Autism Spectrum Disorder in Down Syndrome: Definition of the Cutoff Point for the Autism Screening Questionnaire Screening Instrument

To the Editor:

Recently, an article on the prevalence of autism spectrum disorder (ASD) in Down Syndrome (DS)[1] has been published. The aforementioned work discusses the sensitivity and specificity of 2 instruments used for the screening of ASD in a population with mental retardation, particularly DS, and suggests that the instruments currently available for diagnosis of ASD have low specificity. Our research group (Lowenthal et al) had already evaluated a sample of 228 individuals with DS in the city of Curitiba, capital of the state of Paraná, in the south of Brazil and had found increased prevalence of ASD (14.5% in our study vs 18.2% in the study by DiGuiseppi et al) being 4.9% for autism (6.4% in the study by DiGiuseppi et al).

In a more recent study, DiGiuseppi et al[1] discuss the implications of the higher sensitivity of the instruments at the expense of specificity. In this sense, we have decided to reexamine the Brazilian DS cohort,[2] looking into new possibilities with respect to the specificity of one of the instruments used, the Autism Screening Questionnaire (ASQ). The preliminary validation study of the Brazilian version of the ASQ had suggested the same cutoff points as those of the original study (without ASD [<15], with ASD [≥ 15 and <21], and autism [≥ 22])[3] in a cohort of 120 participants (40 ASD, 40 DS, and 40 other psychiatric disorders).[4]

First, we decided to verify the sensitivity and specificity of the cutoff point ≥ 15 applied to our sample. A sensitivity of 88.2% and a specificity of 53.3%, with good ability to recognize ASD cases ($p = 0.021$), were found. To search for new cutoff points for this DS/ASD population, a classification analysis by decision tree test confirmed by receiver operator characteristic curve was accomplished, which furnished a cutoff point of 18, in which sensitivity and specificity were 76.5% and 93.3%, respectively (area below the curve = 0.884). Despite the decreased sensitivity, this increase in the cutoff point allowed for higher specificity, which should provide this screening instrument with improved psychometric property. Many of the symptoms that are part of the ASD screening instruments are very common in subjects with intellectual disability, which can cause individuals with DS to present with isolated symptoms, thereby justifying the elevation of the ASQ cutoff point during screening of ASD cases. For this reason, an instrument with higher specificity should avoid problems with identification of false positives, which have financial implications and result in burden for the families,[1] especially in investigations involving large cohorts of patients.

The increased frequency of ASD in DS suggests that large epidemiologic studies should be performed on this population. As in the case of studies on other associations between low-frequency pathologies, such large studies on ASD/DS would probably facilitate the search for genes and polymorphisms associated with ASD, thus aiding better understanding of the development of the social brain in individuals with DS. Finally, screening instruments adapted for investigations on specific populations are mandatory.

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