

Review Article

Wernicke-Korsakoff Syndrome (WKS): A Call for Criminal Justice and Forensic Mental Health Professionals to be Informed

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Abstract

Wernicke-Korsakoff Syndrome (WKS) results from a thiamine deficiency (vitamin B1) and is a debilitating, neurological disorder characterized by ocular abnormalities, mental health status changes, memory deficits, and ataxia. The implications of this condition can result in a host of impairments, causing long-lasting consequences and in some instances, permanent brain damage. In most cases of WKS, chronic alcohol use is the contributing factor of the thiamine deficiency. WKS can have devastating consequences in forensic mental health and criminal justice contexts. Despite these issues, professionals working in these settings often have limited familiarity with WKS. As such, this article advocates for elevated awareness, advanced training and systematic research on WKS in forensic mental health and criminal justice settings. This includes an overview of WKS symptoms and related deficits, and potential assessment and treatment approaches for individuals with WKS. In addition, suggestions are made for future research on WKS, particularly in these settings. Through increased awareness, understanding, and training, forensic mental health and criminal justice professionals have the potential to help improve the short- and long-term outcomes of individuals with WKS.

INTRODUCTION

Wernicke-Korsakoff Syndrome (WKS) is most commonly marked by the co-occurrence of two closely associated neurological disorders: Wernicke's encephalopathy (WE) and Korsakoff's syndrome (KS). Although WKS can be caused by prolonged malnutrition, this condition is typically the result of persistent use of alcohol over many years [1-3]. In fact, research has found that almost 90% of individuals with WKS possess an extensive history of alcohol use [3]. In both causal models, a deficiency of the B1 vitamin (thiamine) is the driving force [4-6]. Thiamine is an important vitamin essential for the proper function of many structures of the body, but for the present discussion it is critical for the brain's nerve cells, glial cells, and neurotransmitter production of the structures vital to memory, i.e. the thalamus, the forebrain, and medial temporal lobes [7]. WKS can co-occur with several conditions. These conditions include cancer, pancreatitis, thyroid issues, and immune deficiency disorders such as Acquired Immunodeficiency Syndrome (AIDS). Similarly, WKS can also co-occur with digestive and eating conditions such as Crohn's disease, bulimia, or as a result of gastric bypass surgery [4,8,9].

The symptoms of WKS, WE, and KS can vary substantially across individuals [10]. Wernicke's encephalopathy is a

relatively short lived, yet quite severe and potentially life-threatening condition in which three classic symptoms are generally observed: eye movement disturbances, also called ophthalmoplegia, mental confusion and mental health status changes, and abnormal physical coordination or ataxia, which can be manifested in the form of an abnormal stance and walking gait [11-14]. It is important to note that not all three of these hallmark symptoms are required for diagnosis [8,10]. In contrast, Korsakoff syndrome is a long-lasting, chronic condition typified by an array of symptoms including: apathy, confabulation, delusional tendencies, disorientation, mental processing deficits, and personality changes [15-19]. In combination, WKS can be characterized by impairments in executive control, short- and long-term planning, decision making, problem-solving, memory, and poor behavioral control [20,21].

One of the most common consequences of WKS is memory loss including anterograde and retrograde amnesia [9]. In particular, there is difficulty forming new short-term memories (and, consequently, long-term memories) or accessing existing memories, especially of prior autobiographical events. These memory deficits may persist despite the presence of memory aids such as collateral informants or documentation. A lack of insight into these deficits (termed anosognosia: a lack of

awareness of one's mental health deficits) may increase the likelihood of suggestibility and confabulation in an effort to compensate for gaps in memory [22,23]. The combination of these memory impairments coupled with the other symptoms of WKS makes these individuals very challenging to interact with on an interpersonal level.

One key area where WKS can present challenges is clinical settings where WKS may be over-represented relative to the general population, such as alcohol treatment and detoxification centers [22,24]. The challenges can be seen in behavioral health clinicians and medical staff who can sometimes become frustrated with clients who have WKS. The problems stem from the fact that the symptoms of the disorder limit the possibility of utilizing many common, reliable, and valid assessment and treatment methods [20]. These clients often have difficulty participating in treatment that incorporates group therapy sessions because they continually need to be re-oriented and provided extra guidance. Delays in diagnosis and treatment can also have devastating consequences not only for the individual but also for their family members and other invested stakeholders. The importance of accurately identifying and providing appropriate treatment for with WKS is emphasized by the fact that it is a complex and multi-faceted neurological disorder that has catastrophic consequences, up to and including death, if it is not diagnosed and treated in its early stages [3,10,25].

The pervasive symptoms of WKS may also contribute to its overrepresentation in criminal justice settings. For instance, thiamine deficiency is present in somewhere between 20% and 80% of chronic alcohol users [4,26]. With such a wide span, the question is, "Why is this the case?" Case studies and popular media stories suggest that the use of alcohol lowers inhibition in combination with the symptoms of WKS may increase the likelihood of becoming involved in the criminal justice system for a host of reasons. Once entangled in the criminal justice system, the presence of WKS in criminal justice settings present unique challenges, as the symptoms may interfere with the ability to make legal decisions or even just stand trial competently [27]. In light of inherent limitations about self-reported information during interrogations and testimony in the criminal justice system, the memory impairments of WKS are particularly concerning. The consequences of WKS may range from false confessions to wrongful convictions [27]. Nonetheless, there is a dearth of research on the impacts of WKS in criminal justice settings.

Greater awareness among forensic mental health and criminal justice professionals may be one of the best ways to reduce future incidences of WKS and its associated brain damage. Despite this substantial and merited need, the opportunities for advanced training and education on WKS are few and far between for these professionals. To begin to address these needs, the purpose of this brief article is to review the basic definitional features of WKS and provide suggestions for future training and research.

Suggestions for Further Training

Criminal justice and forensic mental health professionals are strongly encouraged to seek out continuing education (CE) courses on the topic of WKS. This should involve the acquisition of knowledge about the latest research findings from a number of key areas in the field. Comprehensive coverage of the history and etiology of WKS including the root causes is a must.

Additionally, any training should highlight various aspects of WKS including risk factors, symptoms, and post-mortem physical confirmation of the syndrome [12]. Another suggested topic that proper training should cover is the intricacies and difficulties in screening and assessing living patients. Training should also note that the presence, or suspected presence of WKS, can play a key role in determining how to manage and treat afflicted individuals involved in the criminal justice system. As such, memory issues are likely to impact a competency to stand trial determination. Those same issues may also result in confabulation of testimony, which in turn can create due process issues for both the defendant and the court. Lastly, any training should be careful to highlight what is not presently well understood about WKS. Areas of future research and key questions should be presented so that motivated researchers can begin answering these questions going forward.

Recommendations for Further Research

Nuanced and advanced research has the potential to improve understanding of the diverse impacts of WKS in mental health, addiction treatment, and legal settings. A promising starting point would be identifying what exactly professionals in these settings are aware of concerning WKS. The systematic surveying of a range of professional groups and other stakeholders is one such method. Specifically, legal professionals such as defense attorneys, prosecutors, and judges are uniquely positioned to provide insight into difficulties that individuals with WKS may encounter throughout the criminal justice system. Analogously, mental health and addiction professionals, particularly those that serve as forensic evaluators, are also uniquely positioned to provide powerful insights. These professionals often administer a battery of psychological measures to defendants and then later testify about their findings. Outside of active participants in trials, it is also important to find out more about what corrections professionals (including law enforcement), probation and parole officers, and other invested parties like family members and friends understand about WKS as it relates to them. Regardless of the intended respondent's background, any potential survey should be based on a concerted effort to better understand how an individual's capacity to navigate the criminal justice system, including competency to waive legal rights and stand trial, is influenced by WKS. Any insights gained can help serve the essential purpose of enhancing services and treatment, which then has the potential of improving short- and long-term outcomes for individuals with WKS [28-30].

CONCLUSION

Wernicke-Korsakoff Syndrome (WKS) is a debilitating affliction characterized by diverse cognitive and behavioral symptomatology that can be quite pernicious in clinical and criminal justice settings. Caused by a vitamin B1 deficiency resulting from chronic alcohol use, these symptoms include impairments in executive function, behavioral changes, and memory-related problems. As a result, individuals with WKS struggle to compensate for these memory issues, which may increase their risk of suggestibility and proclivity to confabulate. Efficient and accurate screening and assessment techniques in conjunction with early and effective intervention programs must take precedence. The importance of this is highlighted by the fact that while WKS is relatively treatable in its early stages, a lack of treatment can result in chronic illness and ultimately lead to death in many cases. To help prevent this from happening two things

are necessary. First, improved assessment tools and treatment programs to help those suffering are necessary. Second, increased awareness of WKS in forensic mental health and criminal justice settings is essential. Not only will this require advanced training in evidence-based practices for professionals in these settings, but there also must be a concerted effort to increase coordination and collaboration among those that work with these individuals who suffer from WKS. Together, mental health and addiction professionals (such as psychiatrists, psychologists, and addiction counselors), as well as criminal justice personnel (such as judges, lawyers, and correctional staff) can work together to improve short and long-term outcomes for clients with WKS.

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