Bringing hydrocephalus

The history of hydrocephalus dates back to the time of Hippocrates (he died c. 375) and even further to medieval times when physicians believed that it was caused by an extractable (sic) accumulation of water. Surgical evacuation of superficial fluid in hydrocephalus children was first described in detail by Balalaikas AY Zachary in 1744 (Scoff, Kramer, Hashish & Sunken, 1999).

While there have been many great strides, both in research and treatment, it seems the great pool of knowledge resides not thin the medical community, but in the adult survivors of the condition. One can only wonder if this is due, at least in part, to a perception by the medical community that it is not a survivable condition. Actually the exact opposite is now true. With proper medical treatment (done in a timely manner) and LOTS of love and support from the patient'sfamily, many hydrocephalus children can go on to live near normal lives.

Introduction The modern era of hydrocephalus research began with the studies of Dandy and Blackman in 1914 (Grittier, 2007). To this day their work is considered an unsurpassed nutrition toward the understanding of hydrocephalus. While I applaud their work, it has been ninety-nine (99) years since any work of a similar scope or caliber has been undertaken and it is beginning to show. As an example, when I was born in 1963, I showed the early stages of congenital hydrocephalus and my family was basically told " take him home to die".

Needless to say, I didn't die and have become - even according to the local medical community - one of the best sources of information in our area when

it comes to hydrocephalus. Although I feel honored to eave such distinction, it's not enough - the medical community - especially pediatricians - need to possess that same knowledge and that is my purpose in writing this paper. L. 20-Year decline in the mortality rate for hydrocephalus Before getting too involved in why hydrocephalus research needs to be brought into the 21st century, an explanation of the condition is needed.

Hydrocephalus is defined as " A condition marked by an excessive accumulation of cerebration's fluid (SF) resulting in dilation of the cerebral ventricles and elevated interracial pressure; (it) ay also result in enlargement of the cranium and atrophy of the brain" (Williams, 2006). It can take one of two forms. It can be either communicating (meaning there is not visible cause for the blockage of SF) or non-communicating (meaning it results from an abnormal flow of SF in and around the brain. It is also known as pediatric hydrocephalus since it is normally present from birth. (" Nervous system diseases," 2008). When I was born in 1963, the life expectancy for a child with this condition was approximately two (2) years and the only known treatment, placement of a shunt, was still in its infancy. Since that time, shunt surgery has been refined and could almost - depending on the individual patient - be considered an almost routine procedure. In an article published in the August 2005 issue of the Journal of Neurosurgery, Dry. J. H. Chi, ET. AY. Stated " Congenital hydrocephalus has an estimated population incidence of 0. To 0. 8/1, 000 live births" (Chi, Fullerton & Guppy, 2005). They credit this to improvements in techniques for SF shunting; however, they state that data describing mortality from congenital hydrocephalus - or that demonstrate improvements in the mortality rate are scarce. For those

not familiar with shunt implantation surgery, it involves making a small incision in both the top of the head and the abdomen (in the case of a ventricular-peritoneal (UP) shunt) to insert the shunt which drains excess fluid from the brain (Goodman, 2013).

To validate their hypothesis, the doctors performed an electronic search of the National Center forHealthStatistics death certificate database to identify deaths from 1979 to 1988 directly attributable to congenital hydrocephalus, spins biffed with hydrocephalus, and acquired hydrocephalus in all children in the United States aged one (1) day to 0 years. There were 10, 406 deaths attributed tochildhoodhydrocephalus during the 20-year period reviewed. This translates to an overall mortality rate of 0. 71 per 100. 000 person-years.

Additionally, their research showed infants had the highest mortality rate with 3, 979 deaths. Overall during the period deaths from acquired hydrocephalus - meaning that it occurs after birth and is the result of a tumor, injury, or disease that blocks the uptake of SF - decreased 67. 5%, deaths from congenital hydrocephalus declined 66. 3 %, and deaths from spins biffed with hydrocephalus declined 30. 4%. What does it all mean? It means that the medical community needs to re-think their position on hydrocephalus as well as what they tell patients and their families.

It means saying " Take him/her home to die," is no longer an option. Does it mean re-inventing the wheel? For an olderdoctorit could very well mean that although, in most cases, it will not be quite so drastic. The Hydrocephalus Clinical Research Network (HCI) makes the following recommendations to its

members: Reduce risk of infection associated with shunt surgery Approximately 8% - 10% of shunt operations result in an infection. A study is currently underway for a quality improvement technique that will reduce surgery- related shunt infection(s). (Woolens, 2013).

The result will be a reduction in the infection rate thereby reducing the length of hospitalizing as well as patient morbidity. Management of hydrocephalus in premature children The HCI is investigating two (2) surgical procedures that are commonly used to manage IV-induced hydrocephalus in premature children. A sublease reservoir is an implant consisting of a tube which goes into the ventricle attached to a silicone bubble that sits under the skin. As fluid accumulates in the ventricle, it can be removed by a needle puncture through the skin and into the silicone bubble.

The second procedure is an s sublease shunt, which is similar to the reservoir except that the silicone bubble under the skin has a reservoir has an opening in the side that allows fluid to flow out under the skin. The fluid is then absorbed into the tissues. Understanding the epidemiology and outcomes of Endoscopies Third Ventriloquist's or TV Endoscopies Third Ventriloquist's (TV) is a surgical procedure where a small perforation is made is made in the thinned floor of the third entrance allowing movement of SF out of the blocked ventricular system and into the intracellular cistern which is a normal SF space.

The objective of this procedure, known as a interracial SF diversion, is to normalize pressure on the brain without using a shunt. Although TV is widely used in Europe to treat hydrocephalus, its use in North America is much less

common. The HCI is working to understand when the procedure is indicated as well as its associated outcomes and possible complications. The use of TV is attractive due to the fact that infection s very rare as are other complications such as slit ventricles.

Conclusion Our knowledge of hydrocephalus has come a long way since medieval times when it was believed that hydrocephalus was the result of extractable (sic) accumulation of water. It has even made significant strides since the groundbreaking work of Dandy and Blackman in 1914, but the medical community must not rest on its laurels. In order to fully bring the treatment of hydrocephalus into the 21st century, they must embrace research being done by organizations like the Hydrocephalus Clinical Research Network.

I feel this increased awareness is long past due because, even though it has been almost [emphasis added] a half-century since I was born with the condition, the amount of information available to the medical community remain largely unchanged. I think that is due - at least in part - to the misconception that there is not a high survival rate, therefore, why waste themoney? My research has shown that over the past twenty (20) years, the mortality rate for hydrocephalus has actually declined with 0. 71 per 100, 000 errors/year (Chi, 2005).

The vast majority of the deaths were the result of congenital hydrocephalus - meaning that it is present to some degree when the baby is born. Here is how the AC can help to make my " big idea" (the name given by our instructor to our project) a reality. Publish more articles about the condition,

research into it, and current treatment such as shunting and Endoscopies Third Ventriloquist's. Do feature stories about both child and adult survivors because we have a story we would like the world to know about!