

# The Long-Term Sustainability of Procedures Identified with Hydrocephalus

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**Abstract:-** Hydrocephalus occurs in cases of a buildup of excess cerebrospinal fluid widely regarded as CSF (cerebrospinal fluid) in either the cavities of or the ventricles in the brain. It affects an alarming 380 000 new people every year, afflicted upon approximately 85 persons per 100 000 people, among those people data states that for every 100 000 pediatrics 88 are affected, for every 100 000 adults 11 are affected and finally for every 100 000 elderly 175 are affected thus showing us a significant difference in cases ranging ages.

## ➤ *Methods*

A study was conducted on May 31, 2023, concluding July 25, 2023, in which current and previously noted clinical trials, clinically focused research papers and data prided articles centered around hydrocephalus were examined. This study was conducted to help answer the research question provided, the long-term sustainability of procedures identified with hydrocephalus.

## ➤ *Results*

After a thorough moderated and overviewed examination of clinical trials, research papers as well as established grey literature articles attentive to various aspects of hydrocephalus a conclusion can be made with the found statistics and data henceforth, I begin the introductory discussion to this research paper, the long-term sustainability of procedures associated with hydrocephalus.

## I. INTRODUCTION

Hydrocephalus is universally affiliated with four major types; Non communicating / obstructive, communicating, hypersecretory, and NPH otherwise known as normal pressure Hydrocephalus. Hydrocephalus can also fall under two main categories of classification, congenital and acquired.

## II. TO BRING CLARITY TO THE DIVERSE TYPES OF HYDROCEPHALUS

Non communicating or obstructive hydrocephalus occurs in the cases where one or more passages of the brain connected to the ventricles are blocked resulting in obstruction of the flow of CSF (cerebrospinal fluid) then leading to an increase of pressure on the skull.

Communicating hydrocephalus occurs in the cases where the flow of CSF (cerebrospinal fluid) is blocked after exiting the ventricles. This specific type of hydrocephalus was granted its name because CSF (cerebrospinal fluid) can still flow through the ventricles and the passages between said ventricles are open, commonly due to post hemorrhagic or post-inflammatory changes with trauma to the head being a leading contributor to this form of hydrocephalus in adulthood.

Hypersecretory hydrocephalus occurs in the cases where there is an established overproduction of CSF (cerebrospinal fluid) commonly due to plexus papilloma or in rare cases a carcinoma, both widely common in children.

NPH (normal pressure hydrocephalus) occurs in the cases where a difference in the dynamics of CSF (cerebrospinal fluid) results in NPH (normal pressure hydrocephalus) often leading to very slight or no increase in intracranial pressure within the skull. It can often be associated in similarity with communicating hydrocephalus.

Congenital hydrocephalus occurs in cases where there is a prominent buildup of CSF (cerebrospinal fluid) at birth, resulting in hydrocephalus.

Acquired hydrocephalus occurs in cases where the buildup of CSF (cerebrospinal fluid) is due to an injury or disease commonly in the ranging ages of birth to adulthood.

Despite the diverse types and classifications of hydrocephalus the common forms of treatment and surgery in managing the condition are limited in variation although hundreds of brain surgeries as a patient of hydrocephalus is far more common than unheard of, these surgeries are quite similar in variety.

A shunt is an insert tube commonly inserted into the brain to drain excess CSF (cerebrospinal fluid) into either the chest cavity or abdomen to then be absorbed by the body, approximately 36 000 shunt surgeries are conducted each year summed up to roughly 1 surgery every 15 minutes, it is the most generic form of procedure in treating hydrocephalus.

Endoscopic Third Ventriculostomy (ETV) is a procedure of treatment in which a tiny hole at the bottom of the brain's third ventricle is made which then diverts the buildup of CSF (cerebrospinal fluid) resulting in relief to the brain, this procedure is often conducted with choroid plexus cauterization, the act of burning the choroid plexus tissue (produces cerebrospinal fluid) through electrical shock in attempts of slowing down the production of CSF (cerebrospinal fluid).

Hydrocephalus effects roughly 1 in every 770 babies ultimately resulting in years of surgeries and checkups or death hence I ask how sustainable the established method of procedure in treating adolescents diagnosed with hydrocephalus is?

The potential physical complications of surgical treatments for hydrocephalus include infection, bleeding and ineffective management of CSF (cerebrospinal fluid) through faulted shunts resulting in further complications.

Among the physical complications a study conducted by Anne Henriette Paulson, Trygve Lundar and Karl-Fredrik Lindegaard affiliated with the department of neurosurgery, Rikshospitalet, in Oslo Norway states; after a review of 128 patients who needed a CSF (cerebrospinal) shunt in the years 1967-1970 ages ranging from 14 years or less indicated 61 of the patients had died (47,6%), 56% of the remaining patients were socially independent and 42% of the patients were employed leading us to question how these statistics would differ if these patients were not patients of one of the most surgically underdeveloped brain conditions to date, my statement supported by the lack or surgical developments in treating the condition since 1898 – 1925 the years in which variations of the shunt was created.

### III. CONCLUSION

This study shows the clear lack of development in treating hydrocephalus and aims to bring awareness to the lack of academia covering further investigations to develop the treatment procedures of hydrocephalus.

I openly accept any criticism or questions this paper may evoke, and furthermore welcome them warmly.

Organizations that aim to highlight the lack of developments in finding a cure with regards to treating hydrocephalus include the hydrocephalus association in which you can join fundraising walks with as well as donate funds and become a part of a group of advocates for the association, benefits of this position include daily updates and announcements with regards to hydrocephalus.

### REFERENCES

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