

INTRODUCTION

Hydrocephalus is an enlargement of the head caused by an abnormal accumulation of cerebrospinal fluid (CSF) in the cranium due to an imbalance between the production and absorption of CSF. So this forces the ventricles to enlarge (ventricular dilatation or ventriculomegaly) (which in turn exerts pressure on the surrounding brain tissue, causing the brain tissue to shrink and the head to enlarge) *McDowell (2007), Schrandt-Stumpel (1998) and Vintzileos et al (1993)*.

There are two types of hydrocephalus. In the most common variety, when one or more passages connecting the ventricles become blocked. This type of hydrocephalus is called "noncommunicating". In a second type, a reduction in the absorption rate is caused by damage to the absorptive tissue. This variety is called "communicating hydrocephalus" (*Toporek and Robinson, 1999*).

Obstruction of CSF flow can be caused by infection, hemorrhage, brain injury, brain tumor, or a birth defect. The most common defect or lesion causing congenital hydrocephalus is aqueductal stenosis or atresia, which is a narrowing or blockage between the third and fourth ventricles of the brain (*Gleason, 2002*).

Congenital hydrocephalus has an estimated population incidence of 0.2 to 3.5/1000 live births while the prevalence of hydrocephalus is 1 to 1.5% (*Greenberg, 2010*).

Chi et al., (2005) found that the overall mortality rate attributed to childhood hydrocephalus is 0.71 per 10,000. Mortality rates are highest in infants (3.8 per 10,000). Relative risk (RR) for deaths caused by congenital hydrocephalus is 1.46 and for acquired hydrocephalus is 2.58.

The economic burden of hydrocephalus is apparently very high because of the high incidence of complications of shunt surgery and the associated failures that result in multiple hospitalizations and shunt revisions (*Sankhla and Khan, 2009*).

The elevated intracranial pressure may cause compression of the brain, leading to brain damage and other complications. Conditions among affected individuals vary widely. Children who have had hydrocephalus may have very small ventricles, and presented as the "normal case" (*Yadav et al., 2007*).

Getting regular prenatal care to reduce risk of premature labor, keeping child's immunizations up-to-date (Vaccines that prevent some types of meningitis) and Protecting baby or child from head injuries by using a properly installed, age and size appropriate child safety seat on all car trips are some ways to prevent hydrocephalus (*Whitelaw et al., 2007*).

It is the most common disease that is treated by pediatric neurosurgeons (*Maher et al., 2006*).

The public health burden of hydrocephalus is significant: (**Smith, 2009**). On average 6000 new babies are born with hydrocephalus every year in the United States and thousands of people are diagnosed later in childhood or as

adults. The total cost of shunt Surgeries in the U.S. exceeds \$2 billion per year and this does not include the cost of any rehabilitative therapy or educational accommodations.