BIOGRAPHICAL SKETCH

NAME: Angelo ANTONINI, MD, PhD - Email: angelo.antonini@unipd.it

POSITION TITLE: Full Professor of Neurology, Director of Parkinson and Movement Disorders Unit, Center of the European Reference Network for Rare Neurological Diseases, Department of Neuroscience, University of Padua, Padua, Italy

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
University of Rome “La Sapienza”, Rome, Italy	MD	10/1986	Medicine, with honors
University of Rome “La Sapienza”, Rome, Italy	MD	11/1990	Medicine, Neurology
University of Zurich, Switzerland	Ph.D.	12/1994	Medicine, Neuroradiology

A. Personal Statement

I’m the head of the Parkinson and Movement Disorders Unit and of the Study Center for Neurodegeneration at the Department of Neuroscience of the University of Padua. I have earned my medical degree from the Università degli Studi di Roma ‘La Sapienza’, Rome. In November 1990 I completed neurology training with honors and then undertook a visiting fellowship at the PET Department Paul Scherrer Institute, Villigen, Switzerland before starting in 1991 PhD program in neuroradiology under the supervision of Professor Klaus Leenders. In 1995 I started as Assistant Professor of Neurology at the North Shore Hospital/ New York University hospital where I continued his research on definition of imaging biomarkers of the dopamine system and associated neurodegenerative processes. I also focused my research on characterization of brain networks in PD, MSA using FDG-PET and in HD using Raclopride-PET binding to dopamine D2 receptors . I received the first award from the National Parkinson Foundation for ‘young researchers in Parkinson’s disease’. In 1996 I was awarded the Junior Faculty Award and in 1996/97 from United Parkinson Foundation and Parkinson's Disease Foundation for my research in the field of Parkinson’s disease. From November 1997 to end 2009 I worked at the Parkinson Institute in Milan where I coordinated Clinical Research at the Department of Neuroscience and had my academic affiliation at the 2nd University of Milan (Bicocca). In 2010 I became Director of the Parkinson and Movement Disorders unit at the research Institute for Neurorehabilitation San Camillo in Venice and since 2011 also I coordinate the Movement Disorders section at the Neurology Clinic in Padua. In 2013 I became Professor of Neurology at the University of Padua. At the University Hospital of Padua we follow more than 2000 patients with various forms of Parkinsonism and other movement disorders.

My research focuses on pharmacology of dopaminergic medications, neuroimaging as well as cognitive and behavioral aspects of Parkinson’s disease, Multiple System Atrophy and Progressive Supranuclear Palsy. In addition I am actively involved in the use of continuous infusion of levodopa and apomorphine infusion as well as subthalamic nucleus deep brain stimulus (STN-DBS) for the treatment of motor fluctuations and dyskinesia of complicated Parkinson patients.
Clinically with my collaborators in Padua we follow patients with various movement disorders including Huntington disease (reference center for EHDN), dystonia, disorders related to metal accumulation, spino-cerebellar ataxias.

I have published 522 indexed peer-reviewed manuscripts and several book chapters.
My H-Index is 86 and I have 26.220 citations (Scopus).

I serve as reviewer for the main medical and neurology journals.

B. Positions and Honors

Positions and honors:
1986 – 1990: Resident, Neurology, dept. of Neuroscience, University of Rome “La Sapienza”, Italy
1990: Visiting Fellow, PET dept, Paul Scherrer Institute, Switzerland
1990 – 1995: Medical Research Assistant, PET dept, Paul Scherrer Institute, Switzerland
1995: ‘Young researchers in Parkinson’s disease’ from the National Parkinson Foundation
1995 – 1997: Assistant Professor, New York University, NY USA
1996: Junior Faculty Award 1996/97 from United Parkinson Foundation and Parkinson's Disease Foundation
1998 – 2010: Parkinson Institute Milan - 2nd University of Milan, Italy
2010 – current: Parkinson and Movement Disorders Unit, Padua University Hospital, Padua, Italy
2020- current: Head of the Padua University Hospital Center of the European Reference Network for Rare Neurological Diseases
2021- Coordinator of the University of Padua Study Center for Neurodegeneration (CESNE)

Current memberships and international activities:
Chair of the International Parkinson and Movement Disorders society - European Section
Chair of Scientific panel - European Academy of Neurology - Movement Disorders section
Fellow of the European Academy of Neurology
Honorary Member of the French Neurological Society
Honorary Member of the Neurological Society of Romania
Board Member of the Italian Parkinson Academy and Foundation
Member of Parkinson’s Disease Non-Motor Study Group
Member of the Multiple System Atrophy study group

C. Contribution to Science

I have five main research interests related to Parkinson disease and other movement disorders.
The first is neuroimaging with particular focus on the definition of specific brain neurochemical and network changes associated with neurodegeneration which could be considered disease specific biomarkers for diagnosis and progression. I started detailing the characteristics of dopamine nerve terminal loss and post-synaptic receptor changes first in animal models and healthy controls and later in my career with PET. More recently I have been using MRI to understand alterations in brain networks and connectivity
1) Fiorenzato E, Strafella AP, Kim J, Schifano R, Weis L, Antonini A, Biundo R. Dynamic functional connectivity changes associated with dementia in Parkinson's disease. Brain. 2019 Sep 1;142(9):2860-2872.
2) Fiorenzato E, Biundo R, Cecchin D, Frigo AC, Kim J, Weis L, Strafella AP, Antonini A.
Brain Amyloid Contribution to Cognitive Dysfunction in Early-Stage Parkinson's Disease: The PPMI Dataset. J Alzheimers Dis. 2018;66(1):229-237
3) Antonini A, Biundo R. Parkinson disease: Can dopamine transporter imaging define early PD? Nat Rev Neurol. 2014 Aug;10(8):432-3
4) Cognitive and MRI correlates of orthostatic hypotension in Parkinson's disease. Pilleri M, Facchini S, Gasparoli E, Biundo R, Bernardi L, Marchetti M, Formento P, Antonini A. J Neurol. 2013 Jan;260(1):253-9
5) Bellucci A, Antonini A, Pizzi M, Spano P. The End Is the Beginning: Parkinson's Disease in the Light of Brain Imaging. Front Aging Neurosci. 2017 Oct 10;9:330

The second is to understand and define cognitive and behavioral changes in Parkinson disease and atypical parkinsonisms, particularly multiple system atrophy and progressive supranuclear palsy
1) Biundo R, Weis L, Bostantjopoulou S, Stefanova E, Falup-Pecurariu C, Kramberger MG, Geurtsen GJ, Antonini A, Weintraub D, Aarsland D. MMSE and MoCA in Parkinson's disease and dementia with Lewy bodies: a multicenter 1-year follow-up study. J Neural Transm (Vienna). 2016 Feb 6
2) Biundo R, Weis L, Facchini S, Formento-Dojot P, Vallelunga A, Pilleri M, Weintraub D, Antonini A. Patterns of cortical thickness associated with impulse control disorders in Parkinson's disease. Mov Disord. 2015 Apr 15;30(5):688-95
3) Fiorenzato E, Antonini A, Camparini V, Weis L, Semenza C, Biundo R. Characteristics and progression of cognitive deficits in progressive supranuclear palsy vs. multiple system atrophy and Parkinson's disease. J Neural Transm (Vienna). 2019 ;126(11):1437-1445

4) Stankovic I, Quinn N, Vignatelli L, Antonini A, et al A critique of the second consensus criteria for multiple system atrophy. Mov Disord. 2019 ;34(7):975-984

The third is neuropharmacology of the dopamine system with particular focus on continuous drug delivery (particularly novel infusion systems):
1) Antonini A, Fung VS, Boyd JT, Slevin JT, Hall C, Chatamra K, Eaton S, Benesh JA.
Effect of levodopa-carbidopa intestinal gel on dyskinesia in advanced Parkinson's disease patients. Mov Disord. 2016 Jan 28
2) Antonini A, Bauer L, Dohin E, Oertel WH, Rascol O, Reichmann H, Schmid M, Singh P, Tolosa E, Chaudhuri KR. Effects of rotigotine transdermal patch in patients with Parkinson's disease presenting with non-motor symptoms - results of a double-blind, randomized, placebo-controlled trial. Eur J Neurol. 2015 Oct;22(10):1400-7
3) Antonini A, Yegin A, Preda C, Bergmann L, Poewe W Global long-term study on motor and non-motor symptoms and safety of levodopa-carbidopa intestinal gel in routine care of advanced Parkinson's disease patients; 12-month interim outcomes. Parkinsonism Relat Disord. 2015 Mar;21(3):231-235
4) Antonini A, Poewe W. Adenosine A2A receptor antagonists in Parkinson's disease: still in the running. Lancet Neurol. 2014 Aug;13(8):748-9
5) Antonini A, Jenner P. Apomorphine infusion in advanced Parkinson disease. Nat Rev Neurol. 2018 Dec;14(12):693-694.

The fourth is neuromodulation by deep brain stimulation and transcranial magnetic stimulation.
1) Beneficial Effects of Bilateral Subthalamic Stimulation on Non-Motor Symptoms in Parkinson's Disease Dafsari HS, Reddy P, Herchenbach C, … Antonini A, Chaudhuri KR, Martinez-Martin P, Timmermann L Brain Stimul. 2016 Jan-Feb;9(1):78-85
2) Biundo R, Weis L, Fiorenzato E, Gentile G, Giglio M, Schifano R, Campo MC, Marcon V, Martinez-Martin P, Bisiacchi P, Antonini A. Double-blind Randomized Trial of tDCS Versus Sham in Parkinson Patients With Mild Cognitive Impairment Receiving Cognitive Training. Brain Stimul. 2015;8(6):1223-5
3) Volkmann J, Albanese A, Antonini A, et al.. Selecting deep brain stimulation or infusion therapies in advanced Parkinson's disease: an evidence-based review. J Neurol. 2013 Nov;260(11):2701-14.
4) Non-motor outcomes depend on location of neurostimulation in Parkinson's disease.
Petry-Schmelzer JN, Krause M, Dembek TA, …. , Antonini A, Barbe MT, Visser-Vandewalle V, Ray-Chaudhuri K, Timmermann L, Dafsari HS. Brain. 2019 Sep 23.
5) Biundo R, Weis L, Fiorenzato E, Antonini A. Cognitive Rehabilitation in Parkinson's Disease: Is it Feasible? Arch Clin Neuropsychol. 2017 Nov 1;32(7):840-860

The fifth is development of innovative rehabilitation strategies and home monitoring. This effort has been recently awarded by two Horizon2020 research grants and one JPND project:
1) Tsiouris KM, Gatsios D, Rigas G, Miljkovic D, Koroušić Seljak B, Bohanec M, Arredondo MT, Antonini A, Konitsiotis S, Koutsouris DD, Fotiadis DI. PD_Manager: an mHealth platform for Parkinson's disease patient management. Healthc Technol Lett. 2017 May 23;4(3):102-108.
2) Araújo R, Ferreira JJ, Antonini A, Bloem BR. "Gunslinger's gait": a new cause of unilaterally reduced arm swing. BMJ. 2015 Dec 14;351:h6141
3) Pilleri M, Weis L, Zabeo L, Koutsikos K, Biundo R, Facchini S, Rossi S, Masiero S, Antonini A. Overground robot assisted gait trainer for the treatment of drug-resistant freezing of gait in Parkinson disease. J Neurol Sci. 2015 Aug 15;355(1-2):75-8
4) Ossig C, Antonini A, Buhmann C, Classen J, Csoti I, Falkenburger B, Schwarz M, Winkler J, Storch A. Wearable sensor-based objective assessment of motor symptoms in Parkinson's disease. J Neural Transm (Vienna). 2016 Jan;123(1):57-64
5) Antonini A, Gentile G, Giglio M, et . Acceptability to patients, carers and clinicians of an mHealth platform for the management of Parkinson's disease (PD_Manager): study protocol for a pilot randomised controlled trial. Trials. 2018 Sep 14;19(1):492.

D. Research Support

Ongoing Research Support

- Horizon 2020 Program Grant N: 825785, PD_Pal Palliative care in people with Parkinson disease - Principal Investigator: Year 2019-2023

- Cariparo Foundation: COVID19-CNS: Understanding neurotropism and long-term brain damage from COVID-19 2020-2022

- Horizon2020 Grant N: 101016902: AI Accelerator – A Smart Hospital Care Pathway Engine – WP Leader: Year 2021-2025

- Ministry of University and Research (MUR) Centro Nazionale: Sviluppo di terapia genica e farmaci con tecnologia ad RNA - Spoke 3 Neurodegeneration - Progetto Aligning Cures across Neurodegenerative Disease (ACADN) (coordinator UniPD Angelo Antonini - total 2.229.260 Euro UniPD)

Past Research Support

- Neureca Foundation: Research Grant for cognitive rehabilitation in Parkinson disease
Principal Investigator: Year 2012-2014
- Italian Ministry Research Grant N RF-2010-1530177 for the definition of genetic, imaging and cognitive predictors of behavioural disorders in Parkinson patients
Principal Investigator: Year: 2011-2014
- Italian Ministry Research Grant N RF-2012-2319551 for the definition of an Italian database of patients treated with deep brain stimulation
Co-applicant: Year: 2013-2016
- Gossweiler Foundation: Research grant for the development of new rehabilitation strategies in Parkinson patients with lateral spine deviation and camptocormia
Principal Investigator: Year: 2013-2015
- Horizon 2020 Program Grant N: 643706 for the development of m_health platform for Parkinson disease management
Principal Investigator: Year: 2014-2018
- Ministry of Education University and Research (MIUR) Grant ARS01_01081 Biological markers in Neurodegeneration Co-Applicant: Year 2019-2022

D. Clinical trials in the last 5 years:

Total of 45 Clinical Trials: Phase II: 11; Phase III: 26; Phase IV: 1

E. Patent

N: 20170003302 United States Patent and Trademark Office: In Vitro Method of Diagnosing Parkinson's Disease - Publication date: January 5, 2017

By
Name: Angelo Antonini Title: Professor Date: February 14, 2023