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Check Out Our Website!

<http://www.childhoodbraintumor.org>

High-Grade Gliomas

Kenneth J. Cohen, MD, Director, Pediatric Neuro-Oncology, The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins and

Kaleb Yohay, MD, Pediatric Neurology, Johns Hopkins University School of Medicine

Normal brain is made up of several cell types including neurons, the main functional cell of the brain, and glia, which play a supportive role to the neurons. Glia are further subdivided into different types, each type with a different function, including oligodendrocytes which cover the axons of neurons with sheaths of myelin, and astrocytes which serve many functions including taking up excess neurotransmitters and creating the blood-brain barrier. Gliomas are tumors of glial cells, particularly astrocytes and oligodendrocytes. About 2/3 of all childhood brain tumors are gliomas.

Gliomas, like other tumors, occur when the mechanisms that keep cell growth in check, go awry, resulting in uncontrolled growth and destruction of surrounding normal tissue. Gliomas occur in the brain, which is particularly problematic because so many essential areas exist in a relatively small and enclosed space. A small amount of abnormal cellular growth can cause significant symptoms depending on the location of that growth in the brain.

Astrocytomas, or tumors presumably derived from astrocytes or their precursors, are the most common type of glioma. There are several types of astrocytomas including pilocytic astrocytoma, which is generally considered the most benign of this group, fibrillary astrocytoma, anaplastic astrocytoma and glioblastoma multiforme, the most malignant of the gliomas.

(continued on page 2)

In This Issue:

- *A message from Kyle (pg.1)*
- *High-Grade Gliomas, Drs. Kenneth Cohen & Kaleb Yohay (pg. 1)*
- *ISPNO, Grant Findings (pg. 4)*
- *Penny Harvest, A Birthday Celebration, Benign Brain Tumor Legislation, NCI Updates (pg. 5)*
- *Memorials (pg. 8)*
- *Future Events (page 9)*

A Message from Kyle

By the time you read this I will have just turned nineteen, completed my first exams, and most importantly finished my third year tumor free.

Life is pretty good right now. I am a third of the way toward receiving my BS degree in Industrial Design from the Art Institute of Philadelphia. I enjoy my classes and hope to make the Dean's List again this quarter. I am living in downtown Central Philadelphia one block from my school. My roommates are great, pretty much everybody gets along and we are always out doing something in the city. I'm working at McFadden's Bar & Grill. (I'm the guy carrying around cases of beer, taking out the garbage, cleaning the dirty glasses and pretty much whatever else rolls down my way.) Actually, the job is great and the money comes in real handy when I am hungry. My parents have helped me a lot with school expenses, but I am pretty proud of the fact that since I started working there last January I have covered all of my daily living expenses.

I get homesick sometimes and try to get home every two or three weeks. I either take the train or bribe my Mom to come and pick me up. I really enjoy seeing my family, my cousins, and sleeping in my own bed. I hang out with some of my friends from high school when they are home from school.

I still see my surgeon, Dr. Feldstein, once a year after my annual MRI to check for any unusual cell growth in the area where my tumor was removed. This is always the worst time of the year, not seeing Dr. Feldstein; he is terrific, just the stress of worrying if the tumor is back. Craniopharyngiomas are a recurring type of brain tumor, even on my best days there are moments when I think, is it back? Dr. Softness, my endocrinologist and I see each other four times a year for adjustments to my hormone replacement regimen. Currently, I take five different replacement medications to supplement pretty much anything my pituitary gland would have taken care of under normal conditions. I am 5 foot 9 inches now,

(continued on page 3)

(continued from page 1) High-Grade Gliomas

Oligodendrogliomas are much less common in pediatrics and are generally fairly slow growing.

The World Health Organization (WHO) has developed a grading system for astrocytomas. Grade I gliomas tend to be the least aggressive and Grade IV gliomas the most aggressive and malignant. The “high-grade gliomas” (HGGs) encompass the WHO Grade III gliomas (anaplastic astrocytoma, AA) and Grade IV gliomas (glioblastoma multiforme, GBM).

As with most other forms of brain tumors, attempt for curative therapy in the high-grade gliomas begins with surgical resection. Ideally, the goal of surgery is to achieve a “gross-total resection” (GTR) meaning that the surgeon has removed all visible tumor and, when scans are obtained after the surgery, no apparent tumor remains. Newer techniques such as intraoperative MRI may allow the surgeon to obtain a more complete resection. One of the difficulties in achieving a GTR is that, particularly for GBM, microscopic tumor cells invisible on MRI or to the neurosurgeon may extend beyond suspected tumor boundaries. This is because these tumors are “infiltrative,” meaning they tend to weave in and out among normal brain structures. Some tumor cells may have already migrated to the other side of the brain, quite distant from the tumor seen on pre-operative scan and at surgery. In certain cases, surgical resection is not feasible and the surgeon may only obtain a biopsy to confirm the diagnosis. In contrast, there are some children with AA who appear to achieve a true GTR and have a meaningful chance of cure when followed with radiation therapy and/or chemotherapy.

Following surgery, patients are often treated with radiation therapy to the region of the brain where tumor was evident on scans and at surgery. Radiation therapy is routinely limited to areas where tumor was noted prior to surgery (the so-called “tumor bed”), as opposed to providing radiation therapy to the entire brain which has never proven beneficial in treating HGGs. There are a variety of ways to administer radiation therapy, but in general, conventional external beam radiation therapy is utilized. While radiation therapy has proven useful in achieving some measure of disease control, it, along with surgery, is rarely curative. This is particularly true for GBM.

The role of chemotherapy in the treatment of HGGs has been somewhat more controversial but is often utilized because of the high failure rate of surgery combined with radiation therapy in the treatment of the HGGs. There have been numerous studies looking at the role of chemotherapy in the treatment of HGGs and, on balance, chemotherapy has probably offered some benefit to certain patients. There are a large number of agents available, many of which are offered in the context of clinical trials. No “standard of-care” exists for chemotherapeutics in HGG, meaning that no agents have so clearly shown benefit that they are broadly recognized as an

obligate part of treatment. Chemotherapy has been aggressively utilized in very young children in an effort to delay the use of radiation therapy until the children are a little older. While this technique has proven somewhat effective for some forms of brain tumors, it has been less effective for children with HGGs. One difficulty with chemotherapy has been how to make sure that drugs actually reach the area of the tumor. This may prove difficult because of the blood brain barrier which tends to limit the movement of drugs from the rest of the body to the brain. Many techniques have been developed to deal with this problem including the use of biodegradable wafers containing chemotherapeutic agents that are placed in the surgical bed at the time of resection, as well as agents that make the blood brain barrier more permeable or “leaky”.

Other therapeutics are increasingly being studied. These include anti-angiogenesis agents (drugs that interfere with growth of blood vessels that feed the tumor), immunotoxins (a toxin is attached to an antibody that hones in on tumor cells), differentiating agents (which make the tumor behave in a less malignant way) and others. All of these approaches are highly experimental and are generally best administered under the guidance of a neuro-oncologist participating in clinical trials.

The next national Children’s Oncology Group (COG) trial for children with newly diagnosed HGG will be maximal surgical resection followed by radiation therapy with the addition of the chemotherapeutic agent temozolomide both during and after radiation therapy. Temozolomide is an alkylating agent and was approved by the FDA for the treatment of recurrent AA in adults. In Europe, it is also approved for recurrent GBM. This COG trial is intended to determine if the use of temozolomide at the time of initial diagnosis will improve the outcome for children with HGGs.

Despite improvements in surgical techniques, neuroimaging, radiation therapy and new chemotherapeutic agents, HGGs are notoriously difficult to cure. Cure can be seen in AA in a subset of patients who have had a complete surgical resection followed by irradiation ± chemotherapy. Cure is extremely rare for GBM despite surgery, radiation therapy and chemotherapy. For these reasons, medical centers around the world are involved in basic science research trying to elucidate the basic mechanisms of brain tumor growth and in the development of novel therapies, as well as in clinical research to try to optimize the therapies that already exist and to test new therapies. It is only through research that better treatments and eventually a cure will be found for these tumors.

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(continued from page 1) A Message from Kyle

weigh 135 pounds and am still growing. My hormone levels have to match my weight and support my body as it continues to grow so adjustments are always needed. I'm lucky to have Dr. Softness, without a lot of medical history for physicians to draw from, his experience is pretty much what we rely on to keep me healthy. So far so good.

My life looks pretty normal to my friends at school and work. I work hard at keeping it that way. But the truth is the daily medical replacement therapy is still like a job or a class I don't enjoy, but have to do. Sometimes I just don't want to deal with it, but that is not an option. Without my medicine I just crash. Remembering to replace my prescriptions in time to avoid running out of the medicine is difficult too because I'm pretty booked and sometimes I wait up to the last minute. Thanks to George at my pharmacy who looks out for me, I have never been in too much distress.

Listen, I'm not complaining. I like my lifestyle, and the meds are a small part of it considering everything else in my life. From March 19, 1999, the day they removed my tumor forward; I can finally say I feel good when I wake up in the morning, or, sometimes in the afternoon.

Before my diagnosis and operation to remove the Craniopharyngioma, I lived with the daily pain and other symptoms of the unknown cause of my illness. I never gave up the hope of finding the cause and the cure. My doctors provided me that cure. My family and friends supported me during my recovery from the surgery.

Today there are still many questions that my doctor cannot answer about my condition, pan-hypopituitarism. All of my pituitary gland functions are supported wholly by medicines self-administered daily. The long-term effects of this replacement therapy are vague. But I have the same hope and persistence I've always had that the future will bring some answers. Those answers lie in research. Your support of the Childhood Brain Tumor Foundation (CBTF) helps bring those answers closer. Over the past three years the improvements in my medications and how they are administered have been significant. I am grateful to everyone, to all the supporters of Kyle's Heroes for the tremendous results of your efforts and the contributions to groups like CBTF.

I speak for myself and others like me, especially the kids, who seem to have a normal life but inside feel different, your sacrifice and gifts are greatly appreciated by all of us.

by Kyle Killeen, Survivor

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With the success of each year come the challenges of a new one. Despite all the tragedies and hardships and a struggling economy the Kyle's Heroes family continues to grow. With the inspiration of Kyle and the generosity, support and hard work of everyone involved, we will continue efforts to make a difference.

by Jim Killeen



Enthusiastic Kyle's Heroes golfers take a moment for a photo op.

Kyle's Heroes Fourth Annual Golf Classic was held in Neptune, NJ on September 23, 2002. The fantastic, fun-filled event was supported by 160 golfers and some corporate sponsors. Thank you to Kyle's Heroes from the Childhood Brain Tumor Foundation friends, families and medical professionals.



The Childhood Brain Tumor Foundation will include a session at our next Retreat Day about the National Cancer Institute's Clinical Trial Series. Books entitled, *Life After Cancer Treatment* and *Facing Forward* are part of the series. If you have questions, please contact us..

Grants and Sponsorships Funded by CBTF in 2002

The Childhood Brain Tumor Foundation funded two research proposals in July 2002, each for up to a two-year period. A proposal from Baylor College of Medicine, Texas Children's Hospital, submitted by Dr. Michael Sheldon, was funded and is entitled, "*Molecular cytogenetic characterization of pediatric ependymoma.*" Another funded proposal was from Duke University Medical Center, submitted by Dr. Robert Wechsler-Reya, and is entitled, "*A new transgenic mouse model for medulloblastoma.*"

Pediatric ependymomas are the third most common central nervous system tumors affecting children and young adults with the prognosis generally being poor. In Dr. Sheldon's study entitled, "*Molecular cytogenetic characterization of pediatric ependymoma,*" he proposed to use a new genomic technology, array CGH, to ascertain defects at the level of chromosomal DNA that may be correlated with clinical factors related to outcome and survival. Prognostic markers need to be developed for this tumor.

Medulloblastoma, a tumor of the cerebellum, is among the most frequent and highly malignant brain tumor in children. Dr. Wechsler-Reya's research study entitled, "*A new transgenic mouse model for medulloblastoma,*" focuses on the molecular mechanisms that control normal cerebellar development and how such mechanisms are dysregulated in medulloblastoma. Deeper understanding of the cellular and molecular basis of this disease is necessary to create new approaches for treating medulloblastoma and these findings may eventually lead to discoveries that benefit other brain tumor types.

During year 2002, CBTF also provided a sponsorship for the 10th International Symposium on Pediatric Neuro-Oncology (ISPNO), a donation toward the Long-Term Survivor's Conference (LTSC), funding for the Childhood Cancer Ombudsman Program (CCOP), and Brain Tumor Awareness Week (BTAW). Funding for the ISPNO helps to benefit the medical community by supporting that up-to-date progress in medical treatments and research is shared internationally amongst the pediatric brain tumor specialists. As reported in our Summer 2002 newsletter, the LTSC benefits families, as does CCOP, and BTAW. Watch for more information about BTAW 2003 in our next newsletter issue.

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The 10th International Symposium on Pediatric Oncology

The Childhood Brain Tumor Foundation was pleased to be a sponsor for the 10th International Symposium on Pediatric Neuro-Oncology. The medical symposium is held every two years and was held on June 9-12, 2002 in London, England at the Hilton Metropole. In the following paragraphs we have outlined some of the highlights of the 3-day meeting. The focus of this year's symposium was *Advances and Direction for Research and Treatment for Pediatric Brain Tumors* were the focus of this conference. The following is a brief overview of some of the many interesting topics presented.

The program was divided into several sessions. Dr. Archie Blyer, MD Anderson Cancer Center, Houston, Texas gave the opening keynote address. He updated the attendees with current information regarding *Central Nervous System Tumor Epidemiology and Outcome in the Young, 2000-2009* and provided 10 predictions for/from the United States.

(continued on page 6)

Update on Two of Our Previously Funded Studies

A study by Dr. Brian Rood, Children's National Medical Center, Washington, D.C., entitled, "*Hypermethylation of HIC-1 and 17p Allelic Loss in Medulloblastoma*" was recently published in *Cancer Research*. Dr. Rood's study shows that in addition to gene inactivation, methylation may predispose to chromatin instability and loss of genetic material. Partial methylation is common in the CpG island containing the HIC-1 gene in the normal brain. In summary, the research demonstrates that medulloblastomas exhibit aberrant patterns of methylation. Predisposition of methylation in the region of HIC-1 toward poorer outcome may indicate HIC-1 functional importance in determining tumor aggressiveness.

Dr. Charles Eberhardt, Johns Hopkins University Hospital, Baltimore, MD, recently submitted his manuscript entitled, "*Expression of stabilized b-catenin in the CNS of adult transgenic mice does not result in tumor formation*" to BMS Journal about research that was partially funded by the Childhood Brain Tumor Foundation. Dr. Eberhardt's study suggests that susceptibility of brain cells to this pathway is dependent on their developmental stage.

Through research investigations we hope to see improvement in treatments, quality of life and ultimately cures.



The students of Rufus King Elementary P.S 26Q, Fresh Meadows, NY were given a project to research websites for charities that benefit children. Each student provided a presentation about the charity they researched. After reviewing the various sites and causes they voted to select the charity of choice based on their website research and chose to donate the proceeds from the Penny Harvest to the Childhood Brain Tumor Foundation. Every penny counts when it comes to funding excellent research to find cures for pediatric brain tumors. The Childhood Brain Tumor Foundation appreciates the support from these wonderful students. The students sent a card with well wishes for all of the children battled brain cancer. Thank you to Twin Towers Penny Harvest supporters.



Birthday Celebration for Brian Bula

Happy Belated 13th Birthday, Brian, from the Childhood Brain Tumor Foundation. Brian had an exciting birthday celebration with friends, family, and classmates. He asked that instead of birthday presents donations be made to the Childhood Brain Tumor Foundation in memory of his sister, Kelley who died from brain cancer in January of 1997.

Thank you from the CBTF friends and families.

Volleyball Match Benefits CBTF

The Childhood Brain Tumor Foundation thanks Ridgeview Middle School, Gaithersburg, Maryland for donating the proceeds from their spring 2002 charity volleyball match.

Run with the Saints, In Memory of Lauren Lockard

The walk/run event was held on Saturday, November 2, 2002 in Houston Texas. Look for a detailed write up in our next newsletter edition.

Benign Brain Tumor Legislation

The brain tumor community is delighted about the United States Senate's recent passage of this important legislation, the Benign Brain Tumor Registration, as reported in the August 2002 Congressional Record. Senator Jack Reed of Rhode Island and staffer Lisa German-Foster worked diligently on gaining support for passage of the legislation.

Recent development:

On October 29, 2002, S. 2558 was signed into law by President Bush. A Public Law number has not yet been assigned. Check website <http://thomas.loc.gov>, search for S. 2558, click on "Bill Status," and read more details.

This is very exciting news for the brain tumor community!

Brief Interview with Dr. Zerhouni

As you may know, NCI is only one of many institutes that make up the National Institutes of Health (NIH). To read a brief interview with Dr. Elias Zerhouni, the new NIH director, visit website:

http://www.nih.gov/news/NIH-Record/09_17_2002/story01.htm or visit the NIH homepage at www.nih.gov and look for the September 17 issue of the NIH Record.

New Role for Immune System Player May Help Improve Cancer Vaccines

October 31, 2002

Researchers have discovered that a molecule best known for its anti-microbial properties also has the ability to activate key cells in the immune response. This newly discovered function, reported in the Nov. 1, 2002, issue of *Science**, suggests the molecule, a peptide called β -defense in 2, may be useful in the development of more effective cancer vaccines.

<http://newscenter.cancer.gov/pressreleases/defensins.html>

(continued from page 4) 10th ISPNO

One prediction of interest: Progress will relate directly and proportionately to the number and proportion of patients entered into rigorous clinical trials and those with translational research, particularly in regard to children less than five-years-old and in adolescents and young adults. Another prediction: Survival length will likely increase after diagnosis in children, but plateau on the survival curve will not occur.

Chromosomal Imbalances in Choroid Plexus Tumors, was the topic of Dr. Christian Rickert from the Institute of Neurology, Germany. In summary, the results from the study indicated that aberrations differ between choroid plexus papillomas and choroid plexus carcinomas and also between pediatric patients and adults.

The Role of Comparative Genomic Hybridization in the Diagnosis and Management of Pediatric Brain Tumors was presented by Dr. Uri Tabori, Sheba Medical Center, Israel. He stated that molecular diagnostic technique, for example: comparative genomic hybridization (CGH) may add to prognosis, detection, and classification of pediatric brain tumors and could ultimately play a relevant role in evaluation and treatment of pediatric tumors.

During session 2, a few of the topics presented were:

Tumor Biology of Primitive Neuroectodermal Tumor (PNET) - Advances and Relevance were presented by Dr. Tobey MacDonald, Children's National Medical Center (CNMC), Washington, D.C. The embryonal tumors in this study included, medulloblastoma, supratentorial PNET, and ependyblastoma, all sharing common features. PNET is the most common malignancy in central nervous system (CNS) tumors and histologic features do not reliably predict their behavior. Oligonucleotide microarray gene expression studies have recently shown that medulloblastoma is molecularly different from supratentorial PNET. Better analysis of gene expression is a more reliable means of predicting behavior.

Molecular Genomics of Central Nervous System Embryonal Tumors, presented by Dr. Scott Pomeroy, Children's Hospital, Boston, MA, stressed that CNS embryonal tumors are poorly understood. DNA microarray gene expression profiles have provided biological insights for embryonal tumors. Dr. Pomeroy stated that medulloblastoma is distinctly different from other tumor types, such as, PNET, atypical teratoid/rhabdoid, and malignant tumors. He concluded that response to treatment is genetically predictable.

Management Strategies for Medulloblastoma/PNET Medulloblastoma, was presented by Dr. Roger J. Packer, CNMC. Dr. Packer was the Session 3 chair, and stated that medulloblastoma, the most common brain neoplasm of childhood, occurs in the cerebellum, is embryonal and varies in malignancy and aggressiveness. He reported that treatment approaches for this tumor have rapidly evolved. Adjuvant therapies, such as, chemotherapy has improved

survival. Sequencing of treatment has not proven to improve survival. Evidence suggests that reduction of cranial spinal radiation dose may be acceptable for children with localized disease. Treatment for infants and young children have shown significant strides, and that possibly 30% of these children can be cured, but other patients will have progression. Patient stratification is based on clinical observations, such as, age at diagnosis, degree of resection and eventually will probably include or be replaced by molecular genetic classification.

Surveillance Scanning for Medulloblastoma: Is it Worth It? A Ten-Year Experience at Alder Hey, was a topic covered by Dr. McDowell, Liverpool, UK. In general, the study concluded and supported the perspective that earlier detection of asymptomatic recurrence provides a better outcome for patients than those that are flagged because of clinical symptoms.

Marrow Ablative Chemotherapeutic Strategies in the Treatment of High Risk Brain Tumors of Early Childhood was addressed by Dr. Jonathan Finley, Sloan-Kettering Cancer Center, NY. Children with a localized tumor have fared better, contrary to those with disseminated disease.

The session on *High Grade Gliomas and other "Difficult" Tumors* was chaired by Dr. D. Frappaz, Centre Leon Berard, France and Dr. Eric Bouffet, Hospital for Sick Children, Toronto, Canada.. Dr. Frappaz spoke on *High Grade Gliomas (HHG) in Children; Ongoing Debates*. He stressed that clearly, high grade gliomas are a major challenge in terms of quality and quantity of life and that a major cooperative effort could perhaps lead to major breakthroughs. He added that surgical debulking appears to improve quality of life and survival.

Anti-Angiogenic Therapy in Brain Tumors, was presented by Dr. Mark Kieran, Dana-Farber Cancer Institute, Boston, MA, presented. Dr. Kieran emphasized the issue of difficulties in clinical designs and the fact that there are no known good surrogate,; thus, the dosage is ambiguous. Greater understanding of these agents is becoming known as clinical trials in humans are now ongoing.

The Role of Imaging in Tumors of the Brainstem and Spinal Cord, presented by Dr. Gilbert Vezina, CNMC, addressed the development of imaging technology. Imaging offers valuable information to the clinician, such as, tumor characterization, spatial location, definition of extent and, at times, limited classification. In addition, tumor staging, assessments of response to treatment, treatment planning and general surveillance scanning are all important in patient care. Another investigative tool is tissue biochemistry that can be investigated with

(continued on page 7)

(continued from page 6) 10th ISPNO

spectroscopy and perfusion imaging.

The Influence of Activity on the Brain in Development and Disease was presented by Dr. Colin Blakemore, University of Physiology, Parks Road, Oxford, UK. Dr. Blakemore, in his presentation, stated that the cortex has long been considered a highly dynamic structure, although many aspects are determined genetically, and that some of the input and output connectivities and major sensory areas are affected by epigenetic influences. These influences are involved at pre birth in most mammals.

Final Outcome of a Phase I Trial of Low-Dose Temozolomide given concurrently with Radiation Therapy in Children and Adolescents with Brain Tumors was presented by Dr. Kenneth Cohen, pediatric oncologist from Johns Hopkins University Hospital, Baltimore, MD. In Dr. Cohen's presentation, he spoke about patients carrying the diagnosis of brainstem glioma, anaplastic astrocytoma, glioblastoma multiforme, gliosarcoma, pilomyxoid astrocytoma, and well-differentiated astrocytoma who were enrolled in a study at one of three dose levels. In general, therapy was well tolerated, including therapy in young children. The regimen for young children was designed to administer the drug as open capsules for safety of administration. At the conclusion of the study, they determined a maximum allowable dose of temozolomide given over a six week period for children receiving focal radiation.

On day 3 of the Symposium, the co-chairs of Session 11, Low-Grade Astrocytomas-Role of Radical Surgery and what does Chemotherapy Achieve? were Dr. Giorgio Perliongo, University Hospital of Padova, Italy and Dr. Jeffrey Wisoff, New York University, NY. Jeffrey Wisoff presented the topic, *Surgical Management of Optic Pathway (OP) Tumors*. He reported that OP tumors carry a variable natural history, particularly those involving the chiasm and hypothalamus, that may ultimately progress to gradual visual loss, cognitive compromise, and if untreated, death. The management of optic pathway tumors continues to remain controversial, especially with their erratic behavior causing difficulty in evaluation of efficacy of treatment regimens.

Dr. Perliongo presented the topic *Low-Grade Astrocytomas (LGA) of the Optic Chiasm and Hypothalamus (OCH) ... what does Chemotherapy Achieve?* Low-grade astrocytomas are chemo-treatable despite the tumor site; however, for the children with OCH LGA certain features, such as, the dimension, structures involved, resectability, exophytic/cystic component,

distant spread and MRI presentation, should be considered to ascertain the appropriate treatment plan. Most of the children will need comprehensive, long-lasting treatment care from experts with multi-disciplinary teams.

The Clinical Impact of accurate diagnosis of NF1 was presented by Ian Cohen, Schneider Children's Medical Center of Israel. Neurofibromatosis 1 (NF1) is a common autosomal dominantly inherited cancer. Approximately half of these patients represent new mutations and exhibit some variability in clinical expression even amongst family members. He concluded that it may be possible to predict an association between type of tumor and the site of NF1 germline mutations. Tumors may develop in some individuals before clinical diagnosis is made.

In Session 13, *Pediatric Neuro-Oncology and the Developing Brain* was the theme. Dr. Carlos de Sousa chaired this session and the keynote speaker for the session was Dr. Colin Kennedy, Southampton General Hospital, UK. The topic presented by Dr. Kennedy was *Neuro-Endocrine and Neuropsychological Effects*. In his talk, Dr. Kennedy outlined the risk factors for patients including adverse neuro-psychological outcomes, stunted growth from radiation therapy, cognitive decline, emotional and behavioral issues. Thorough follow-up with repeated measurements for the pediatric brain tumor patients over time will aid clinicians in determining if problems are continuing, temporary or if they only become noticeable over time.

Defects in Visual Short-Term Memory in Survivors of Pediatric Brain Tumors: Predictive Factors, was the topic presented by Dr. Marta Macedoni-Luksic, University Pediatric Hospital, Slovenia. Pediatric brain tumor patients, regardless of tumor type, often have issues with memory, visual-spatial functioning, balance, coordination and speech. Children with visual short-term memory loss are often impacted regarding school performance, especially since more classroom information is presented visually. For these reasons, it is important for pediatric brain tumor patients to have neuropsychological testing, including age-appropriate subtests.

Unfortunately, as space is limited it is impossible for us to summarize a great deal of the excellent information presented at the medical symposium. However, we have tried to highlight many of the symposium presentations and hope that you have found this overview of the symposium informative, interesting, and useful.

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Remembrances

Stephen Boyce
 John Boyles
 Charles Bradfield
 Jeff Brown
 Kelley Bula
 Charles Byrum
 Catherine Cason
 Ryan Caspar
 Laira Caverly
 Josetta Chiang
 Ryan Crozier
 Shawn Edwards
 Michael Weidong Fan
 Barbara Waxman Fiduccia
 Daniel Fiduccia
 Jonathan Littleton Forbus, Jr.
 Doyle Garrett
 Vanessa Gonzalez
 Ian Hahn
 Dennis Hanlon
 William Hanlon
 Katie Harris
 Salmaan Hava
 David Hayes
 Erica Holm
 Ryder Howie
 Talbert Hughes
 William Irvin, Senior
 Samuel Robertson Johnson
 Kristi Johnson
 Ellen Keating
 Frances Lewis
 Wesley Hall Lewis, II
 Wesley Hall Lewis, Jr.
 Rebecca Lilly
 Lauren Lockard
 Margie Kane
 Emily Mau
 Willard Maddox
 Bernard Miller
 Hannah Miller
 George Nuzzo
 Herschel Parham
 Kelly Marie Pendleton
 Grace Powers
 Thomas Reinhold
 Nicole Ringes
 Jay Rowley
 Andrew Rypien
 Amy Schiller
 Joe Sanford
 Lynda Santelli
 Lule Shahateet
 Courtney Shelby
 Lisa Soghomonian
 Teresa Stargel
 Symphony Ann Taylor
 Jaime Vanderheyden
 Swetha

Tupperware Sale Proceeds to Benefit CBTF In Honor of Jay Rowley By Kathleen Boyles

[Http://www.my.tupperware.com/forthechildren](http://www.my.tupperware.com/forthechildren)

Kathleen Boyles is donating the profits from Tupperware sales generated from her website to CBTF. Products can be viewed online or contact CBTF and we will have Ms. Boyles send you a catalog. Type the website address in entirety or the company will claim the order.



Kelley Bula



Michael Weidong Fan



Catherine Cason

You have first an instinct, then an opinion, then a knowledge, as the plant has root, bud and fruit. Trust the instinct to the end, though you can render no reason. ~Ralph Waldo Emerson

Afterglow

I'd like the memory of me
 To be a happy one. I'd like
 To Leave an Afterglow of
 Smiles when the day is done.
 I'd like to leave an echo...
 Whispering softly down the
 Ways of happy times and
 Laughing times and bright
 And sunny days. I'd like
 The tears of those who
 Grieve to dry before the
 Sun of happy memories
 That I leave behind when
 Day is done.

Anonymous

If I take the wings of the morning, and dwell in the uttermost parts of the sea;

even there shall thy hand lead me, and thy right hand shall hold me.

139th Psalm

Verses 9&10

Fund-raisers:

Saturday, November 2, 2002

Run with the Saints, In Memory of Lauren Lockard
Houston, Texas

Spring Retreat Day 2003

Fall Retreat Day was postponed. Look for information about Spring Retreat Day in our winter newsletter.

Sunday, April 27, 2003

The Dan Fiduccia Spring Biathlon,

500 yd. Swim/5K Run to be held at Madeira School, McLean, VA.



Participants can be as individuals or as a team. Have some fun, take the challenge. Sponsorships are encouraged.

May 4-10, 2003

Brain Tumor Action Week

Watch for details in the winter newsletter .

Our mission is to support and fund basic science and clinical research for childhood brain tumors. We are dedicated to heightening public awareness of this devastating disease and improving the quality of life for those that it affects.

WORKPLACE GIVING

Thank you to those who choose us as their charity!
CBTF is in the

- Combined Federal Campaign;
- Children's Charities of America (National); and
- United Way

Campaign donations can be made for the United Way through the "donor option" or "donor choice." Please check with your employer in reference to United Way campaigns. Our number for this year's campaign is 2742



CBTF has a website!

visit us at:

<http://www.childhoodbraintumor.org>

Gift Matching Opportunities

Many companies offer a matching gifts program to support charitable organizations. Your human resources department can tell you if such a program exists in your organization. Generally, they have a form that would be sent to the Childhood Brain Tumor Foundation reporting a contribution, stating they will match the contribution. We return the form to the employer with the proper acknowledgment and information required.

CBTF can now accept donations via stock securities through Bank of America Investment Services, Inc. Contact our Broker, Steven P. Burroughs at 201-897-7699.

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