

Book Review

Book Review of “Ending Parkinson’s Disease: A Prescription for Action”

Dorsey, Ray; Sherer, Todd; Okun, Michael; Bloem, Bastiaan (2020) “Ending Parkinson’s Disease: A Prescription for Action”, Public Affairs: New York

Professor Michele T. Hu*

Consultant Neurologist, Division of Neurology, Nuffield Department of Clinical Neurosciences, University of Oxford, UK

This book is a joint collaboration between three practising Parkinson’s expert clinicians (Michael Okun, Bas Bloem and Ray Dorsey) and neuroscientist Todd Sherer who conducted ground-breaking research first linking Parkinson’s to pesticides. Written in clear engaging terms for the lay person, with helpful summary diagrams to explain underlying scientific concepts, I found there was also much here of interest to a Parkinson’s clinician-researcher. I have no hesitation in highly recommending this book to the lay and specialist reader.

Starting with its first description in six London cases by Dr James Parkinson, the subsequent discovery of dopamine as therapy and underlying cellular basis of protein misfolding disorders with spread from periphery to brain are comprehensively outlined. Evidence on the complex interplay between genetic and environmental causation is carefully weighed, referenced and summarised. Pioneering contributions from individuals who “thought outside the Parkinson’s box” include neurologists Fritz Levy, Margaret “Peggy” Hoehn, Caroline Tanner,

William Langston and neuropathologists Heiko and Eva Braak are rightly highlighted.

A key eye opener is the extent that man-made chemicals including solvents and pesticides (e.g paraquat, trichloroethylene-TCE, and toxic air pollution particles) continue to be used routinely in many countries worldwide despite clear evidence of causation. Since the latter half of the nineteenth century, widespread use in consumer and industrial products and increased exposure among men who make up 75–95% of the workforce using these products, could well explain the male gender predominance of Parkinson’s. Rapid economic growth and use of the products in China alongside seriously poor air quality has led to the fastest rising rate of Parkinson’s here worldwide. Ensuing widespread contamination of ground water sources through solvent use in cleaning silicon chips and toxic waste dumps have led to 15 EPA “superfund” clean-up sites in Silicon Valley alone.

Compounds such as TCE and DDT are found in the population’s body fat, breast milk, and blood decades following exposure. The pesticide heptachlor entered the food chain in Hawaii in 1982, after cattle were fed on pineapple plants sprayed with this compound. Decades later, Parkinson’s rates were highest among

*Correspondence to: Professor Michele T. Hu, Division of Neurology, West Wing, Level 3, John Radcliffe Hospital, Headley Way, Oxford OX3 0DB, UK. E-mail: michele.hu@ndcn.ox.ac.uk.

subsequent children who consumed the most contaminated breast milk from their exposed mothers. Autopsies performed on some patients through the Honolulu Heart Programme found the brains of those affected with Parkinson's were more likely to have heptachlor remains than those without.

While parts of Europe have banned TCE altogether, proposals to ban TCE use altogether in the United States have been effectively blocked by industrial groups on the basis that it "lacked sound economic principles." European countries such as the Netherlands who were among the first to ban paraquat have seen a sharp decrease in the number of Parkinson's cases from 1990 to 2011. By contrast, a doubling of US paraquat use over the past decade with 250 million pounds of TCE used annually parallels an exponential rise in new cases.

The remainder of the book focuses on what we can do to turn back the pandemic tide of Parkinson's, listing examples of polio, HIV and breast cancer where a comprehensive societal response led to ultimate cure. The importance of earlier diagnosis, improved access to specialist multidisciplinary care and digital technology for assessment and telemedicine are explored. Emerging new treatments including high intensity exercise, immune-based and genetically targeted therapies are discussed. Ultimately however, we all have a responsibility to increase Parkinson's awareness, to help drive forward societal research policies and funding needed to ultimately cure this devastating disease.