Women's cognitive health special edition

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Recent research has generated important new knowledge concerning diseases that are unique to women, and how some diseases affect men and women differently. The treatment and prevention of these diseases are critical areas that encompass a broad spectrum of scientific research, including molecular, social, and behavioral. This research is being used to determine the age-related cognitive changes that occur in women, and to identify the most effective approaches to prevent cognitive decline in women. It is only through interdisciplinary interactions and collaborations between basic and clinical scientists that the most efficacious translational interventions will emerge to enhance the cognitive health of women.

To address this ongoing need for interdisciplinary collaboration, The Women's Health Center of Excellence for Research, Leadership, Education (WHCOE) of the Wake Forest University School of Medicine began organizing Graylyn Conferences on Women's

Cognitive Health in the mid-1990s. Over the years, these biennial conferences have focused on a wide array of issues including normal cognitive aging, effects of disease and treatment on cognitive function, Alzheimer's disease and other dementias, and hormone therapy (HT). Our most recent conference—held 24–26 October 2007 in Winston-Salem North Carolina—was the 11th Graylyn Conference on Women's Cognitive Health and was entitled “Continuing the Dialogue: Cutting Edge Translational Research”. This 2-day conference engaged the best physicians and scientists in the field to discuss their most recent research in an effort to promote cross-disciplinary discussions regarding the design of creative research strategies to translate basic science findings into clinical trials and clinical care, and to inform subsequent laboratory research. To facilitate these interactions, each conference session was organized to include the full translational spectrum, from molecular, to animal models, to the human research levels.

This special edition of *Age* provides the opportunity to share the presentations and perspectives of the participants of the conference with a wider audience interested in age-related cognitive function and, in particular, women's cognitive health. Contained within this special edition are the presentation abstracts arranged by conference session, including a session summary by the Session Chair. Session topics for this year's conference covered many of the critical areas in the field of women's cognitive aging, including the

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positive/negative effects of HT, the importance of considering the impact of vascular disease and stroke on cognitive function and the use of HT in these conditions, and updates from the national randomized clinical studies of the Women's Health Initiative Memory Study (WHIMS), Women's Health Initiative Study of Cognitive Aging (WHISCA), and the Cognition in the Study of Tamoxifen and Raloxifene (CoSTAR). Of note are the recent magnetic resonance imaging (MRI) data from these national trials that support the need for further study of brain lesions and memory in postmenopausal women. A topic of great interest has been the identification of novel approaches to improve cognitive function beyond HT. This topic was covered in two conference sessions in which a variety of methods were discussed, including selective estrogen receptor beta agonists, nicotinic agents, growth hormone factors, diet, androgens, and physical activity. A session on the latest technological advances in personalized medicine and imaging provided the conference attendees with information on how these methodologies enhance the collection and interpretation of cognitive data and facilitate the translational process. The concluding session of the conference took the research audience to the next level to discuss the importance of inclusion of ethnic minority women in research, how research needs to be designed to engage this unrepresented group, and the ethics involved in conducting human research.

In addition to the conference abstracts, this edition of *Age* contains featured research articles and a report from a national workshop on HT. An animal model of aging that often gets little attention is the canine model. Much research in the aging canine has provided important insights into age-related cognitive dysfunction and potential therapeutic interventions. In the review by Christie et al., data are presented from a longitudinal study in aged dogs demonstrating that the combination of an antioxidant-rich diet with a behavioral-enriched environment enhanced cognitive profiles more than diet or environmental enrichment alone. These data highlight the importance of the fact that multiple

approaches may be needed to achieve and maintain high levels of cognitive functioning with age. With regard to HT, a balance must be achieved between the potential behavioral-enhancing effects and the potential adverse effects. Data from ovariectomized rats reported in the article by Walf and Frye underscore the difficulty of achieving this balance. In their study, estrogen improved sociosexual behavior but chronic estrogen exposure also increased uterine tumor proliferation. To highlight that not all research on the cognitive effects of gonadal hormones is being done in females is the paper by Osborne et al., which reports that androgen metabolites working through the estrogen beta receptor can decrease anxiety and improve memory in male rats. The final paper in this special edition is a report and recommendations from a National Institute on Aging sponsored workshop entitled "Bench to Bedside: Estrogen as a Case Study." The workshop convened nationally renowned scientists working on the female brain (both animal and human) to discuss the effects of estrogen and progestogen on the aging brain and cognition, to examine the consistencies and inconsistencies between the findings of the WHIM studies and other reported research findings, determine if additional hormone interventions could be developed, and to offer advice on the design of clinical trials for other interventions for cognitive aging. Working groups continued the discussion beyond the workshop and identified specific recommendations to move the research agenda forward.

It is clear that successful translational research means learning to foster professional, collaborative relationships during the research process, including creating an environment in which translational research discussions and interactions can occur freely. Conferences like the Graylyn Conference on Women's Cognitive Health support this concept.

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