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Effects of Antiepileptic Medications on Bone Density in Individuals with Intellectual and Developmental Disabilities

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Antiepileptic drugs are medications commonly used for the control or management of seizures as well as mood stabilization drugs for psychiatric diseases. Antiepileptic drugs (AEDs) are metabolized and stored in the body, mostly by the liver. Vitamin D and calcium levels help the body metabolize AEDs, which can be a confounding factor in the decrease of fracture and osteoporosis diagnoses due to the adverse drug reaction of causing low bone mineral density (BMD).

Methods

Data collection was completed with a twenty-page survey which included questions pertaining to demographics, past medical history, diet, tobacco use, and osteoporotic behaviors. Questions were open and closed-ended and included both qualitative and quantitative data. The survey (included in Appendix A) was adapted from a survey of risk factors for osteoporosis and osteoporotic behaviors among patients with epilepsy, which had not been validated.

Participants first received a copy of the informed consent which they read and signed. If participants were unable to complete the documentation, their primary care provider or guardian completed the paperwork. After completion of informed consent, each participant was given a survey and asked to complete the information to the best of their ability. Upon completion, surveys were analyzed for common themes and patterns.

Of the data collected, three of the twelve participants were diagnosed with osteoporosis (DXO). All three of those with a DXO were taking AEDs for seizure management, which was the most common answer for use of medication at 75%. The second being behavior management, and lastly, mood stabilization. None of those with DXO had a family history of osteoporosis due to AEDs and their impact on bone health. Because the IDD population has been thoroughly studied, more research needs to be completed to better understand the patients that need more complicated and in-depth care.

The majority of participants were taking weight bearing exercises such as walking, running, or weight lifting, more than three times per week and felt that they consumed a balanced diet. Vitamin D was the most commonly used supplement, and calcium was only used by four participants. Future research collection needs to have a larger sample size as well as more knowledgeable and thorough completion of surveys.