

**Fernandez v St. John's Queens Hosp.**

2007 NY Slip Op 31604(U)

June 11, 2007

Supreme Court, Queens County

Docket Number: 0002816/1994

Judge: James P. Dollard

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M E M O R A N D U M

SUPREME COURT QUEENS COUNTY  
SUPREME COURT IAS PART 5

-----x Hon. JAMES P. DOLLARD

JUDY FERNANDEZ, et al,

Index No.: 2816/94

Plaintiffs,

Motion Date: Jan.5,2005

-against-

Motion No. 20

ST. JOHN'S QUEENS HOSPITAL,  
et al,

Defendants.

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In this action to recover damages for alleged medical malpractice the defendant Metropolitan Child Neurology, P.C. (hereinafter Metropolitan) and Steven G.Pavlakis, M.D. (hereinafter Dr. Pavlakis) move for a Frye v. United States, (293 F. 1013) hearing or alternatively, to dismiss the action pursuant to CPLR §3211(a)(7). The defendant, Raul Miguez, M.D. (hereinafter Dr. Miguez) cross moves for the same relief. The plaintiffs cross move for a Frye hearing regarding the anticipated testimony of defendants' expert Robert A. Zimmerman, M.D. (hereinafter Dr. Zimmerman) and Alfred J. Spiro, M.D. (hereinafter Dr. Spiro) or in the alternative precluding the testimony of those doctors as being unsupported by published articles or prevailing medical and scientific thought.

The cross motion of defendant Miguez is improper (See CPLR §2215) but since it raises no additional issues and relies instead on the movant's papers, the court will consider it in the interest of judicial economy.

The infant plaintiff, Judy Fernandez, was born prematurely on April 29, 1991 at 27 weeks gestation at St. John's Hospital, Queens. She remained in St. John's Hospital until her discharge on July 10, 1991, after which she came under the care of defendant Dr. Pavlakis, a pediatric neurologist and Dr. Miguez, a pediatrician. In October, 1991 Dr. Pavlakis diagnosed the infant with progressive obstructive hydrocephalus and placed a shunt to remove fluid around the brain. Radiological films taken at St. John's Hospital show damage affecting the periventricular white matter in her brain. There is a dispute as to the extent or degree of that damage and as to whether the subsequent hydrocephalus could or did cause additional damage. The child was admitted subsequently to New York

Foundling Hospital where she still remains. It is not disputed that she is profoundly impaired with spastic quadriplegia and severe mental retardation. She also suffers from seizures.

Based on their own experts' interpretations of the radiological imaging the defendants contend that plaintiffs' experts' anticipated testimony that the hydrocephalus could cause additional damage is a novel theory not supported by reported medical cases or scientific studies. Plaintiffs contend that defendants' theory, which is delineated in their affirmations, that the presence of some white matter loss or damage as shown on pre-hydrocephalus imaging studies demonstrates that the subsequent hydrocephalus cannot cause additional damage to the brain is novel and not supported by reported medical cases or scientific studies.

Plaintiffs' expert witness response (CPLR 3101(d)) dated July 19, 2004 states that their first expert, a neurologist who is board certified in pediatrics and subcertified in Neonatal-Perinatal Medicine will testify that:

"both defendants departed from good and accepted practice in their management, care, and treatment of the infant plaintiff.

With respect to Dr. Pavlakis it is anticipated that he will testify that he departed from good and accepted treatment in failing to timely and properly recognize the infant's progressive obstructive hydrocephalus; in negligently failing to timely refer said infant for a shunting procedure; in allowing this infant to suffer the prolonged compressive effects of an obstructive hydrocephalus; in negligently failing to use a proper preemie head circumference chart; in failing to recognize the significance of the infant's serial head circumference measurements; in failing to recognize the child's clinical signs and symptoms of a progressive obstructive and compressive hydrocephalus; in failing to conduct adequate clinical examination; in failing to appropriately recognize the true gestational age of this infant by ignoring or failing to review the child's and mother's medical records; in failing to timely schedule repeat clinical examinations, particularly in light of the child's neurological status on examination; in failing to properly monitor the child's condition after the August 23, 1991 examination; in negligently failing to 'closely monitor' JUDY FERNANDEZ after August 23, 1991; in failing to provide proper

instructions regarding follow-up of this child's condition; in failing to arrange for direct communication between the patient's pediatrician and his office regarding follow-up measurements and the child's clinical status; in failing to properly communicate and arrange for adequate follow-up with the child's pediatrician, RAUL MIGUEZ; in failing to provide RAUL MIGUEZ with proper preemie head circumference chart; in providing misinformation to RAUL MIGUEZ regarding the child's gestational age; and in failing to order sufficient repeat radiological studies (i.e. MRI of the brain)."

With respect to Dr. Miguez the expert disclosure states that:

"it is anticipated that the expert will testify that the defendant Raul Miguez departed from good and accepted treatment in failing to timely and properly recognize the infant's progressive obstructive hydrocephalus; in failing to directly communicate with Steven G. Pavlakis regarding the head circumference measurement and clinical examination taken on September 17, 1991; in failing to recognize the significance of the head circumference measurement and clinical examination on September 17, 1991; in failing to perform an adequate clinical examination; in allowing this infant to suffer the prolonged compressive effects of an obstructive hydrocephalus; in negligently failing to obtain and use a proper preemie head circumference chart; in failing to properly chart and recognize the significance of the infant's serial head circumference measurements; in failing to recognize the child's clinical signs and symptoms of a progressive obstructive and compressive hydrocephalus; in failing to appropriately recognize the true gestational age of this infant by ignoring or failing to review the child's and mother's medical records; in failing to timely schedule repeat clinical examinations, particularly in light of the child's neurological status on examination; in ignoring STEVEN G. PAVLAKIS' direction to perform monthly head circumference measurement following September 17, 1991; in negligently scheduling the next visit after September 17, 1991 for three months after that visit; in negligently failing to measure the head circumference no later than October 17, 1991 as per Steven G. Pavlakis' direction that head circumference measurements be relayed to STEVEN G. PAVLAKIS on a monthly

basis; in negligently failing to 'closely monitor' JUDY FERNANDEZ after September 17, 1991; in failing to provide proper instructions to the mother regarding follow-up of this child's condition; in failing to arrange for direct communication between the patient's pediatric neurologist and his office regarding follow-up measurements and the child's clinical status; and in failing to order sufficient repeat radiological studies (i.e., MRI of the brain)."

As for damages the expert disclosure states that:

"it is anticipated that the expert will testify that the aforementioned negligence and malpractice allowed for the prolonged compressive and damaging effects of the hydrocephalus superimposing further damage on this child's brain; that the failure to promptly and timely recognize this condition deprived the infant of a substantial appreciable chance of avoiding significant brain damage and that if not for this negligence, the damage to the brain and the consequences of that damage would likely have been substantially less; that as a result of this negligence and malpractice the infant-plaintiff has sustained severe and irreversible brain damage, intractable seizures, spastic quadriplegia, inability to communicate and other consequences of her severe brain damage and will require total custodial care for the remainder of her life. It is anticipated that this expert will testify concerning the child's life expectancy, the child's special needs, the inability of the child ever to be gainfully employed and the other economic damages that will result by reason of this child's severe brain damage.

It is further anticipated that this expert will base these opinions on the child's medical and hospital records, the radiological studies, deposition testimony, the evidence addressed at the trial and the expert's knowledge and experience in the field of pediatrics and radiology."

Plaintiff also anticipates calling an expert in pediatric

neurology and pediatrics who is board certified in neurology, pediatrics and neurology with special qualification in child neurology. It is anticipated that the expert will testify that:

"that defendant STEVEN G. PAVLAKIS departed from good and accepted treatment in failing to timely and properly recognize the infant's progressive obstructive hydrocephalus; in negligently failing to timely refer said infant for a shunting procedure; in allowing this infant to suffer the prolonged compressive effects of an obstructive hydrocephalus; in negligently failing to use a proper preemie head circumference chart; in failing to recognize the significance of the infant's serial head circumference measurements; in failing to recognize the child's clinical signs and symptoms of a progressive obstructive and compressive hydrocephalus; in failing to conduct an adequate clinical examination; in failing to appropriately recognize the true gestational age of this infant by ignoring or failing to review the child's and mother's medical records; in failing to timely schedule repeat clinical examinations, particularly in light of the child's neurological status on examination; in failing to properly monitor the child's condition after the August 23, 1991 examination; in negligently failing to 'closely monitor' JUDY FERNANDEZ after August 23, 1991; in failing to provide proper instructions regarding follow-up of this child's condition; in failing to arrange for direct communication between the patient's pediatrician and his office regarding follow-up measurements and the child's clinical status; in failing to provide RAUL MIGUEZ with a proper preemie head circumference chart; in providing misinformation to RAUL MIGUEZ regarding the child's gestational age; and in failing to order sufficient repeat radiological studies (i.e. MRI of the brain)."

It is also anticipated that said expert will testify that:

"the defendant RAUL MIGUEZ departed from good and accepted treatment in failing to timely and properly recognize the infant's progressive obstructive hydrocephalus; in failing to directly communicate with STEVEN G. PAVLAKIS regarding the

head circumference measurement and clinical examination on September 17, 1991; in failing to recognize the significance of the head circumference measurements and clinical examination on September 17, 1991; in failing to perform an adequate clinical examination; in allowing this infant to suffer the prolonged compressive effects of an obstructive hydrocephalus; in negligently failing to obtain and use a proper preemie head circumference chart; in failing to properly chart and recognize the significance of the infant's serial head circumference measurements; in failing to recognize the child's clinical signs and symptoms of a progressive obstructive and compressive hydrocephalus; in failing to appropriately recognize the true gestational age of this infant by ignoring or failing to review the child's and mother's medical records; in failing to timely schedule repeat clinical examinations, particularly in light of the child's neurological status on examination; in ignoring STEVEN G. PAVLAKIS' direction to perform monthly head circumference measurement following September 17, 1991; in negligently scheduling the next visit after September 17, 1991 for three months after that visit; in negligently failing to measure the head circumference measurements be relayed to STEVEN G. PAVLAKIS on a monthly basis; in negligently failing to "closely monitor" JUDY FERNANDEZ after September 17, 1991; in failing to provide proper instructions to the mother regarding follow-up of this child's condition; in failing to arrange for direct communication between the patient's pediatric neurologist and his office regarding follow-up measurements and the child's clinical status; and in failing to order sufficient repeat radiological studies (i.e. MRI of the brain).

It is also anticipated that said expert will testify that the aforementioned negligence and malpractice allowed for the prolonged compressive and damaging effects of the hydrocephalus superimposing further damage on this child's brain; that the failure to promptly and timely recognize this condition deprived the infant of a substantial and appreciable chance of avoiding significant brain damage and that if not for this negligence, the damage to the brain and the consequences of that damage would likely have been substantially less; that as a result of this negligence and malpractice, the infant-plaintiff has sustained severe and

irreversible brain damage, intractable seizures, spastic quadriplegia, inability to communicate and other consequences of her severe brain damage and will require total custodial care for the remainder of her life. It is anticipated that this expert will testify concerning the child's life expectancy, the child's special needs, the inability of the child to ever be gainfully employed and the other economic damages that will result by reason of this child's brain damage.

It is anticipated that this expert will base his/her opinions on the child's medical and hospital records; the radiological studies; the deposition testimony, the evidence adduced at trial and his/her knowledge and experience in the fields of Pediatrics and Pediatric Neurology."

The plaintiffs claim that although the child had suffered brain damage at birth, her condition was exacerbated by failing to diagnose and treat timely subsequent progressive obstructive hydrocephalus and that this departure together with her pre-existing condition was a substantial contributing factor in causing a single indivisible injury to infant's brain. The defendants contend that the hydrocephalus did not cause any injury since radiological films taken prior to the development of hydrocephalus demonstrate that the condition of the brain, pre-hydrocephalus, would necessarily result in the extent of damage and disability of the child and that films prior to the development of hydrocephalus demonstrate that the child's brain was so damaged that the degree of hydrocephalus as evidenced by the October 25, 1991 pre-shunting film would not have caused additional damage. Each side claims the other's position is not supported by medical literature.

In support of their motion the moving defendants submit affirmations of Robert A. Zimmerman (herein after Dr. Zimmerman) and Alfred D. Spiro, M.D. (hereinafter Dr. Spiro) who claim that MRI studies taken at or about the time of birth show evidence of a loss of volume of white matter in the infant's brain prior to the onset of the hydrocephalus which account for all of the infant's brain damage.

Dr. Zimmerman is board certified in radiology and diagnostic radiology with added certifications in neuroradiology and is a prolific author and lecturer. Dr. Spiro is board certified in pediatrics and psychiatry and neurology with special competence in child neurology.

Dr. Zimmerman affirms that he reviewed CT and MRI films of the infant plaintiff taken on May 8, 1991, May 18, 1991, June 18, 1991 and July 31<sup>st</sup>, 1991 as well as the October 25<sup>th</sup>, 1991 post-hydrocephalus shunting films and the post-operative (shunt placement) films. He opines that the opinions of the plaintiffs' experts that the hydrocephalus was a substantial factor in producing the infant's injuries and damage are not generally accepted in the medical community, are not accurate, and are not supported by reported medical cases or scientific studies. Based upon his interpretation of the films he posits the opinion that the brain's condition prior to the hydrocephalus is consistent with the physical condition as described in the July, 2002 physical report of Dr. Bennet, defendant's IME physician. Dr. Zimmerman does not reference and the defendants do not offer the interpretations of the films by the treating radiologists, the interpretation of the July 31, 1991 film by the defendant, Dr. Pavlakis or the pre-hydrocephalus clinical report of Dr. Pavlakis. Plaintiffs have attached these documents to their cross moving papers. Dr. Zimmerman's interpretation of the films appears to differ from that of the treating radiologists and Dr. Pavlakis.

Dr. Zimmerman's interpretation of the May 8<sup>th</sup> CAT scan is that it:

"Shows severe cerebral injuries extensively affecting the periventricular white matter, especially more posteriorly. Changes to some extent also involve the overlying gray matter."

Dr. Altieri, the treating radiologist found:

"There is a small amount of acute blood layering dependently within the arterial ventricles and a moderate amount of bilateral subarachnoid blood. There is mild hydrocephalus with mild dilation of the lateral ventricle. No evidence of intraparenchymal hemorrhage. No extra-axial collections noted".

Dr. Zimmerman's interpretation of the May 28<sup>th</sup> films is that they:

"Show that the previously noted injury has affected the white matter massively decreasing it indicating parietal and

occipital lobe damage that is irreversible".

With respect to this film, Dr. Marshall, a treating radiologist reported:

"A follow-up non contrast head CT was performed and compared to the study of 5/8/01. There is re-identification of increased density noted within the subarachnoid spaces of the cortical sulci bilaterally compatible with residual blood. I do not see evidence of blood within the ventricular system. There is a suggestion of increase in the size of the temporal and occipital horns of the lateral ventricles allowing for differences in magnification and angles of the cut".

Dr. Zimmerman opines:

"that the films of June 18, 1991 look similar to the one of the May 28<sup>th</sup> and that the July 31, 1991 film continues to evidence loss of white matter."

Dr. Hong, a treating radiologist read the June 18<sup>th</sup>, 1991 films and reported that:

"Compared to previous examination, the subarachnoid hemorrhage has decreased in size. The lateral ventricles remain markedly dilated. Previously noted intraventricle hemorrhage appears resolved. Compared to previous examination, the size of the lateral ventricles appears the same".

Dr. Pavlakis in his report to Dr. Miguez on August 2, 1991 stated:

"An MRI scan of the brain was obtained today. This showed some atrophy which is most notable in the cereberellar region. In addition there is mild leukomalacia. The ventricles are dilated in the occipital region, although there is no clear-cut pressure affect. In other words, the ventricles are not rounded and have passages suggesting low pressure, atrophy affect. The frontal norms, indeed, are quite small, also suggesting the lack of pressure. In addition, the gyro

pattern is very prominent suggesting atrophy rather than ongoing hydrocephalus ."

In that report Dr. Pavlakis noted as his clinical finding that:

"She has been doing well, and of note, is currently eating routinely on her own. She is now taking two ounces five times a day, and this morning went up to 2 ½ ounces. She no longer needs gavage feeding. Her weight now is just about 6 lbs. which is a nice improvement over the past week. The mother also thinks the baby is more alert and interactive visually following better".

"In summary, I am very grateful that the baby is eating better. In addition,, I am grateful that there is no evidence of ongoing hydrocephalus, and at this juncture, not shunting the baby was the right decision."

"I discussed this with the mother in detail, and she will be in touch with me if any problems arise. I will see the baby again in 3-4 weeks depending on how things go, and hopefully, we will be able to follow the baby in a much looser way now. Finally, I did suggest that early intervention be initiated, and the mother will do so in the near future."

There is nothing in this report of Dr. Pavlakis to suggest that despite the clinical improvement, he believed the baby had already suffered irreversible brain damage that would necessarily pre-determine the condition as found in a report of Dr. Bennett to defendants' attorneys on July 12, 2002. At that time the child was confined to the New York Foundling Hospital. She had a tracheotomy. Instead of feeding on her own she had a gastronomy tube in place. Instead of being alert she did not respond to the examiner or any person who would appear near her bed. Instead of visually following she had roving eye movements. As noted, Dr. Zimmerman makes no reference to the reports of the treating radiologists or to the defendant, Dr. Pavlakis's clinical findings of improvement prior to the onset of the progressive obstructive hydrocephalus.

The moving defendants in their motion papers, also include an

affidavit of Dr. Spiro. His affirmation mirrors Dr. Zimmerman's. He also makes no reference to the reports of the treating radiologists or to the pre-hydrocephalus clinical findings of Dr. Pavlakis. In a subsequent affirmation attached to the reply papers Dr. Spiro states that the infant plaintiff's "current neurological condition can readily have been predicated as of July 31, 1991 by assessing her then clinical condition coupled with her severe prematurity and the imaging studies of May, June and July 9, 1991", but offers no explanation of the difference between her clinical condition of July 31, 1991 and that on July 12, 2002.

Plaintiff offers an affirmation of Dr. Larry Schneck who is board certified in neurology and pediatrics and who has written numerous peer review articles and lectured extensively in the field of pediatric and general neurology. Dr. Schneck reviewed the CT scans and MRI films taken prior to the hydrocephalus and disagrees with Dr. Zimmerman's opinion that these revealed a "massive" decrease in white matter, classifying it as "marked, not massive, and associated with a marked ventriculomegaly which was the result of the child's intraventricular bleed".

He states also that:

"While the findings of white matter damage and loss has been found to correlate with some degree of neurological disability, it would be impossible to predict, on the basis of those radiological studies, the extent of that neurological disability. This already susceptible brain was also at risk for additional insults, which would contribute to the patient's neurological prognosis. Furthermore, the pre-shunt film of October 25, 1991 showed a significant increase in the size of the ventricles and a corresponding significant and additional decrease of this child's white matter, which continued post-shunt radiologically demonstrating the additional insult to this child's brain.

I strongly disagree with the characterizations of both Dr. Spiro and Dr. Zimmerman of the accepted concepts and understanding of both the medical and scientific community regarding the effect of post-hemorrhagic hydrocephalus on the brain of the premature infant who has already suffered damage to the brain as a result of a separate insult. It is the overwhelming consensus of the medical and scientific community that the brain of the premature neonate which has been subject

to trauma as a result of intraventricular hemorrhage, as was the case here, will be subject to additional cumulative trauma, from untreated hydrocephalus which develops as a result of the original bleed. Indeed, the position of both Dr. Spiro and Dr. Zimmerman that a child such as this, who was left with untreated hydrocephalus for an extended period of time, does not suffer additional trauma to the brain is unsupported by any study or prevailing thought in the medical and scientific community.

Furthermore, while I agree that findings of white matter damage as a result of intraventricular hemorrhage in the premature neonate can be associated with neurological consequences in both the motor and cognitive function, it is also established beyond cavil that the prolonged effects of hydrocephalus are also associated with significant motor and cognitive dysfunction. While one can predict the likelihood of some degree of motor and/or cognitive dysfunction based upon the presence of white matter damage and atrophy, there exists no study or accepted medical thought that allows a physician to accurately predict that a premature child who has white matter loss, as this child demonstrated on radiological study prior to the time the acute effects of the hydrocephalus became apparent, will end up with the devastating and catastrophic neurological condition that this child currently has. A child with these findings could very well have ended up with minimal motor dysfunction with little or no cognitive dysfunction. What we do know in the medical and scientific community is that such catastrophic neurological dysfunction is often the result of a number of independent factors which all contribute in a significant way to the total trauma to the brain. I cannot, nor can any expert, opine, based upon the available studies and prevailing medical thought, as to the percentage of damage that each event contributed to this single indivisible brain injury.

He states further that:

"It is the view of the medical community that findings of white matter damage and loss on CT scan and MRI of the premature neonate is useful in order to determine those children at risk for subsequent motor and cognitive disability so at risk children can receive appropriate intervention and therapies. It is not the view of the medical and scientific community that such findings are accurate in predicting the exact nature and extent of those disabilities. Therefore, I can confidently state that the defendants' experts' attempt to claim that based upon radiological imaging it can be determined that this child was doomed, prior to her hydrocephalus, to a fate of catastrophic cognitive and motor dysfunction is unsupported in the literature or studies. One can merely state that the findings on these films, along with her prematurity and intraventricular bleed, were factors that indicated that she was at risk for neurological dysfunction. That risk factor together with the deleterious effect of her untreated hydrocephalus combined to form a single indivisible injury to her brain that resulted in her present neurological state."

Dr. Schneck also notes that defendants' experts have ignored the child's clinical course that on August 2, 1991, prior to sustaining the effects of the hydrocephalus, there was evidence that she had began to recover from the effects of the intraventricular hemorrhage and to reach some developmental milestones including eating on her own and visually following better as compared to October 25, 1991 when the need for shunting secondary to hydrocephalus was recognized by Dr. Pavlakis who reported that over the past 3-4 weeks the child had stopped looking around and smiling and to December 10, 1991 when Dr. Pavlakis stated in his note that "She does not have a social smile". Dr. Schneck also points out that while there was no evidence of seizure like activity during her two month admission in the neonatal unit at St. John's Queens Hospital nor was any such activity documented by Dr. Pavlakis or Dr. Miguez in their office charts and that in the August 26, 1991 note Dr. Pavlakis stated that the child was not suffering from seizures, there was evidence that approximately one month prior to the shunting she had began suffering seizures and that a significant seizure disorder was detected at North Shore University Hospital during the post-shunting course.

The ultimate issue in this case is whether the sole proximate cause of the infant plaintiff's present disability was the damage

to her brain prior to the hydrocephalus or was the hydrocephalus a concurrent cause.

The defendants do not claim that as a general proposition pressure on the brain caused by hydrocephalus cannot result in neurological defects, developmental disabilities and mental retardation. Indeed there are a number of court decisions involving ancillary issues where this proposition appears to have been taken as a "given". For example, see Upton v. Kaye, 214 AD3d 319; Cooper v. Long Island College Hospital (175 AD2d 97) and Dohler v. Fogarty (148 AD2d 660) where the issue was the cause of hydrocephalus. See also Desiderio v. Ochs (100 NY2d 159) where the issue was the method of structuring a substantial judgment, McLaughlin v. County of Albany (258 AD2d 778) involving leave to file a late claim and Langelier v. Ford (159 AD2d 851) involving the right of a defendant to hold an IME with a CAT Scan.

What is different about the instant case is the claim of the defendants that the radiological studies establish conclusively that the infant's present condition would be the same even if the defendants had diagnosed and treated the hydrocephalus timely and that therefore it would follow that any malpractice in not doing so would be inconsequential. The critical evidence will be the interpretation of films.

Dr. Zimmerman states that there are no studies accepted in the scientific community concluding that the degree of hydrocephalus as evidenced on the October 25, 1991 pre-shunting procedure would have caused additional damage to a brain with a pre-hydrocephalus appearance such as that on the films up to and including July 31, 1991. Dr. Spiro states that there are no medical studies or reports that support the plaintiffs' claim that an infant, with the "extent of brain damage seen on this infant prior to July 31, 1991, incurs additional damage from hydrocephalus as claimed in this case".

To the extent that neither of these doctors quantify either the degree or extent of the pre-existing brain damage or the degree of the hydrocephalus prior to the brain shunt these affirmations are conclusory. Accordingly for the purpose of this motion it would appear that the ultimate question before the court is whether an infant born with severe brain damage as evidenced by some loss of white matter shown on MRI films cannot suffer any additional brain damage as the result of a delay in treatment of subsequent hydrocephalus. The defendants claim in effect that the proposition that such an infant could suffer such additional brain damage is "JUNK SCIENCE" and evidence of that should be precluded based on

absence of medical studies or reports showing that such causation is generally accepted in the medical community.

In their cross motion plaintiffs argue the converse position, viz, that the proposition that no additional damage can be done is in itself a novel theory, viz, that a child who has been subject to trauma as a result of intraventricular hemorrhage who subsequently is left with untreated hydrocephalus for an extended period of time, does not suffer additional trauma to the brain is unsupported by any study or prevailing thoughts in the medical and scientific community.

It is not clear from defendant's papers whether they are espousing as a general proposition that every child with any pre-existing degree of loss of white matter cannot suffer any additional damage from a subsequent untreated progressive hydrocephalus or that this particular child because of the degree or extent of pre-existing white matter damage could not suffer any additional damage from the degree of hydrocephalus prior to the shunt procedure. There appears to be an inconsistency in defendants' attorney's argument. In her reply papers the attorney refers to "additional damage to a child with a brain in this infant's condition" and to a brain "such as the plaintiff's" (emphasis supplied). Later in the same affirmation she refers to additional damage to an "already compromised brain" suggesting that it is her position that any degree or any extent of pre-existing brain damage would preclude the possibility of a subsequent hydrocephalus causing additional damage. If that is in fact her contention she would appear to be at odds with the defendants' own experts who take the position that an infant with the "degree of this infant's white matter damage cannot suffer additional damage from the degree of hydrocephalus prior to the shunt procedure" (Dr. Zimmerman) and that "an infant with the extent of brain damage seen in this infant prior to July 31, 1991 cannot incur additional damage from hydrocephalus as is claimed in this case" (Dr. Spiro).

As noted above, neither of these experts quantifies in his opinion the degree or extent of the white matter damage or the degree of the pre-shunt hydrocephalus shown on the films. It is this court's opinion that a determination as to the degree or extent of the brain damage to this particular child prior to the shunt procedure is not a matter for the court to determine on a Frye proceeding, but rather is a matter of fact to be determined by a jury. There is nothing novel about experts testifying to their respective opinions as to what is shown on radiographic films. The correctness of the conclusions they draw from their readings of the

films is ordinarily also a matter for the jury.

Implicit in the anticipated opinion of the plaintiff's expert that the infant plaintiff suffered additional damage from the untreated progressive hydrocephalus is the proposition that not every newborn whose radiology films show some degree of white matter damage or loss will inevitably suffer the type of debilitating injuries as this child, (viz), spastic quadriplegia, severe mental retardation and seizures and be confined to spending the rest of her life in a bed in an institution. Assuming that is the proposition defendants' attorney is contending is not generally accepted in the medical community, the court finds that the plaintiffs have met their burden of demonstrating that that proposition is based on principles that are sufficiently established to have gained general acceptance in the medical community as reliable.

Plaintiffs submit portions of the text "Neurology of the Newborn", Fourth Edition, 2002 by Joseph T. Volpe, M.D.. Dr. Volpe is Professor of Neurology at Harvard Medical School and Neurologist-in Chief at Children's Hospital in Boston. Chapter 11 is devoted to "Intracranial Hemorrhage: Germinal Matrix-Intraventricular Hemorrhage (IVH) of the Premature Infant." At page 428 Dr. Volpe states that "IVH is the most common variety of neonatal hemorrhage and is characteristic of the premature infant." On page 453 he states that the "outcome of the infant with IVH depends in largest part on the degree of parenchymal injury". On page 455 he states that the "principal mechanisms of brain injury in the premature infant with IVH relate to one or more of the seven major factors," three of which are destruction of periventricular white matter, periventricular white matter injury secondary to intraventricular blood products and post hemorrhagic hydrocephalus. With respect to hydrocephalus he refers on page 458 to experimental studies that shunting after one week but not at four weeks, when axonal loss had occurred, allowed recovery of myelination. On page 461 he notes that several studies "concerned with clinical follow-up of premature infants with IVA, with and without subsequent hydrocephalus, have led investigators to conclude that ventricular dilation contributed to subsequent neurological deficits or that early therapy improved outcome (or both). On page 478 he states that "the brain already injured by hemorrhage or ischemia may be more vulnerable to additional injury from progressive ventricular dilation or elevated intracranial pressure or both. More data clearly are needed on this issue to design optimal timing of shunt placement. Nevertheless, I feel that undue delay in placement of a ventriculoperitoneal shunt in the infant with rapidly progressive hydrocephalus recalcitrant to other therapies can only enhance the

likelihood of subsequent neurological defects."

Plaintiffs' expert Dr. Schneck also refers to a study reported in 1997 in *The Annals of Neurology*, the official publication of The American Neurological Association in which MRIs were taken of eight-year old previously premature, low birth-weight children which found that twenty-five percent of 24 clinically healthy premature children had mild to moderate damage in the white matter on MRI and twenty-one percent of all normal or minimally neurodevelopmentally impaired premature infants had reduced amounts of white matter. The investigators concluded that "[A]lthough MRI findings compatible with PVL (periventricular leukomalacia) were significantly associated with impaired function of the lower extremity as expected, the occurrence of PVL did not correlate with the neurological status."

Dr. Schneck also refers to an article published in the supplement of the *Journal of Pediatrics*, Digest 2004 edition entitled "Neuroimaging in Cerebral Palsy from the Johns Hopkins University School of Medicine and the Kennedy Krueger Institute in which the authors illustrated an MRI of a child with normal intelligence and left hemiplegia (weakness on the left side) which Dr. Schneck affirms demonstrated similar amounts of white matter loss as was seen on the MRI of the infant plaintiff in this case. The authors also state that "[T]he childhood motor spectrum of children with white matter injury, primarily PVL, ranges from mild neurological dysfunction to quadriplegic cerebral palsy." The plaintiffs in their reply papers have submitted additional studies which also support their position.

The court has a limited role in a Frye proceeding, viz, to determine whether the expert's deductions are based on principles that are sufficiently established to have gained general acceptance as reliable and not to intrude upon the jury's realm of weighing evidence (Marsh v. Smyth, 12 AD3d 307).

The defendants contend that there is not a single statement in Dr. Volpe's text stating that untreated hydrocephalus will cause additional damage to a child with a brain in "this" infant's condition. As noted supra there is an issue of fact as to "this" condition. The parties' respective experts disagree and the defendants' expert appears to disagree not only with the treating radiologist but with the defendant Pavlakis. Moreover, in Zito v. Zabavsky (28 AD3d 42,44), the Second Department adopted the statement in the concurring opinion of Justice Saxe in Marsh v. Smyth, supra, that it is not necessary "that the underlying support for the theory of causation consist of cases or studies considering

circumstances exactly parallel to those under consideration in the litigation. It is sufficient if a synthesis of various studies or cases reasonably permit the conclusion reached by plaintiff's expert." At bar, the court finds that plaintiffs have sustained their burden of establishing that not all children with some loss or damage to white matter in the brain cannot sustain additional damage by some subsequent insult or injury.

Accordingly, the branch of the moving defendant's motion to preclude based on Frye and the cross motion by the co-defendant for similar relief are denied. The remaining branch of the moving defendants' motion which is to dismiss the complaint and is in effect for summary judgment is also denied inasmuch as there are issues of fact for the jury, inter alia, as to whether the untreated hydrocephalus combined with the pre-existing damage to form a single indivisible injury to the brain that resulted in the infant's present neurological state.

With respect to the cross motion, the moving defendant contends that to examine their experts on the issue of cause is premature. The defendants, however, at least by their attorney have postulated a discrete theory that a child with any amount of white, or white and gray matter loss or damage as reflected on early radiological studies will inevitably suffer the same disabilities as the plaintiff in this case and that therefore untreated hydrocephalus could not cause further damage to the brain. If indeed this is what the defendants plan to advance at the trial they should be put to the same burden as a plaintiff, to demonstrate that that theory is generally accepted in the medical community.

The defendants have not met that burden. Although copies of a number of studies or articles are submitted, none of them supports that proposition. These studies do support the proposition that premature infants with white or gray matter damage may have a high risk for later neurodevelopmental disability and that MRI assessment at term may be useful for selection of early intervention programs but none of them support the proposition that all children with white or gray matter damage will necessarily suffer global neurodevelopmental disability. In Exhibit "A" an article in the Journal of Pediatrics, August 2003 it is stated at page 278 that the "functional correlates in this cohort (infants with further gestation of 26 weeks) in relation to the presence and severity of the cerebral abnormalities remains to be established and are currently being evaluated in this cohort".

Defendant's Exhibit "B" a 1999 article in the Journal of the

American Neurological Association states at page 758 that "many premature infants with PVL who survive the neonatal period later exhibit a variety of cognitive deficits" (emphasis supplied). There was no finding either that all such infants would exhibit defects or that all of those who had defects could not suffer additional injuries by some future insult.

Defendant's Exhibit "C" a 2002 article published in the American Society of Neuroradiology was concerned with a comparison of the accuracy of sonographic findings with MRI findings in characterizing white matter injury in the premature infant. There is nothing in this article to support the moving defendant's hypothesis.

Exhibit "D" consists of two articles, the first from "Pediatric Neurology" is a 2004 study entitled "Volumetric Analysis of Regional Cerebral Development in Preterm Children". The second is from a 2003 article in "Pediatrics" entitled "Regional Brain Volumes and Their Later Neurodevelopmental Correlates in Term and Preterm Infant".

The study found, inter alia, that a group of preterm children at ages 9.1 years had a lower IQ than a control group of full term children at age 8.5 years. The article noted at page 324 that "inconsistency regarding birth weights and neurodevelopment across studies may suggest that a complex combination of factors contributes to neurodevelopment of children".

On Page 321 the authors present a table comparing the volume of white and gray matter in the various portions of the brain in the preterm children to that of the control group which would indicate that the amount of damage or loss of volume of such matter is an important factor. On Page 318 the author's note that "maternal education was the strongest predictor of cognitive function in the preterm group", which indicates their belief that subsequent events in the life of the child can have an effect on the ultimate neurodevelopment.

The authors of the second study in which measurements of cognitive and motor development were acquired in infants between 18 and 20 months of age included some of the same investigators who participated in the first study. The article notes at page 947 that

"[t]he persistence of statistical significance after controlling for gestational age at birth indicates that white matter volumes in these regions predict outcome at 18 to 20

months CT scans beyond the degree to which gestational age and head circumference alone would predict. Volumes of same sensorimotor and mid temporal origins, particularly in the right hemisphere correlated significantly with cognitive measures in our cross-sectional study of 8-year old prematurely born children. Taken together, findings across these studies suggest that volumes of the brain regions in preterm neonates may prove to be a useful marker to help identify children at risk for cognitive impairment if those preterm infants are followed into childhood".

Neither of these studies support the hypothesis of the moving defendant's attorney that any white matter damage would necessarily predict the catastrophic injuries sustained by the infant plaintiff.

Defendant's Exhibit "F" a commentary in "Pediatrics", June, 2003 references the May, 2003 article offered in Exhibit "D" and states

"quantitative MRI studies of infants that seek correlation with subsequent behavior and cognition are likely to provide valuable insight into the organization of neural systems that include cognitive development in children. These 'advanced' MRI tools, like the children studied by Peterson, et al, are still in their infancy. Research capabilities will grow considerably as those methods are refined and improved. The view of human brain development that they will provide shall be exciting, indeed".

The defendant has failed to demonstrate that the hypothesis or proposition that every child with white or gray matter damage at birth will necessarily suffer the catastrophic injuries sustained by the infant plaintiff is generally accepted in the medical community. What the publications offered by defendant suggest is that the ultimate outcome for a child with white or gray matter damage depends on a variety of factors including, inter alia, the volume of white and gray matter, the portion of the brain with white or gray matter damage, gestational age at birth, birth weight and maternal education. The inclusion of maternal education as an important factor in predicting future cognitive function would support the hypothesis that the ultimate outcome can be affected by future events.

The plaintiff's cross motion is granted. The defendants are precluded from offering evidence at the trial that every child with white or gray matter damage to the brain as reflected in early neurological studies will necessarily suffer the type of catastrophic injuries as the infant plaintiff in this case and cannot suffer additional damage if subsequently left with untreated hydrocephalus for an extended period of time.

The parties are directed to appear in Part 13, Courtroom 47 at 9:30 AM on June 27, 2007 for selection of a trial date.

Short Form Order signed.

Dated: June 11, 2007

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J. S. C.