Intellectual Disability and Language Disorder

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KEYWORDS

• Intellectual disability • Global developmental delay • Language disorder
• Early intervention • Multidisciplinary care

KEY POINTS

- Intellectual disability (ID) and language disorders are neurodevelopmental conditions arising in early childhood.
- Child psychiatrists are likely to encounter children with ID and language disorders because both are strongly associated with challenging behaviors and mental disorders.
- Because early intervention is associated with optimal outcomes in ID and language disorders, child psychiatrists must be aware of their signs and symptoms, particularly as related to delays in cognitive and adaptive function.
- Optimal management of both ID and language disorders requires a multidisciplinary, team-based, and family centered approach. Child psychiatrists play an important role on this team, given their expertise with contextualizing and treating challenging behaviors.

INTRODUCTION

Among parents' foremost developmental concerns are cognitive delays, in particular delays in language and adaptive function. Both are features of intellectual disability (ID), or, when language is specifically affected, language disorders. Child psychiatrists frequently encounter these conditions, particularly because they are associated with an increased risk of challenging behaviors and mental disorder. In working with affected children and their families, child psychiatrists should be prepared to identify relevant signs and symptoms, manage psychiatric comorbidities, refer to specialists for comprehensive assessment and multidisciplinary treatments, and foster family-centered care. Child psychiatrists thus play an important role in addressing the multifaceted nature of these conditions and in optimizing independence and functional outcomes.

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Child Adolesc Psychiatric Clin N Am 26 (2017) 539–554
http://dx.doi.org/10.1016/j.chc.2017.03.001
childpsych.theclinics.com

INTELLECTUAL DISABILITY

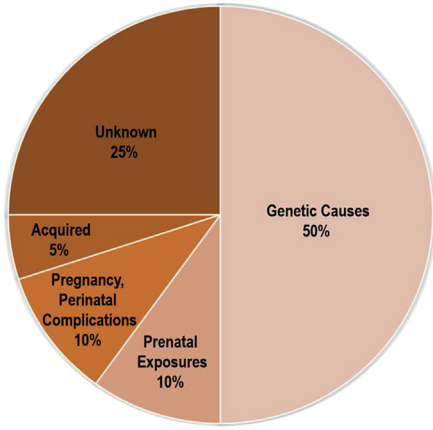
ID is a neurodevelopmental disorder characterized by 3 features[1]:

- Deficits in cognition
- Deficits in adaptive function
- Onset during the developmental period

Collective attitudes toward ID have shifted from a model of static deficiencies to a more dynamic, strength-based perspective, and so-called mental retardation, the prior diagnostic term, has fallen out of favor. The introduction of the term "Intellectual Disability" in Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5) was presaged by Rosa's Law, a 2010 federal statute requiring that ID replace mental retardation in health, legal, and educational policy (P.L. 111–256). Also, in contrast with DSM-4–Text Revision, absolute intelligence quotient (IQ) cutoffs no longer define severity; mild, moderate, severe, or profound ID is now classified by level of adaptive functioning within a range of IQ scores. Adaptive functioning encompasses 3 domains:

- The conceptual domain, which includes language, knowledge, and memory
- The social domain, which includes empathy, social judgment, and rule-following ability
- The practical domain, which includes self-care, organization, and daily living skills

Estimates of ID range between 1% and 3%, with a male/female ratio of 1.6:1.[2] Causes of ID include genetic abnormalities, as well as prenatal, perinatal, and postnatal environmental factors[3,4] (**Fig. 1**). Suspicion of ID can arise during infancy, although children less than 5 years of age are typically diagnosed with global



Genetic Testing	
Tier 1	Chromosomal Microarray (CMA) Fragile X genetic testing Karyotype (suspected Down or other chromosomal syndrome) 1st tier metabolic testing *carnitine profile *amino acids *urine organic acids, *glycosaminoglycans *oligosaccharides *purines *pyrimidines *GAA/creatine metabolites.
Tier 2	X-Linked ID panel & X-CMA (men with suggestive family history) MECP2 study (women) 2nd tier metabolic testing – based on symptom profile
Tier 3	Whole-exome sequencing

Fig. 1. Causes of ID and their respective percentages[4] are shown, together with a list of currently recommended genetic testing. Several non-genetic factors also lead to ID, including congenital infections, exposures to teratogens or toxins, prematurity, hypoxia, trauma, intracranial hemorrhage, central nervous system infection or malignancy, psychosocial deprivation, malnutrition, or acquired hypothyroidism. CpG, cytosine-phosphate-guanine; GAA, guanidinoacetate; MECP2, methyl-CpG binding protein 2. (*Information from* Moeschler JB, Shevell M. Comprehensive evaluation of the child with intellectual disability or global developmental delays. Pediatrics 2014;134(3):e903–18; and Pivalizza P, Lalani SR. Intellectual disability in children: evaluation for a cause. UpToDate: Waltham (MA); 2016.)