



The Relationship Between Attention Deficit-Hyperactivity Disorder and Kidney Disease in Children and Adolescents: An Emerging Area of Research

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Dear Editor,

The initial relationship between attention deficit hyperactivity disorder (ADHD) and kidney disease in children and adolescents may seem counterintuitive, but recent studies have shed light on possible connections. Yousefichaijan et al. found that ADHD is associated with an increased risk of developing chronic kidney disease (CKD). Although no differences were shown between ADHD prevalence in the children with early stages of CKD, studies have found a strong relationship between CKD and the prevalence of ADHD in children with more advanced stages of CKD like End Stage Renal Disease (ESRD), kidney failure requiring hemodialysis, and those who have undergone transplantation (1, 2). Inattentive type and hyperactive-impulsive type of ADHD were more prevalent in these children (3). According to a study by Miranda et al., a variety of mechanisms could contribute to cognitive impairments in individuals with kidney disease, including the release of cytokines and chemokines, production of reactive oxygen species, circulating and local production of trophic factors, and renin-angiotensin system molecules. However, the precise pathophysiology linking ADHD and renal diseases, as well as the order of their manifestation, has yet to be fully discovered (4).

Another aspect of the relationship between ADHD and kidney disease is the potential impact of ADHD medications on renal function. Stimulant medications, such as methylphenidate and amphetamines, are commonly prescribed for the treatment of ADHD. While

these medications are generally considered safe, there have been reports of acute kidney injury (AKI) associated with their use (5). Although this is a rare occurrence, practitioners should be cautious and monitor renal function closely in patients treated with stimulants for ADHD.

It is also worth mentioning that individuals with ADHD are more prone to engaging in risky behaviors that may contribute to kidney damage in adulthood, such as substance abuse and poor lifestyle choices (6, 7).

This underscores the importance of comprehensive interventions, including psychoeducation and behavioral therapy, to address these risk factors and ultimately prevent kidney disease in this population. In light of the current evidence, further research is necessary to elucidate the exact relationship between ADHD and kidney disease. Large-scale, longitudinal studies are needed to determine the causality and underlying mechanisms. Moreover, an investigation into ADHD's long-term effects of medications on renal function would be valuable.

Footnotes

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