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### Parkinson's care: Digital updates in parkinson's disease management

#### Abstract:

Recent technological advancements are revolutionizing the understanding, diagnosis, and management of Parkinson's disease (PD). This presentation highlights pioneering studies leveraging artificial intelligence (AI) and machine learning to enhance early prediction, monitor symptoms, and enable personalized treatments for PD patients. Researchers at Great Ormond Street Hospital for Children NHS Foundation Trust (GOSH) have developed an AI tool capable of predicting Parkinson's disease in individuals up to seven years before clinical symptoms appear. Utilizing a panel of eight blood-based biomarkers, this breakthrough allows for earlier and more effective interventions. Radboud University Medical Centre Nijmegen advocates using smart sensors to measure non-motor symptoms of Parkinson's disease at home. These sensors provide reliable data on sleep disturbances, depressive symptoms, and cognitive performance, facilitating continuous monitoring and personalized treatment strategies. Leidy Guarin et al. introduced a machine learning system that quantifies motor symptoms and predicts disease progression by analyzing video recordings of finger-tapping tests. This system detects subtle changes in motor function, enhancing early diagnosis and treatment planning. Cornell University researchers identified three distinct subtypes of Parkinson's disease using machine learning. These subtypes—Inching Pace (PD-I), Moderate Pace (PD-M), and Rapid Pace (PD-R)—exhibit unique genetic signatures and progression rates, supporting the development of tailored treatment strategies. The diabetes drug metformin shows promise in alleviating cognitive symptoms in PD-R patients, highlighting the potential for precision medicine in Parkinson's disease management. These technological advancements underscore the potential of AI and machine learning to significantly improve the diagnosis, monitoring, and treatment of Parkinson's disease, paving the way for more personalized and effective healthcare solutions.

#### Biography

**Asli Beyza Gul** is a dedicated medical student at Aston University, Birmingham, UK. She is deeply committed to advancing neurology with a focus on geriatrics. Conducting internationally recognized research on Parkinson's patient management during the pandemic, Asli showcases her dedication to making a difference in this field. As the founding president of Aston Neurology Society, she demonstrates exceptional leadership and a passion for making a difference. Asli's drive and passion position her as a promising future leader in the field, poised to enhance the lives of patients and contribute significantly to medical research and practice.