

Kimitaka Kaga

Central Auditory Pathway Disorders

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 Springer

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Preface

This monograph is a collection of my basic and clinical research papers in auditory evoked potentials of my patients with central auditory pathway disorders.

In 1973, it was an epoch-making year in my life when I first became aware of auditory brainstem response (ABR) at a departmental seminar at Teikyo University in 1973, just after I had moved from the Department of Otolaryngology at the University of Tokyo. In the seminar, Professor Tokuro Suzuki, the guest speaker, described ABR to us as a new tool for objective audiometry. The next year, Professor Robert Galambos of the University of California, San Diego, was invited to Teikyo University as a special guest from abroad, and he lectured on auditory neurophysiology and conducted animal experiments of ABRs with us. He ignited a passion in us to study ABRs audiologically and neurologically. Thus inspired, I was convinced that ABRs must be a very useful tool to explore local diagnosis of auditory nerve and brainstem lesions of neurological diseases, coma, and cortical auditory disorders as well as objective audiometry for newborns and infants and for pediatric neurological diseases.

In 1979, a Japan–U.S. seminar on ABRs was planned and conducted by Professor Jun-Ichi Suzuki and Professor Galambos, supported by the Japan Science Council. Since Dr. D.L. Jewett discovered ABR in cats and humans in 1970, several names for this auditory evoked response, including BSR (brainstem response), BAER (brainstem auditory evoked response) and others, had been used in scientific and clinical papers and had confused researchers in this field around the world. At the Japan–U.S. seminar on ABR in 1979, the participants included D.L. Jewett, H. Davis, R. Galambos, J. Buchwald, K. Hecox, A. Starr, T. Picton, J. Stockard, and R. Hink from the United States; and from Japan, T. Suzuki, J-I Suzuki, O. Soda, Y. Shinoda, G. Ichikawa, T. Yagi, K. Kodera and myself. We discussed the proposed names and then voted. The resulting decision was to recommend “auditory brainstem response” (ABR) for use worldwide, and since then the term has come to be used commonly in the field.

At Teikyo University I compared ABRs with temporal bone and brain pathology and conducted animal experiments to explore the origins of ABRs and middle latency responses (MLRs). After moving from Teikyo University to Tokyo Univer-

sity in 1992, I restarted clinical applications of auditory evoked potentials using positron emission tomography (PET) and magnetoencephalography (MEG).

In this book, temporal bone and brain histopathology, computed tomography (CT) and magnetic resonance imaging (MRI) data are presented on many pages in comparison with ABRs in order to reveal lesions in the central auditory pathway. This combined study was made possible through collaboration with the Department of Pathology and the Temporal Bone Laboratory at Teikyo University. I hope that this book will be useful for neurological and neuropsychological diagnosis and neurophysiological studies of the central auditory system from the auditory nerve to the auditory cortex.

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Contents

Preface	V
1 Introduction	1
2 Origins of Evoked Potentials	7
3 Development and Brainstem Responses (ABRs)	21
4 Auditory Nerve Lesions	33
5 Brainstem and Midbrain Lesions	45
6 Unilateral Auditory Radiation and/or Auditory Cortex Lesions and Perception	83
7 Bilateral Auditory Cortex and/or Auditory Radiation Lesion and Perception	95
8 Auditory Agnosia in Children	117
9 Auditory Cortex Lesion and Sound Lateralization: Interaural Time Difference Versus the Interaural Intensity Difference	129
10 Corpus Callosum Lesions	137
Subject Index	143