Austin Benoit

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Genetics

Writing assignment #4

There is a new Alzheimer’s disease monoclonal antibody treatment that has a new target for the progressive disease and had shown great results for what could come. This treatment strategy mimics genetic mutation that is resistant to the neurodegenerative disease, and it is the Mass General Brigham treatment. This treatment reduces abnormal tau proteins associated with Alzheimer’s. This monoclonal antibody was developed by a research team from Mass Eye and Ear and Massachusetts General Hospital. There was an antibody found called 7C11 that could lead to a resistance to Alzheimer’s. This was tested in mice and the results were found to reduce the abnormal tau proteins found in their brains and retinas. But just because it works in mice does not mean it would for humas or even get the same results at all. Findings point to an alternative and hopefully more effective ways to approach the existing treatments and clinical trials. This can also lead to many other disease-modifying therapies for other neurological conditions. With all of this going on the National institutes of Health recently awarded a 13.7-million-dollar grant to Boston University to researchers that are investigating Alzheimer’s disease. The purpose of this is for the researchers to identify new targets for developing drugs and slow processes leading to diseases. There is another group that is using whole genome sequencing and other approaches to identify genetic factors for Alzheimer’s disease in Jews living in Israel. Whose ancestors happen to be traced back to southern Spain and locations in the middle east and north Africa and Arab citizens of Israel. The reason they did these was to leverage the genetic architecture of MENA Jews and Arab citizens of Israel and their environmental exposures and lifestyles to discover related genes and variants. Now there is some cases where genetics has nothing to do with Alzheimer’s but there is also the factor of where the persons genetic composure can carry traits they can increase or reduce Alzheimer’s. That is why there is so much research in different areas of people and the reason they look for ancestors.

To back this information up with a reputable source I used the American Medical Association. In there it backs up the information from the news article. It says a monoclonal antibody clears brain amyloid plaque has the potential to treat patients with Alzheimer’s disease, which is a disease that effects a lot of Americans and others around the world. In a clinical trial it hit phase three and donanemab slowed the clinical disease progression in amyloid positive symptomatic disease patients over 76 weeks. Amyloid bodies did get to a rough start due to the food and drug administration approved aducanumab in 2021. Which is hardly used now due to problems relating to insurance coverage and administration of it safely. However, in the future there will be more improved antibodies like the ones that got released and approved by the food and drug administration called Lecanimab. Which was an antibody designed for patients with mild cognitive impairment or mild dementia stage. But of course, researchers evaluated the safety and efficacy of donanemab with patients with early Alzheimer’s and amyloid and tau pathology. There were 277 participants in a medical research center in eight countries that had low, medium, or high tau and were randomized. Somewhere given a placebo (a fake donanmab) and somewhere given donanemab every four weeks for more than a year. The trail showed meaningful results clinically wise and yet the authors acknowledged the limitations and safety risk the trail can have on humans. Overall, the placebo test could be dangerous because what if those patients actually need something to get better and you are just lying to them and not helping them at all on the other hand since the pills are getting tested what if the pills do more damage than actually being helpful at all. What if people have had severe reactions to the pill and since it was so new how could we know how to fix it. As in the experiment the donanemab group had a higher incidence of events at 17.4% compared to the placebo group at 15.8 %. 112 of the particpents taking donanemab had to stop treatment due to adverse advents, compared to 38 getting placebo. Three deaths were determined to be from taking the drug. Also the high tau group showed not clincal benefit compared to the placebo group.

Citations

First Paragraph

1.Sobey, R. A new alzheimer’s monoclonal antibody treatment shows promising results: ‘hopefully more effective approach’. *Pilot* (2023). Available at: https://www.pilotonline.com/2023/10/06/a-new-alzheimers-monoclonal-antibody-treatment-shows-promising-results-hopefully-more-effective-approach/. (Accessed: 16th October 2023)

Second paragraph

2.23, A. & Lubell, J. Promising monoclonal antibody joins fight against alzheimer’s. *American Medical Association* (2023). Available at: https://www.ama-assn.org/delivering-care/public-health/promising-monoclonal-antibody-joins-fight-against-alzheimer-s. (Accessed: 16th October 2023)