

Cytogenetic Abnormalities in Egyptian School Boys Presenting with Poor Scholastic Performance

S. Moussa, M. Kotb, A. Mahmoud, and H. Afifi

Abstract

Thirty male patients suffering from poor scholastic performance were enrolled in this study. The study and matched control groups underwent full pediatric and psychiatric assessment as well as chromosomal analysis and cytogenetic fragile X site detection. They were all in schools and had an IQ above 75. Exclusion criteria included major dysmorphic features, visual or hearing impairment, ADHD, pervasive developmental disorder, tic disorder, anxiety and mood disorders. In addition the control group had at least an average scholastic performance as reported by parents and school grades and no history of any psychiatric disorder.

Results: 43.33% (n=13) of the study group had reading disorder or reading disorder &/or disorder of written expression; 13.33% (n=4) had mathematics disorder another 13.33% (n=4) had difficulties with mathematics not amounting to disorder, and 30% (n=9) qualified for the DSM IVTM category of academic problem (V62.3) where they presented with failing grades and significant underachievement despite their relative adequate intellectual capacity and absence of learning disorder. Chromosomal analysis detected 11 cases (36.67%) with chromosomal variations. These were interstitial deletion in chromosome 2(p22-p24) in one case; paracentric inversion chromosome 6 (p23 – p24) in one patient; paracentric inversion chromosome 9 (p21 – p24) in two patients; interstitial deletion in chromosome 15 (q22 – q23) in one patient; Chromosome 15(p+) (duplication of the short arm) in two patients; supernumerary small marker chromosome in one patient; deletion of the heterochromatine of Y chromosome Y (q12) in two patients and break at X(q27) in folate deficient media in two patients (one had an additional 15p+). None of the control group was found to have an abnormal cytogenetic study. Conclusion: Poor academic performance could be added to the various phenotypes predicting genetic (chromosomal) abnormality.

Cytogenetic Abnormalities in Egyptian School Boys Presenting with Poor Scholastic Performance

Introduction

As children approach the middle phase of childhood (starting age six), learning to read, spell and do arithmetic becomes one of the main challenges for most of them. Unfortunately for some children mastering these basic academic skills creates enormous difficulties (Maughan & Yule, 1994). Poor academic performance is one of the commonly met with problems presenting to those working with pediatric population. In psychiatric settings the diagnosis of learning disorders according to DSM IVTM (APA, 1994) or specific developmental disorder of scholastic skills according to ICD 10 (WHO, 1992) is used when the poor academic performance is not accounted for by the child's chronological age, measured intelligence, a sensory deficit, lack of achievement motivation or another psychiatric

disorder that would affect academic performance particularly ADHD, pervasive developmental disorders, depression, anxiety disorders or childhood psychotic disorders. However, several cases do not fit the diagnostic criteria of the nosological systems and hence are diagnosed as learning disorders not otherwise specified (LD NOS) or as suffering with an academic problem (a V code in DSM IVTM : V62.3). Several authorities in the field concluded that LD is not a single disability but rather a special education category composed of disabilities in one or more domain of academic achievement (Doris, 1993). Reading disorder, also known as dyslexia has been the most extensively studied (unlike the disorder of mathematics) (Snowling, 2002).