

# Consequences of Ventriculoperitoneal Shunting in Neonates: A Quality of Life Analysis Following Intraventricular Hemorrhage

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#### Introduction

Intraventricular hemorrhage (IVH) is a major cause of morbidity and mortality in neonates, predominating in very low gestational age (22-28 weeks) and very low birth weight infants (VLBW, 401-1500g) [1]. IVH is graded from I-IV, grades III and IV being classified as severe. Nine to 16% of very low GA and VLBW will suffer from severe IVH [1,2]. Despite medical technology there is a 20% mortality rate in babies with IVH with an overwhelming 59% representation in grade IV IVH [3]. Twenty to 22% percent of surviving neonates with severe IVH will develop hydrocephalus, and of those, 9-16% will require permanent placement of a ventriculoperitoneal shunt (VPS) [2,3]. Up to 50% of patients with severe IVH will have either moderate or severe impairment that directly limits quality of life and functional status. We sought to evaluate the quality of life of parents and families of children with ventriculoperitoneal shunts placed for severe intraventricular hemorrhage since the situation can create significant stress on family dynamics and may contribute a negative impact on the family's overall quality of life.

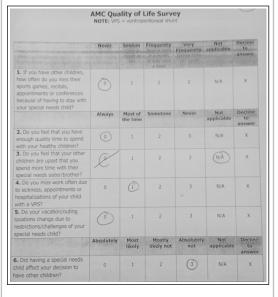
## **Learning Objectives**

By the conclusion of this session, participants should be able to:
Describe the importance of the morbidity and mortality associated with severe IVH (grades III and IV).

- Discuss how to facilitate the decision making process of whether to place a VPS for IVH and HCP for individual families.
- •Identify the value of previous families' sentiments and perspectives on providing future families with more information about potential quality of life for the family.

#### **Methods**

Retrospective chart review of patients with grade III/IV IVH as a neonate with subsequent placement of a VPS. Families were identified and received 2 questionnaires: CHQ-28 that measures pediatric quality of life and an institution generated quality of life survey.



7. Do you feel that the discussion with the medical team during the time of birth about placing a VP shunt helped you to understand how your baby would grow and develop?	0	1	2	3	N/A	x
8. Do you feel that the discussion with the medical team during the time of birth helped you to understand the developmental delays and special needs your child would have?	0		2	3	N/A	x
	Absolutely	Most likely	Mostly likely not	Absolutely	Not applicable	Decline to answer
9. Knowing what you know now, do you feel that placement of the VP shunt was the right thing to do for your family?	0	1	2	3	N/A	×
10. Knowing what you know now, do you feel that you would choose to place a VP shunt again?	0	1	2	3	N/A	×
11. Is there anything that we could have discussed with you at the time of your baby's birth/VP shunt placement that would have helped you to better understand the possible butcomes and to help make your decision?	POSSIBLE RVICU WISOME SOME SO	racry stand	e unders delay o person n	most in the state of telline	liklihood ity, Dr. f	d of Holamo

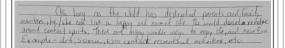
#### **Results**

12 families returned the 2 questionnaires. 92% reported that placement of a VPS was absolutely the right thing to do for their family and 8% felt most likely that it was the right decision. 83% would absolutely make the decision again to place it, while 17% would most likely choose again to place it. 92% felt that they absolutely or mostly understood the special needs that their child might have had at the time they made the decision.

Additionally, feel free to write any information you would like to share, which the survey did not address:  Dr. Adamo and hus teams were very informative when
discussing with us the placement of a VP shunt for ar
So He were made aware of all of the possible delays
and openial reeds ar on could have Thankfully,
our on does not currently have any special nevels
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have grown to relax a bit more as time goes on

To sho grant shortship is helpful. Cuts
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Hy now weak to ordered her high tone. She's
received PT and OT since her discharge from the
NICU. Since she was our first child and multiple
Therapy apots per week is all we've ever known, I
doesn't reddirely impact our quality of life because
it's always bear something that's been a part of
our liver since bearing Defects.

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naw	has pollosy. It anset when she was 7,
and	when we notified the doctors it was
0	if they were expecting it and not
94	consed by it. I rever ward that sem
Qu	a risk of having this shunt placement
T	I mild not have chanced my decisions
b	it it would have better ofencired me.



### **Conclusions**

The decision to place a VPS for patients suffering from severe IVH and resultant hydrocephalus is a very difficult one to make. Caregivers are asked to provide consent in a situation where they are under high stress and possibly unable to fully comprehend the information being presented to them. Despite detailed and simplified conversations, caregivers may grapple with sufficient understanding of the intervention with its risks and benefits, as well as the possible long-term outcomes. At that particular juncture, caregivers and the medical team must decide whether to pursue aggressive, full medical support that may leave the child significantly disabled or turn to palliative care and allow the child to expire in a comfortable, controlled setting. Both options have significant long-term ramifications for the caregivers and their families, and the right decision will be unique for each family. Greater emphasis should be placed on patient oriented outcomes, especially quality of life, when assessing the efficacy of placing a VPS in babies with severe IVH.

#### **Selected References**

1. Stoll, B. J., Hansen, N. I., Bell, E. F., Shankaran, S., Laptook, A. R., Walsh, M. C., . . . Human Development Neonatal Research, N. (2010). Neonatal outcomes of extremely preterm infants from the NICHD Neonatal Research Network. Pediatrics, 126(3), 443-456. doi: 10.1542/peds.2009-2959 2. Alan, N., Manjila, S., Minich, N., Bass, N., Cohen, A. R., Walsh, M., & Robinson, S. (2012). Reduced ventricular shunt rate in very preterm infants with severe intraventricular hemorrhage: an institutional experience. J Neurosurg Pediatr, 10(5), 357-364. doi:10.3171/2012.7.PEDS11504 3. Vassilyadi, M., Tataryn, Z., Shamji, M. F., & Ventureyra, E. C. (2009). Functional outcomes among premature infants with intraventricular hemorrhage. Pediatr Neurosurg, 45(4), 247-255. doi: 10.1159/000228982