They said they summarize / summarized models.
2. "We introduce new therapies." → They said they introduced / had introduced therapies.
3. "There are no efficient drugs." → They said there were / had been no drugs.

6. Question formation

1. → AD is the most common disorder. → What is AD? / What is the most common disorder?
2. → Scientists are testing vaccines. → What are scientists testing? / Who are testing vaccines?
3. → The paper updates research. → What does the paper update? / Where is the paper from?

7. Politeness & Formality

1. They don't really know what causes it. → Causes are unknown. / They don't know.
2. Lots of stuff can lead to AD. → Many factors contribute. / Lots of things cause it.
3. Doctors are trying out drugs. → Drugs are under evaluation. / Doctors try drugs.