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EDITORIAL

Sex influences in autoimmune disease

As we enter the era of personalized medicine, one of the most primordial and potentially key differences between individual medical outcomes is sexual dimorphism. This paradigm is particularly relevant to autoimmune diseases, in which significant sex differences in incidence occur, mainly biased towards females. The current special edition of "Sex Influences in Autoimmune Disease" is an important summary of a long-overdue movement to recognize that diseases may manifest differently in males and females, and that life transitions, particularly shifts in hormones may influence autoimmunity development, disease course and outcomes.

This special issue of the Journal is the outcome of a two-day workshop that took place on June 4–5, 2012 in Cambridge, Massachusetts, and was sponsored by the Partners Multiple Sclerosis Center and the Brigham Research Institute, Brigham and Women's Hospital Biomedical Research Institute (BRI) and the Connors-BRI, Center for Research on women's Health and Gender Biology, Harvard Medical School. The articles in this special issue reflect the contents of the workshop, and focus on sex differences in the incidence and course of multiple sclerosis (MS), systemic lupus erythematosus (SLE), rheumatoid arthritis (RA) as well as current knowledge of the underlying mechanisms including differential immunology, environmental and genetic influences and endocrine aspects influencing the development of autoimmunity in females versus males. Contributors have also summarized key issues related to the clinical care of patients with MS, SLE and RA including management during pregnancy and new emerging topics such as influences of breast-feeding, artificial reproductive techniques as well as menopause/andropause on autoimmune disease outcomes.

We believe that this special issue helps to set the stage for further investigations pertaining to sex influences and differences in the development and course of autoimmune disease. Key areas of further study identified at the workshop include: 1) better understanding of the interaction between

sex hormones and environmental and genetic contributors to autoimmune disease, 2) increased understanding of the early events during puberty on development of autoimmunity, 3) a large scale consolidated pregnancy registry to monitor effects of the increasing armamentarium of autoimmune therapies, 4) a better understanding of effects of menopause and hormone replacement therapy on autoimmune disease course, 5) further exploration of the use of hormones as therapeutic agents in autoimmune disease, and 6) incorporation of sex differences and sex-related life transitions into the paradigm of personalized medicine.

We thank all workshop participants as well as funding bodies, and look forward to a new era of research in this much-needed field.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

Tanuja Chitnis

Center for Neurologic Diseases, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Samia J. Khoury

*Center for Neurologic Diseases, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA
Abu Haidar Neuroscience Institute,
American University of Beirut, Beirut, Lebanon*

Corresponding author at: Center for Neurologic Diseases, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA. Fax: +1 617 525 5370.
E-mail address: skhoury@partners.org