

Prevalence and Physiology of Hydrocephalus: Relationships between Cognitive and Neural Function

Newton Gagnon*

Department of Neurology, University of Neuroscience, Canada

Abstract

A common neurological condition known as hydrocephalus is characterized by an excess of cerebrospinal fluid production or accumulation in the ventricles. Patients are generally characterized by a particular pattern of cognitive impairments, including deficits in working memory, attention, and spatial abilities, despite the fact that it is associated with diffuse damage to areas of the paraventricular brain. However, only a small number of neuropsychological accounts of the condition have been published. In addition, theories of the connection between impairment and aetiology appear to have emerged independently and offer fundamentally distinct accounts. The objective of this primer is to provide a neuropsychologist with a current and comprehensive overview of hydrocephalus, including cognitive sequelae and theoretical interpretations of their origins. We audit clinical and neuromental examines of mental profiles, alongside the couple of studies that have tended to more integrative ways of behaving. Specifically, we investigate the qualification between inborn or on the other hand beginning stage hydrocephalus with a typical tension variation that can be gained later in life. Because it can allow for the examination of typical and atypical developmental trajectories, as well as their interaction with chronic and acute impairment, within the same broad neurological condition, the relationship between these two populations is a singularly interesting one in neuropsychology. We consider the implications of this for our topic and suggest future research directions.

Keywords: Hydrocephalus; Spina bifida; Normal pressure hydrocephalus

Introduction

A neurological condition known as hydrocephalus is typically characterized by an increase in the volume of the Cerebrospinal Fluid (CSF). This results in ventricular swelling, which puts pressure on the brain and skull and damages numerous neural structures. The purpose of this review is to present a current overview of the condition's functional and etiological characteristics [1, 2]. In doing as such, we trust that its profile may be raised to a place of more noteworthy unmistakable quality inside scholarly neuropsychology. Despite having characteristics that make it of particular psychological interest, despite being a condition that is well-studied and well-understood in the clinical sciences, hydrocephalus has not achieved quite the same level of awareness in the behavioral sciences. While some of these characteristics are based on ideas like functional impairment, sparing, and dissociation, others are more general ideas like typical and atypical developmental trajectories, acute (and treatable) versus chronic manifestations, and so on. As a result, hydrocephalus presents a unique opportunity to theoretically bridge the gap between traditional patient-based neuropsychology and the study of developmental cognitive disorders [3, 4].

Since the introduction of the shunt procedure in the 1950s, patients' life expectancy has increased sufficiently for them to represent an existing population (with existing cognitive impairments), which may account for why hydrocephalus has escaped mainstream neuropsychological attention up to this point. In turn, the scientific literature on hydrocephalus has developed more slowly as a result of this historical context [5].

Results and Discussion

According to Aschoff, research on cognitive function primarily focused on children at the beginning of the 20th century. On the other hand, advancements in treatment have made it more likely that later studies will include adults as well as people of varying ages. Even though some functions (such as executive function and fine motor

function) appear to be consistently impaired, this profile has resulted in some variation in cognitive outcomes between studies [6].

In the field of neuropsychology, hydrocephalus has the potential to play a particularly intriguing role. While our understanding of conditions, for example, hemispatial disregard or Balint's condition are gathered from people that we dare to have had common pre-horrible capability, how we might interpret mental weakness related with, for instance, Delicate X or on the other hand Turner's conditions comes from people who have, by definition, grew abnormally all along. An intriguing chance to look at the same condition from the perspectives of both conventional and atypical developmental trajectories is provided by hydrocephalus [7]. The latter is probably the most typical, with hydrocephalus appearing at birth (or before), most frequently as a result of ventricular or neural tube defects.

However, despite following a typical developmental path, a normal pressure variant of the condition can manifest itself in adulthood, typically around middle age, resulting in cognitive impairment. Although developmental reading or face processing impairments may be considered comparable to their clinical equivalents, it is difficult to generate other neuropsychological conditions that share such a singular profile [8]. We will discuss the potential repercussions of this. This in-depth look at hydrocephalus will focus on the information that will likely be most useful to neuropsychologists. As a result, we will focus more on the condition's unique cognitive and behavioral effects than

***Corresponding author:** Newton Gagnon, Department of Neurology, University of Neuroscience, Canada, E-mail: gagnon.newton.46@yahoo.com

Received: 01-Apr-2023, Manuscript No: CNOA-23-97014, **Editor assigned:** 03-Apr-2023, PreQC No: CNOA-23-97014(PQ), **Reviewed:** 17-Apr-2023, QC No: CNOA-23-97014, **Revised:** 21-Apr-2023, Manuscript No: CNOA-23-97014(R), **Published:** 28-Apr-2023, DOI: 10.4172/cnoa.1000171

Citation: Gagnon N (2023) Prevalence and Physiology of Hydrocephalus: Relationships between Cognitive and Neural Function. Clin Neuropsych, 6: 171.

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on its clinical complexities, though we will direct the reader to relevant resources for the latter. A comprehensive discussion of the causes of hydrocephalus and its connection to spina bifida follow in the first section of our review. After that, we proceed to defining its cognitive profile based on careful neuropsychological research on fundamental cognitive processes [9, 10]. This will be supplemented by inclusion of the generally inadequate examination that has tended to more integrative ways of behaving in patients with hydrocephalus, for example, spatial route. Last but not least, we'll return to the more philosophical and theoretical implications of studying this population or populations and suggest some future endeavors.

Conclusion

Even though congenital and early-onset variants of HC can have a variety of etiological causes, functional impairment tests show a fairly consistent picture across individuals. In any case, since bits of knowledge have been gathered from a combination of formative and grown-up examples, there are not dependably records of similar mental capabilities in the two associates of patient. In this segment, we start by presenting a wide mental profile of the condition, fundamentally educated by portraying execution across batteries regarding normalized neuropsychological tests. This aims to provide a general description of the domains that patient's exhibit impairment in as well as those that might be regarded as unimpaired or "spared." Then, we look at some of the more in-depth studies of particular cognitive impairments that help us better understand specific domains.

Acknowledgement

None

Conflict of Interest

No conflict of interest declared.

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