

Preface

Clinical progress in Alzheimer's disease has followed a tired, tenuous, and trackless course for the last 25 years. This medical failure to provide even adequate control of patients at risk of dementia needs to change quickly to avoid a socioeconomic and medical catastrophe in the near future.

Now, a turning point that can revitalize our thinking on how to markedly control Alzheimer's disease is within our grasp. This turning point promises a new beginning about how Alzheimer's should be medically managed to prevent, reverse, or delay onset of this mind-shattering disease. The essence of containing Alzheimer's is not simply to diagnose the disease onset, provide some pills, and send the patient home, which is generally the present practice. *The main goal of managing this incurable dementia is by prevention.* Alzheimer's prevention is now achievable as discussed in the chapters that follow. A primary step in the prevention process is early detection of patients at risk of acquiring Alzheimer's using state-of-the-art diagnostics and application of a personalized clinical plan of action. This is best achieved by the establishment of Heart-Brain Clinics dedicated to containing what is now the most important medical challenge of the twenty-first century. This clinical approach will not eradicate Alzheimer's but as Heart-Brain Clinics proliferate nationally and abroad, a significant reduction in the incidence of new Alzheimer's cases will be seen to provide a significant grace period of healthy aging to many who would otherwise become easy victims of this dementia.

This book comprehensibly discusses these and other relevant issues in clear, descriptive language and focuses on the actions that will determine how this turning point can be rapidly implemented. The turning point in Alzheimer's disease is certain to impact the individual who lives long enough to develop a risk to this dementia.

Alzheimer's disease, Alzheimer's dementia or Alzheimer's for short, is now considered the most common and irreversible destroyer of the human brain. Unlike some infectious diseases, there is no magic bullet to cure it once it is diagnosed. If Alzheimer's is not reasonably contained, it will rise ballistically from a present 45

to 135 million people affected worldwide by 2050. In the same time period, that number will triple in the USA, from 5.5 to nearly 14 million people affected.

Every year in the USA, Alzheimer's claims more victims after age 65 than cancer, heart disease, and AIDS combined, yet the government spends less money on Alzheimer's research than all three of these disorders. A paradoxical fact is that while deaths from cancer, heart disease, and AIDS have plummeted in recent years, Alzheimer's deaths keep climbing. In the USA, the annual cost of Alzheimer's to society is estimated to be \$226 billion, a cost that will rise exponentially by 2050 to over \$1 trillion with devastating consequences on Medicare, Medicaid, and the US healthcare system.

A book like this cannot do justice to the vast and complex field of Alzheimer's research. However, an attempt is made to focus on the importance of where we have been for the last 25 years with respect to our present view of Alzheimer's disease. Looking back at recent past failures will provide a crucial clue as to where we need to go from this point on to provide real hope to those who may be vulnerable of acquiring Alzheimer's.

This book is a departure from most others on the market because it does not try to provide advice on how to cope with Alzheimer's or provide suggestions regarding what foods to eat or what activities to take up to reduce the risk of dementia. Dozens of books on the market are available that provide such information. Instead, this book is a practical guide to a plan on how the number of new Alzheimer's cases recorded every year can be substantially reduced using evidence-based medical information derived from a series of recent clinical studies. These clinical studies are melded with the author's extensive experience in laboratory and clinical research of Alzheimer's disease gained in the last 25 years as a professor of neurosurgery, neuroscience, and pharmacology at several North American medical schools.

As a continuous blueprint, each chapter pieces together an essential link that collectively supports the final conclusion that Alzheimer's can be successfully managed by the application of new technology, state-of-the-art diagnostic tools, and recently gained knowledge of what really causes dementia and what does not. This book tries to minimize scientific jargon whenever possible, and when technical terms are unavoidable, descriptive explanations follow to make plain the idea or concept. The compiled information gathered here will be helpful to physicians in identifying the preclinical risk factors associated with the earliest stages of cognitive decline, an approach that can help the patient delay or avoid the Alzheimer's bullet. This book should also be useful to graduate, postdoctoral, and established neuroscientists who have an interest in neurodegenerative diseases.

On a lighter side, the book will show how laboratory experiments using young and old rats swimming in a water tank in the author's laboratory provided pivotal information leading to the possible cause of Alzheimer's and how these findings helped identify more than two dozen risk factors to this dementia. *The identification of Alzheimer's vascular risk factors is probably one of the most important findings made in the history of this disease because first, virtually every acquired risk factor has a vascular component that can be therapeutically targeted to prevent its*

consequences and, second, because these vascular risk factors provide a key to unlocking the mystery that has shrouded Alzheimer's pathology for over a century. That key has to do with the fact that risk factors to Alzheimer's share a crucial common denominator. That is, *virtually all Alzheimer's risk factors presently known are able to reduce blood flow to the brain.* The book discusses how poor blood flow to the brain in elderly people will commonly transform a healthy brain into one that eventually expresses cognitive impairment and severe memory loss. Such a process can take decades to form. Could poor blood flow to the brain have triggered President Ronald Reagan's Alzheimer's disease following his assassination attempt in 1981? The reader will see how this event may have evolved.

The chapters that follow will explore why clinical research in Alzheimer's disease has been a trackless waste for the last quarter century. Knowing *why* we failed for over a century to manage a lethal medical disorder such as Alzheimer's is the first step in determining *how* to construct a plan that can address and resolve prior clinical fiascos.

Clinical research is defined as the science that searches to find treatments, interventions, or management to either cure, prevent, or ease medical problems in humans. It uses clinical trials to examine the efficacy and safety of whatever treatment or intervention is being tested. My book discusses why dozens of clinical trials at a cost of hundreds of millions of dollars have ended in total failure thanks largely to a greedy and corrupt pharmaceutical industry. Moreover, it will be seen how bad hypotheses delay and often obstruct scientific progress, why the government remains idle to its most colossal medical problem, and why the pharmaceutical industry capitalizes on the despondence and hopelessness of victims and caretakers of this dementia to push their dubious nostrums that often do more harm than good on those who use them.

All is not gloom, however. A *turning point for Alzheimer's* is attainable, and it is hoped this book will accelerate that process. This turning point is no rabbit being pulled out of a magician's hat but a carefully constructed stratagem to shift our thinking from its present clinical quagmire and apply a rational program to directly control the staggering rise of new Alzheimer's cases expected to triple by 2050.

After reading this book, I am confident that the reader will feel sufficiently informed to disagree with the Doris Day's popular song that nihilistically claims "whatever will be, will be." Instead, the reader may realize that fate is often in the hands of the individual who refuses to accept a doomsday philosophy. This existentialist approach is artfully reflected in Shakespeare's tragedy *Julius Caesar* when Cassius remarks to Brutus, "The fault, dear Brutus, is not in our stars, but in ourselves."

For reasons that will become clear, we will examine in the chapters ahead the seamless logic of this Shakespearian penchant with respect to what an individual can do with the help of good medical practice to slowdown, stop, or reverse the clinical signs that may forecast the ominous beginnings of Alzheimer's dementia.

This book is highly recommended to a wide audience of readers consisting of researchers and clinicians with an interest in neurodegeneration and, particularly, Alzheimer's disease.

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