ABSTRACT

Alzheimer's Disease (AD) affects approximately 6.5 million Americans, and there is currently no cure. Prior research has shown that a key pathology of AD is amyloid beta, a protein that aggregates and form plaques in the brain, under pathological conditions. If amyloid beta is not cleared by the body, resultant plaques may disrupt proper cognitive and neuronal function. As the liver plays a crucial role clearing amyloid beta, liver damage may jeopardize the efficacy of the liver to clear amyloid beta in the periphery of the body, enabling it to reach the brain.

One way liver function can be disrupted is through diet, specifically the Western diet (WD), which has been shown to cause non-alcoholic fatty liver disease (NAFLD) and inflammation, both of which are associated with AD. A WD is classified as one that contains high amounts of refined sugars and saturated fats derived from animals. Conversely, the Mediterranean Diet (MD), a largely plant-based diet, contains high amounts of monounsaturated fatty acids and polyunsaturated fatty acids. These dietary factors have been shown to decrease inflammation and increase antioxidant effects, further protecting the brain from AD pathology. Therefore, we hypothesize that the MD could protect the liver and be used as a potential prevention strategy for NAFLD and AD.

The current study examined the effects of WD and MD on the relationship between the liver and the brain in wild type mice. During tissue collection, livers were taken and histologically analyzed. The livers from each experimental group were processed, stained, and evaluated for their overall composition.