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Neurodevelpomental disorders: Clinical, genetic and neuroimaging approach

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Disability-adjusted life year indicators and global burden of disease studies have conclusively shown that mental/brain disorders constitute a major part (over 10%) of the health burden in the world. This is nearly equal to cardiovascular disorders and more than the burden of cancer and many other disorders. Scientific research productivity, inequity, ignorance and stigma in the brain research domain in developing countries are alarming. Neurodevelopmental disorders are predominantly chronic diseases, of early childhood/adolescence, that constitutes a continuum of abnormal brain development and deficits, in the motor, sensory, cognitive, emotional and social domains. Further to these deficits, most of the patients display typical facies, cardiac abnormalities, epilepsy and obesity. Three disorders will be discussed: polygenic disorder (autism) to monogenic disorder fragile X syndrome (Do autism and FXS with autistic features reflect shared neurobiological markers, as they reflect share clinical/behavioral phenotypes? Williams syndrome (WS) promises to provide essential insight into the pathophysiology of cortical development since its 28 deleted genes are crucial for cortical neuronal migration and maturation. WS is one of the most puzzling childhood neurodevelopmental disorders affecting most intellectual deficiencies yet relatively preserving what is uniquely human (language and social-emotional cognition). Therefore, WS provides a privileged setting for investigating the relationship between genes, brain and the consequent complex human behavior. Creating more homogeneous disease phenotypic models may be a way to overcome the problem of heterogeneity in our current understanding of these neurogenetic disorders. In conclusion, the use of consanguinity, behavioral and anatomical neuroimaging endophenotypes may facilitate discovery of the genetic and environmental architecture.

Biography

Meguid is a Professor of Human Genetics, National Research Center, Cairo. Senior Geneticist at the Genetics Institute, Pasadena, California. Fellow of Medical Genetics, Uppsala University, Sweden.

MAIN DISTINCTIONS: L'Oréal-UNESCO Award For Women in Science (Laureate 2002) Distinctive Arabn Scientist Prize in Genetics, Bahrain, May, 2009. National Award for Scientific Excellence in Advanced Technology in 2009. Prize for Scientific Appreciation, National Research Centre, 2011.

Membership:- Member in the National Committee for women in Science and Technology, Member in the Regional Bio-Ethics Society of UNESCO, Member in the jury for UNESCO\Loreal awards for women in science, Member in Gender Research in Africa into ICT Technologies for Empowerment (GRACE). She has published more than 70 papers in reputed journals and serving as an editorial board member of repute.

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