2014 Annual Meeting

Northern New England NNECOS
Assuring Access To High Quality Cancer Care

Clinical Oncology Society

Program & Abstracts

Bretton Woods, NH
October 24-25, 2014
NORTHERN NEW ENGLAND
CLINICAL ONCOLOGY SOCIETY

NNECOS
ASSURING ACCESS TO HIGH QUALITY CANCER CARE

Neighboring States
Solving Problems Together

Networking with ASCO

Enhancing Quality

Continuing Medical Education

Opportunities to Promote Your Cancer Program

Serving Cancer Patients Through Research, Advocacy, and Access to Financial Resources
Welcome to Bretton Woods and the 2014 NNECOS Annual Meeting!

Thank you for joining us for our annual meeting at the beautiful Omni Mt. Washington Hotel. In addition to the fabulous slate of speakers presenting the latest in clinical advances and practice updates, we invite you to also take advantage of the opportunity to network with colleagues from across the region. Together, professionals must participate in the political, economic, and scientific debates that challenge the cancer care community nationwide.

Please be sure to take the time to visit with the representatives of the companies who have helped to support our society throughout the year in the NNECOS Networking Lounge, located in the Grand Ballroom. Exhibits, refreshments, and most meals will be served in this area.

At the conclusion of the meeting, we ask that you complete and submit your evaluation, allowing you to obtain educational credit, and providing feedback to help shape future educational events.

2014 Annual Meeting Planning Committee

Steve Ades, Lori Aubrey, Marty Byrne, Michael Fisch, Angela Gibbs, Andy Hertler, Steve Larmon, Amy Litterini, Chris Nunnink, Tom Openshaw, Shirley Roy, Paul Unger, Doug Weckstein, Tracey Weisberg

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Using communication for better transitions in care
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Thomas Smith, MD
Ursula McVeigh, MD

BREAKOUTS 9:35 – 10:35 AM
The Management and Care of Head and Neck Cancer Patients: A Team Based Approach
Carl Nelson, MD, Jean Sheehey, RN

Management of the axilla in localized breast cancer
Loren Rourke, MD, FACS

BREAKOUTS: 4:00 – 5:00 PM
Grief in the workplace: Maintaining hope and gratitude
Pam Brown, RN, CHPN

National Updates / Payment Reform
Tracey Weisberg, MD, Christian Thomas, MD, Denis B. Hammond, MD

ABSTRACT POSTER SESSION
Cocktail Reception
5:00 – 6:15 PM

DINNER PROGRAM 6:30 PM
1ST ANNUAL STEVEN M. GRUNBERG, MD MEMORIAL LECTURE
Palliative care in the outpatient setting
Thomas Smith, MD

8:30 PM MEMBERSHIP AWARDS BUSINESS MEETING

SATURDAY, OCTOBER 25, 2014

Updates on adjuvant therapy for colon cancer
Jeff Meyerhardt, MD
8:30 – 9:30 AM

BREAKOUTS 9:35 – 10:35 AM
The Management and Care of Head and Neck Cancer Patients: A Team Based Approach
Carl Nelson, MD, Jean Sheehey, RN

Breast Cancer in the Elderly: A Balancing Act
Jennifer R. Bellon, MD
Peter Kaufman, MD

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ABSTRACT PRESENTATIONS
• Yongli Ji, MD, PhD
• Barbara Beauchemin, RN
• Evelyn Brosnan, MD, MBA

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Cancer Care Disparities
Christopher Lathan, MD

BREAKOUTS: 2:05 – 3:05 PM
Monitoring and management of oral targeted agent toxicities to optimize patient adherence
Joanna Schwartz, PharmD, BCOP

Oncology Pathways
Peter G. Ellis, MD
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NNECOS 2014 Annual Meeting Abstracts

The Northern New England Clinical Oncology Society (NNECOS) is pleased to present the following abstracts from across the region and beyond in the ninth year of the abstract program. These abstracts have been reviewed by the NNECOS abstract committee and approved by the NNECOS Board of Directors for presentation at this year’s meeting. Thanks to all who took the time to share information and ideas with colleagues through this means. We’ll look forward to another group of abstracts for presentation at our 2015 Annual Meeting.
Malignant Murmur: A Case of Primary Left Atrial Sarcoma with Pelvic Metastases

H. Boutrid

*Dartmouth-Hitchcock Medical Center*

**Background:** Primary cardiac sarcoma is an extremely rare disease, with an incidence of 0.002-0.3% and is difficult to differentiate from myxoma both clinically and pathologically. These tumors primarily develop on the left side of the heart and cause signs and symptoms related to pulmonary congestion, mitral stenosis and pulmonary vein obstruction. We present a case of primary left atrial sarcoma with abdominal and pelvic metastasis.

**Methods:** A 40 year old Puerto Rican female without any significant medical background presented with a six week history of fatigue, intermittent dyspnea, palpitations and orthopnea. A two-dimensional echocardiogram demonstrated a large mobile, pedunculated mass at the left atrium measuring 5.1x2.5cm that intermittently prolapsed into the mitral valve obstructing mitral flow.

**Results:** The patient subsequently underwent a right thoracotomy with excision of a pedunculated tumor measuring 4.9x2.7x2.2 cm in size with positive margins. Histological diagnosis was high grade pleomorphic and myofibroblastic sarcoma. Treatment with combination chemotherapy including doxorubicin and ifosfamide was planned at this time. The patient presented one month later, prior to receiving chemotherapy, with exertional dyspnea, abdominal distention and 1+ pitting edema in bilateral lower extremities. She was found to have metastatic abdominal disease.

**Conclusions:** This case of primary atrial sarcoma in an otherwise healthy young woman presenting with symptoms of acute dyspnea, orthopnea and chest pain illustrates the importance of keeping a cardiac myxoma and sarcoma in the differential diagnosis. Cardiac tumors are infrequent, but potentially life-threatening conditions that necessitate prompt diagnosis and aggressive therapy.

Long-Term Remission in a Patient with Secondary Plasma Cell Leukemia Utilizing Combined High-Dose Therapy and Autologous Stem Cell Transplant with Aggressive Maintenance

H. Boutrid, K. Meehan, J. Hill

*Department of Hematology-Oncology, Dartmouth Hitchcock Medical Center, Lebanon NH*

**Background:** Plasma cell leukemia (PCL) is a rare, aggressive variant of multiple myeloma characterized by circulating plasma cells. PCL can develop either de novo, or secondary, as a leukemic transformation of multiple myeloma. The prognosis
of secondary PCL in patients treated with conventional chemotherapy remains extremely poor, with median survival ranging from 2 to 12 months and the potential for sustained therapeutic responses being remote, at best. We present a case of long-term remission in a patient with secondary PCL following high-dose chemotherapy and autologous stem cell transplant (auto-SCT), with extended maintenance CDEP (cyclophosphamide, dexamethasone, etoposide and cisplatin) therapy.

**Methods:** A 52 year old woman with a history of kappa light chain Multiple Myeloma and adverse cytogenetic profile (including 17p deletion) was initially treated with an induction regimen of Lenalidomide, Bortezomib and Dexamethasone (Revlimid, Velcade and Decadron; RVD). The patient returned four months later manifesting acute renal failure, elevated liver associated enzymes and bone marrow findings of 100% plasmacytosis, with serum free kappa light chain assay of 800 mg/dL and 41% circulating plasma cells in the peripheral blood. She was started on dexamethasone and required hemodialysis support. Based on the diagnosis of secondary PCL, she underwent aggressive cytoreduction using 3g/m2 cyclophosphamide, followed by consolidative high-dose Melphalan/Bortezomib and auto-SCT, then the start of CDEP maintenance therapy.

**Results:** She has now received a total of 17 cycles CDEP, to date, and has tolerated these treatments with minimal side effects, albeit gradually progressive renal insufficiency. The patient continues in complete pathologic remission, now 50 months after her initial diagnosis and 44 months following auto-SCT.

**Conclusions:** This case of long-term remission in a patient with high-risk, secondary plasma cell leukemia demonstrates an unusually favorable outcome in a disease with a dismal prognosis. A combined approach that incorporates high-dose chemotherapy and auto-SCT with aggressive and sustained maintenance may result in improved survival benefit for patients with PCL.

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**The HyperCVAD experience in a rural tertiary care center in partnership with community hospitals.**

E. Brosnan\(^1\), M. Davis\(^2\), C. Johnson\(^2\), F. Lansigan\(^2\)

\(^1\)Department of Medicine, Dartmouth Hitchcock Medical Center, Lebanon NH; \(^2\)Department of Hematology-Oncology, Dartmouth Hitchcock Medical Center, Lebanon NH

**Background:** The hyperCVAD chemotherapy regimen was developed in 2000, tested in a large trial (204 patients) at a single site (MD Anderson) and targeted towards Acute Lymphocytic Leukemia. Dartmouth Hitchcock Medical Center has used the hyperCVAD regimen to treat leukemia and lymphoma and, while we are a tertiary care center, our patients come from a rural hinterland and are managed through their nadir in cell counts at home in rural settings with support from local NNECOS community hospitals.

**Methods:** This is a retrospective study of a cohort of 46 patients treated with hyperCVAD regimen at DHMC. Descriptive statistics regarding the patient population were gathered. Primary outcome measures were mortality rate during induction therapy and rate of readmissions.
Results: The patients lived a median of 59 miles from our center. The distribution of disease type was: aggressive Diffuse Large B-cell Lymphoma 41.3%, Acute Lymphoblastic Leukemia/Burkitt’s Lymphoma 19.6%, Mantle Cell Lymphoma 19.6%, Plasmablastic Lymphoma 10.9%, Other 8.6%. Patients received an average of 4 cycles of hyperCVAD. All patients received granulocyte colony stimulating factor. Antiviral, antibacterial and antifungal prophylaxis were part of a standardized order set. The mortality rate was 8.7% and all occurred in patients >60 years old. There were no deaths in patients <60 years old. The induction regimen has severe toxicity due to myelosuppression and the average hospital readmission rate per cycle was 17.4% with almost half of these managed at local hospitals. The major reason for hospitalization was neutropenic fever.

Conclusions: This study suggests that patients can be successfully managed in a rural setting with close collaboration between local hospitals and the tertiary center, thus encouraging other similar centers to develop confidence in being able to treat patients without the need for them to relocate to a large cancer center for the duration of therapy.

Early Introduction and Explanation of Palliative Care in Stage IIIb/IV Lung cancer patients-A Palliative Care Pilot

K. Carole¹, B. Beauchemin¹, J. Walsh¹, A. Siff², N. Kane², Andrew Westbrook², Andrew Westbrook³, L. Farmer³

¹NH Oncology-Hematology PA, ²Concord Hospital, ³CRVNA

Background: The goal of this project was to systematically introduce the palliative care discussion early in the patient’s course of illness to improve quality of life and overall care experience.

Methods:
1. If the patient has Stage 3B or 4 lung cancer, the NHOH Nurse Navigator will notify the MD to initiate discussion about Palliative Care (PC) consult
2. NHOH RN Navigator will mail Distress Thermometer with new patient packet after explaining it via phone call to the new patient prior to consult.
3. NHOH RN Navigator gives referral form to MD for first visit and then makes referral to Concord Regional VNA for Palliative Care Consult if MD deems appropriate.
   • CRVNA faxes the Palliative Care Consult note to team members
   • Follow up call will occur in 1-2 weeks after PC consult visit.
4. Collect Outcome Measures
Results: There have been 20 eligible patients since the program began in 10/14/13. 8 have had a palliative MD consult and 2 are pending, 4 have died, 1 moved away, 3 went directly to hospice and 2 declined.

Conclusions: This pilot program has been successful in encouraging earlier and more comfortable palliative care discussions between NHOH MD and patient/family. Relationships between the NHOH MDs and CRVNA PC MD have strengthened which will lead to increased PC referrals and improved communication among the disciplines.

Procedural Safety and Comfort: Bone Marrow Biopsy Relocation Initiative


DHMC - Norris Cotton Cancer Center

Background: Approximately 450 bone marrow biopsies are performed in the outpatient setting at DH annually. Until January 2013 the majority of these procedures were performed in the Hematology/Oncology ambulatory Infusion Suite. Pain relief for these patients was variable as the clinical setting and staffing wasn’t conducive for the safe administration of moderate sedation. Patients requesting sedation were scheduled in the Post Anesthesia Care Unit instead of the Infusion Suite. Additionally, proceduralists lacked the necessary assistance during and following the biopsy for patient monitoring and processing the bone marrow samples. Furthermore, the Infusion Suite was experiencing an increase in patient visits which necessitated the exploration of moving the bone marrow biopsies to the less utilized Outpatient Surgical Center.

Methods: A multi-disciplinary project team was convened in December 2011 using the DMAIC (Define, Measure, Analyze, Improve, Control) methodology as the improvement framework. The goals of the team were to improve the safety, satisfaction and efficiency associated with performing bone marrow biopsies. The team membership included representation from: Hematology/Oncology Section, Pathology, Outpatient Surgical Center, the Evidence Based Order Set Committee, NCCC Administration, and the Value Institute.

Results: The results seen were observed in 3 types of modes.
1. The percent of patients receiving procedural moderate sedation went up from 21% to 76%. This was achieved because the option of moderate sedation was not available for all procedures and no long limited on staffing availability.
2. Through verbatim patient comments made to our organizational patient satisfaction survey, we know the pre-project process was not favored. However, our percent of rating of excellent is holding strong at 99%.
3. By relocating the project from our Infusion Suite to our Outpatient Surgery Center, the project was able to show a ~$210,000 in new revenue based on the switch from RN staff to Nurse Practitioners who performed the biopsies.

Conclusions: The project was in all aspects a patient experience driven process. The relocation made several safety improvements and improved the overall process. The project has seen an increase in procedural pain relief, increased patient satisfaction, increased staff satisfaction, increased efficiency for proceduralists, and increased usage of space in the Infusion Suite for infusion patients. Through ongoing monitoring, this effort has produced continual improvements as well as spun of additional mini-projects to address the smaller processes within this newly designed process. This project has shown what a multi-disciplinary group can do when they believe in the improving the patient experience.

Disseminated Adenovirus in a patient with T Cell Prolymphocytic Leukemia on Alemtuzumab

A. Hill1, J. Shatzel1, J. Hill Jr.2,
1Department of Medicine, Dartmouth Hitchcock Medical Center, 2Department of Hematology-Oncology, Dartmouth Hitchcock Medical Center

Case Presentation: A 53 year-old male with a remote history of Hepatitis C and undifferentiated B cell lymphoma with active T cell prolymphocytic leukemia undergoing 6 weeks of alemtuzumab treatments presented with subjective fevers, chills, and malaise. He was pancytopenic with an ANC of 520. He was admitted for neutropenic fever and started on broad spectrum antibiotics with vancomycin and ceftazidime. However, he remained intermittently febrile and CT C/A/P showed subsegmental pulmonary emboli and multiple large hypodense lesions in the liver. These were new compared to a CT scan done three months prior. CT-guided biopsy of the hepatic lesions revealed necrotic material without evidence of lymphocytes or involvement by T-prolymphocytic leukemia. Culture and staining of the tissue was negative for infectious process. AFP, sent for concern of HCC, was normal. Repeat imaging 10 days later with MRI showed stable lesions without change despite continued antibiotic therapy. It was decided to repeat the hepatic lesion biopsy. The biopsy showed cells with inclusions consistent with adenovirus and this was confirmed with viral stain. Adenovirus PCR levels were high. Weekly cidofovir was started with concomitant probenecid for renal protection. A few doses were delayed due to worsening renal function, but this improved after aggressive hydration. His fever resolved. Cidofovir was continued for one month after discharge until adenovirus was undetectable by PCR.

Discussion: Patients with compromised T cell function are at increased risk for severe viral infections with significantly increased morbidity and mortality. Fatality rates with disseminated adenovirus infection are as high as 50-80%. Further, alemtuzumab is a potent inhibitor of T cell function known to exacerbate already existing anergy.
in patients with T cell lymphoproliferative disorders. This case highlights the importance of elucidating the potential infectious agent in anergic patients on T-cell suppressive therapy. Fortunately, treatment with cidofovir, despite moderate nephrotoxicity, reduced the adenoviral DNA load to undetectable, with dramatic clinical improvement.

Improving cross-departmental oncology nursing with the Lean Six Sigma model

M. Howe, A. Olson

DHMC - Norris Cotton Cancer Center

Background: Setting: 400-bed academic medical center with a dedicated cancer center including a 33-bed medical hematology/oncology inpatient unit and a 31-chair outpatient infusion suite.

Methods: Three staff nurses teamed up to improve central line infection prevention and chemotherapy safety for patients transferring from outpatient infusion to the inpatient unit. Utilizing the Lean Six Sigma quality improvement model revealed practice differences between inpatient and outpatient oncology nursing within the same institution, as well as key gaps in understanding, resources, and information availability.

The staff nurse team worked with leadership to address the simple and complex aspects of this problem, from ensuring supply availability, to reliably identifying this patient population, to educating staff about safety needs for differing settings and lengths of stay. The team also developed a checklist to guide nurses in providing the safe care for these patients.

Results: The improvement interventions yielded significant results: patients with the most occlusive, durable mediport dressings in place increased from 11% to over 90%; and chemotherapy connected in the safest possible way to prevent chemo spills increased from 0% to over 75%.

Conclusions: The team shares results with nursing staff to acknowledge and reinforce practice change, a feedback loop is in place to track trends and provide accountability, and project ownership now lies with management for improvement perpetuation.

Utilizing the Lean Six Sigma model empowered staff nurses to identify the real barriers to best practice and then empower our peers with the tools needed to provide the safest possible care for our oncology patients.
The DNA repair landscape of discordant sibling pairs of women from hereditary breast cancer families

Y. Ji¹, T. Round², J. Bond², S. Wallace³, J. Sweasy⁴, M. Wood²

¹Fletcher Allen Health Care/UVM, ²University of Vermont Cancer Center, ³University of Vermont, Department of Microbiology and Molecular Genetics, ⁴Yale School of Medicine, Department of Therapeutic Radiology and Genetics

Background: Aberrant DNA repair plays a significant role in carcinogenesis. The aim of this pilot study is to profile the repair landscape of germline DNA of discordant sister pairs (one with and one older sister without breast cancer) from breast cancer families. The goal of this study is to demonstrate feasibility of this process and ultimately to identify novel genetic variants associated with breast cancer risk.

Methods: A total of 6 sister pairs are identified in a cohort of women enrolled in the High Risk Breast Program (HRBP) at Vermont Cancer Center. We propose to sequence the 5’ and 3’UTRs, promoters, and exons of all DNA repair genes were sequenced using DNA capture and next generation sequencing technology. Computational genomics were utilized to identify putative single nucleotide polymorphisms.

Results: Germline DNA was isolated from 6 sister pairs recruited from the HRBP. Twelve libraries were each sequenced twice. We obtained high-quality exome sequences for the 6 sibling pairs. Using computational genomics we identified deleterious mutations in several known cancer-associated pathways, including DNA repair. The genes and pathways include:

1. TS1 (tuberous sclerosis complex) is a tumor suppressor gene
2. WRN is a member of the RECQ helicase family involved in DNA repair and maintaining genomic stability
3. PMS2 (postmeiotic segregation increased 2) is involved in mismatch repair
4. POLQ is a DNA polymerase
5. POLE is a DNA replicative polymerase.

Variants and family structure will be reported.

Conclusions: Using 6 discordant sister pairs from high-risk families we were able to obtain high-quality sequence information and identify several interesting variants in DNA repair pathways. Future studies will require sequencing of additional sister-pairs. We have enrolled additional sister pairs and have been funded to sequence and analyze 8 additional pairs.

*This study is funded by VCC/LCCRO pilot study award, and by NNECOS research funding.
Successful treatment of non-small cell lung cancer with Erlotinib throughout the pregnancy

Y. Ji, J. Ramsey, J. Schwartz, A. Hartford, C. Verschraegen

Fletcher Allen Health Care/UVM, University of Vermont Cancer Center; Dartmouth-Hitchcock Medical Center

Background: The use of epidermal growth factor receptor (EGFR) inhibitors, Erlotinib during pregnancy was previously published in four case reports [1-3], including unintentional use of Erlotinib in one case during the first 2 months [4]. It is not known if Erlotinib, crosses the human placenta.

Methods: We reported a case of lung cancer intentionally treated with Erlotinib during patient’s 2nd and 3rd trimester of pregnancy. Transplacental transfer data of Erlotinib was studied.

Results: A 47-year-old female non-smoker, 10 weeks pregnant with twins after in-vitro fertilization (IVF), presented with a generalized seizure. She was found to have stage IV non-small cell lung cancer (NSCLC) with brain metastases and a deletion in Exon 19 (E19del). After lengthy discussion involving the Ethics Department, the patient decided to continue the pregnancy. She received stereotactic radiation therapy on the brain lesions then began first-line treatment with Erlotinib 150 mg once daily at the 16th week of pregnancy. She continued treatment through the pregnancy under clinical surveillance by oncology and obstetrics. At thirty-seven weeks’ gestation, she underwent a caesarean section of twins without evidence of congenital malformations. Erlotinib treatment was interrupted 71 hours prior to delivery and resumed after 3 weeks postpartum. The concentrations of Erlotinib and its active metabolite OSI-420 were tested in mother’s vein and twins’ cord blood respectively (Table 1). In mother’s vein, the residual Erlotinib’s concentration is 54 ng/ml, which was 10 fold lower than the estimated in vivo therapeutic concentration [5]. Low concentrations of Erlotinib and OSI-420 in twins’ cord blood confirmed a transplacental transfer, but at only 10-20% of the maternal concentration measured at the same time. Imaging assessment after 6 months of treatment showed partial responses in lung and in brain. The patient is currently receiving the 8th month of treatment, works full time, remains asymptomatic, and the baby girls are now 4 months old and in good health.

Conclusions: Lung cancers that occur in non-smokers differ from those that occur in smokers in regard to molecular profiles and responses to targeted therapy. Our case exemplifies the therapeutic and ethic challenges given the lack of knowledge of Erlotinib treatment in pregnancy and subsequent uncertainty of fetus’ safety. Our experience encouraged the targeted therapy in pregnant patients, and this is the first study of investigating Erlotinib’s pharmacology across the placenta.
Case of Acquired Hemophilia A

S. Khadanga, J. Monterroso, P. Unger

University of Vermont

Background: Acquired hemophilia is a potentially life-threatening bleeding disorder which can occur secondary to malignancy, autoimmune disorders, and pregnancy, among other. Although the disorder is rare, it can have significant morbidity and mortality.

Methods: We present a case of Acquired Hemophilia A

Results: 79 year old female with newly diagnosed chronic lymphocytic leukemia presented after a fall. She was noted to have a hemoglobin of 5.1, PTT 90, and large retroperitoneal hematoma seen on CT abdomen. Mixing study did not correct the PTT, factor VIII level was <1%, Bethesda assay was >400. She was treated with R-CVP. She had a prolonged hospital course with one readmission due to bleeding.

Conclusions: The incidence of acquired hemophilia A has been reported to be 1 in a million. Diagnosis is challenging as the patient typically doesn’t have a family or prior history of bleeding. In patients with elevated PTT, it is important to keep acquired hemophilia on the differential diagnosis. Initial therapy may involve bypassing agents and eventually eradication of the inhibitor.

Effect of P2Y12 inhibition on TGFβ1: Antiplatelet agents in the treatment of breast cancer

I. Lal1, D Sharma2, J. Levis2, C. Holmes2

1Fletcher Allen Health Care / UVM, 2Vermont Cancer Center: University of Vermont

Background: Apart from their role in hemostasis, platelets can influence tumor metastasis by differential release of various proteins stored in their α granules. Preclinical data suggest that platelet-derived TGFβ1 induces an invasive epithelial to mesenchymal-like transition in tumor cells resulting in efficient metastasis. The aim of this study was to investigate the effect of key platelet activation agonists on TGFβ1 secretion and inhibition of its release by P2Y12 (ADP) receptor antagonist (Cangrelor) in cancer patients compared to healthy subjects.

Methods: Minimally altered whole blood from 24 female subjects with breast cancer and 10 healthy volunteers was stimulated with ADP (P2Y12 receptor agonist), Convulxin (GPVI receptor agonist), PAR1AP and PAR4AP (thrombin receptor agonists) alone or in combination with the P2Y12 antagonist (Cangrelor). TGFβ1 release was measured with the use of an ELISA assay. The percent release of TGFβ1 relative to the total amount of TGFβ1 within the platelet lysate was calculated.
Results: All the agonists resulted in increased secretion of TGFβ1 in healthy subjects and cancer patients. ADP was less potent compared to rest of the agonists including PAR1, PAR4 and Convulxin in TGFβ1 release. There was no statistically significant difference in agonist-induced TGFβ1 release in breast cancer subjects (with or without chemotherapy and/or metastasis) and healthy subjects. Compared to healthy subjects, Convulxin induced secretion of TGFβ1 was significantly inhibited by Cangrelor in patients on chemotherapy (-43.4, SEM=6.5 vs. -12.6, SEM=2.1) and metastatic breast cancer (-42.1, SEM=6.0 vs. 11.1, SEM=2.4).

Conclusions: Platelet P2Y12 inhibition attenuates platelet-derived TGFβ1 release in a subset of breast cancer patients receiving chemotherapy and those with metastatic disease. Further studies are ongoing to discern the role for platelet inhibition in patients with active breast cancer.

Sustained Remission of Follicular Lymphoma Despite Persistent Mixed Chimerism Following Nonmyeloablative Allogeneic Stem Cell Transplant

R. Lizcano, K. Meehan, J. Hill, Jr.

Dartmouth Hitchcock Medical Center

Background: Persistent mixed (recipient/donor) chimerism after allogeneic stem cell transplant has traditionally been considered a predictor of poor outcome. While increasing mixed chimerism has been most closely associated with impending relapse of disease and/or graft rejection, the clinical implications of stable mixed chimerism are poorly understood. We present a case of a patient with multiply-relapsed stage IVA Follicular Non-Hodgkin Lymphoma who received an allogeneic stem cell transplant and has demonstrated persistent, stable mixed chimerism, yet maintains an optimal graft-versus-tumor effect with lasting remission status, now >6 years following transplant.

Case Description: A 50 year old woman was diagnosed with stage IVA Follicular Lymphoma (grade 1). After induction therapy, then multiple relapses of her disease, she underwent a non-myeloablative matched-related donor allogeneic stem cell transplant utilizing fludarabine/cyclophosphamide (Flu/Cy) conditioning. Her early transplant course was uncomplicated, with timely engraftment of all cell lines, though chimerism studies on day +60 demonstrated 30% donor and 70% recipient engraftment, consistent with mixed chimerism status (>90% donor chimerism expected). Despite early withdrawal of immune suppression, day +100 chimerism analysis showed persistent mixed chimerism, with peripheral blood granulocyte fraction and unfractionated bone marrow samples both only 25% donor and a peripheral blood mononuclear fraction that was only 40% donor engrafted. Bone marrow chimerism at day +180, then at one and two years post-transplant, continued to show persistent, stable mixed chimerism. Based on restaging studies four years after transplant, she remained in complete remission (CR), with continued stable mixed
chimerism status and no evidence of disease by marrow biopsy, cytogenetics and CT imaging. She currently remains in clinical CR, now >6 years following transplant, with no demonstrated evidence, to date, of graft-versus-host disease (GVHD).

**Conclusions:** While increasing mixed chimerism correlates with impending transplant rejection and/or relapse, particularly in the lymphoma setting, persistent, stable mixed chimerism status is less predictive and may be seen even in patients with a durable graft-versus-tumor effect and resultant disease control. It is apparent that the potential for mixed chimerism is increased by non-myeloablative pre-transplant conditioning, and likely that optimal and sustained disease control is enhanced in the setting of both indolent disease and manageable chronic GVHD. Still, potential disease or transplant parameters that may be more specifically predictive for the attainment of persistent, stable mixed chimerism are unknown and represent an area worthy of further investigation.

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**Delivery of Cancer Genetic Services: Acceptability of Telehealth in Geographically Remote Setting**

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**Background:** Advances in genetic/genomic technologies for cancer genetic risk assessment, counseling, and testing are at the forefront of personalized medicine. Questions remain regarding how best to provide guideline-based cancer genetic services in rural areas. The goal of this work was to assess the acceptability, knowledge retention, and satisfaction of cancer genetic counseling via telehealth. Knowledge retention of patients counseled via telehealth are compared to patients counseled in person.

**Methods:** A set of three surveys were given to patients who received cancer genetic counseling via telehealth; pre-visit, post-visit survey, and one month post-visit. Both telehealth and in-person patients responded to 13 knowledge questions pre and post counseling. Patients counseled via telehealth also rated their satisfaction with conducting a visit with complex subject matter over telehealth.

**Results:** Twenty-six remote patients have completed surveys to date. All telehealth respondents reported better access to cancer genetic counseling by use of telehealth. Ninety-six percent of telehealth patients reported overall satisfaction with a telehealth visit. Seventy percent of respondents drove 20 or fewer miles to the telehealth site. All respondents reported trust in the confidentiality and quality of the counseling and felt comfortable talking with counselors about concerns. Knowledge retention for the telehealth group of patients was similar to the patients counseled in person.
Conclusions: At-risk individuals are willing to receive care via telemedicine and find it an acceptable option for counseling. For individuals who do not have easy access to in-person genetic counseling, Telehealth provides accessible and acceptable counseling. These data are supporting planning and development of cancer genetic services in Maine and may be generalizable to other Northern New England states.

Standardization of Safe Sexual Practice Education after Chemotherapy

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DHMC - Norris Cotton Cancer Center

Background: In July 2013 it was identified that the Norris Cotton Cancer Center did not have standardized patient/family education process regarding safe sexual practices after administration of chemotherapy including:

- contraception to prevent pregnancy
- precautions to protect from bleeding and infection
- barrier devices to protect partners from exposure to chemotherapy and biologic agents.

In alignment with the Cancer Nursing Service Line’s strategic plan, the NCCC/D-H set out to examine the existing patient education process with the goal of standardizing patient/family education across cancer settings. Sexual counseling is an important aspect of this teaching. Staff were educated in the DMAIC Process Improvement methodology prior project initiation.

PROJECT GOALS
- Standardized patient education
- Develop patient resources
- Nursing Education

Methods: Utilizing the DMAIC methodology of Process improvement the project group set out to:

- Define the process, the stakeholders, and the project goals.
- Measure key aspects of the current process and collect relevant data.
- Analyze the data to investigate and verify cause-and-effect relationships.
- Determine what the relationships are, and attempt to ensure that all factors have been considered.
- Seek out root cause of the defect under investigation.
- Improve or optimize the current process based upon data analysis and standard work to create a new, future state process. Set up pilot runs to establish process capability.
- Control the future state process to ensure that any deviations from the target are corrected before they result in defects.

Results: Process developed to include safe sexual practices education into the Chemotherapy Competency for all in patient nurses by providing a video for nurses
to view (includes CME credit), developed a pamphlet to provide to patients regarding safe sexual practices, developed smartphrases for documentation of education in eD-H, and collect data to track the use of the Chemotherapy Learning Assessment form to document teaching by nurses.

**Conclusions:** The ONS identifies sexuality as one of the 14 high incidence problem areas for patients and oncology nurses need to be competent in sexual counseling. Nurses have frequent and on-going interactions with patients and families prior to the initiation of cancer treatment, and discuss many important issues with cancer patients. Nurse serve as the liaison between the patient, family and provider and navigate patients through many systems within the healthcare setting. Nurses are well positioned to discuss QOL issues such as fertility and reproductive health with patients. Teaching safe sexual practices to patients receiving chemotherapy is an important aspect of Oncology nursing care.

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**Choosing Wisely: Reducing Unnecessary Imaging in Breast Cancer**

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**Background:** Occult metastasis in clinical stage I/II breast cancer is rare. Routine scanning does not improve detection of metastatic disease beyond routine lab studies and physical exam, and recent guidelines recommend against routine staging. We examined the utility and false positive rate of staging evaluations for patients with clinical stage I/II at Fletcher Allen Health Care (FAHC) at the University of Vermont.

**Methods:** Scans performed for breast cancer staging over 1 year (10/1/2012 – 9/30/2013) at FAHC were identified by CPT and ICD-9 codes. Rates of unnecessary scans and false positive rates were calculated. Scans were categorized as indicated if the patient was clinical stage III/IV, had recurrence, or was symptomatic; scans were unnecessary if no factors were present. An evaluation (CT chest/abdomen +/- pelvis and bone scan) was considered false positive if additional imaging and/or biopsy was recommended and negative or benign.

**Results:** Between 10/1/2012 – 9/30/2013 339 breast cancer patients evaluated and treated at FAHC; 74 (21.8%) underwent staging evaluation with PET or full-body CT and bone scan. 39 scans in 249 clinical stage I/II patients were ordered, representing 8.7% (17/196) of clinical stage I patients and 39.6% (21/53) clinical stage II patients. No metastases were identified. The false positive rate was 11.4% (4/35) for this group.

**Conclusions:** Given the low rate of metastatic disease detected, high false positive rate and potential costs (financial and emotional) of staging for asymptomatic women with clinical stage I/II breast cancer, we agree with recommendations to not perform routine staging in this population.
EBV acute encephalitis in a patient recently treated for hemophagocytic lymphohistiocytosis associated with EBV

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Background: HLH is an uncommon disease that has been associated with Crohn’s disease, immunosuppressive therapy, viral infections, among other.

Methods: We report a case of HLH associated with EBV and subsequent complication of EBV acute demyelinating encephalitis.

Results: 19 y/o M with history of Crohn’s disease previously treated with 6 mercaptopurine presented to the hospital with 15 days of fevers, malaise, progressive lymphadenopathy and pancytopenia. He was diagnosed with EBV and HLH on admission and treated according to HLH 2004 protocol. He had a good clinical response until after his last chemotherapy and tapering of steroids, when he had new onset of seizures. He was diagnosed with encephalitis with demyelination secondary to reactivation of EBV in the CNS. He required high dose steroids, antivirals and IVIG in the acute setting and had a prolonged treatment course with steroid taper and antivirals. He recovered clinically without deficits. Throughout his treatment, familial mutations were gradually ruled out.

Conclusions: In this case we present a unique clinical scenario where the patient was promptly diagnosed, treated according to HLH 2004 protocol and had a good response. Unfortunately he developed EBV encephalitis with evidence of acute demyelination. We hypothesized that in this particular case there is an immune dysregulation related to his underlying Crohn’s disease, previous exposure to 6-mercaptopurine and possible adaptive immune system defect causing him not to have a prompt response to the EBV. EBV encephalitis and ADEM (acute demyelinating encephalomyelitis) are both unusual conditions and in this case were associated with recent EBV infection complicated by HLH.

Organizing a Reliably Operating Oncology Clinic


DHMC - NCCC

Background: Oncology clinics are complex, with appointments scheduled around imaging, lab, and infusion times. Our clinic has struggled with overcrowding and delays. We present our project as a way of examining clinic flow and presenting solutions.
Methods: We reviewed the clinic process, measuring the amount of appointments scheduled per hour and per day, and surveying room occupancy directly. We measured provider exam time (PET), patient time in room (PTR), and time past expected departure (TPD). This allowed us to calculate clinic capacity by room and LNA availability, and time needed for appointment.

Results: The average PET was 37 minutes, PTR 50 minutes, and TPD 12.5 minutes. No correlation was found between TPD and provider group. Hourly maximum capacity is 28 patients in clinic and 6 patients per section (5 sections in clinic). Appointments scheduled per hour varied from 5 to 40. Some sections had 9 patients per hour at times. Clinic was overbooked Monday, Wednesday, and Thursday during peak hours (10-11:30AM and 1-3PM). Capacity of clinic is about 1000 per week and current average is only 650.

Conclusions: We concluded there is no need to build more clinic space, but rather use space more efficiently by spreading appointments out more evenly through the day and week. We moved providers around to match need with capacity. We now know how to avoid over-scheduling per hour and reserve add-ons to those times of day when use is low. We also identified the need to hire another LNA. Generally, clinic is running more smoothly with less congestion and more providers on time.

A Case of Transdifferentiated Vasoactive Intestinal Peptide (VIP) Producing Prostate Cancer

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Background: Prostate Adenocarcinoma can transdifferentiate to a Neuroendocrine cell phenotype, a phenomenon thought to occur in up to 25% of all lethal prostate cancers. We report a rare case of a transdifferentiated, vasoactive intestinal peptide (VIP) producing prostate cancer in a patient presenting with chronic diarrhea.

Methods: A 78 year-old male with 12 year history of Gleason 4+5 Prostate Adenocarcinoma treated with radiation and androgen deprivation therapy presented to the hospital with 3 weeks of large-volume diarrhea. Imaging revealed wide spread metastatic disease with a rapidly accelerating PSA of 1,317. Labs were remarkable for severe hypokalemia/metabolic acidosis. He received aggressive hydration and continuous electrolyte supplementation. Chronic diarrhea work-up revealed a low-osmotic gap diarrhea with high levels of serum VIP - 331. Patient received one dose of Octreotide prior to electing comfort measures only. He passed away 1 week after admission.
Autopsy revealed neuroendocrine-type cytology and architecture of the prostate and metastatic sites – liver, diaphragm, and skeletal. Immunostaining confirmed synaptophysin and VIP expression. The histopathologic findings correlated with the patient’s clinical presentation of large-volume diarrhea in the setting of tumor progression. Also identified was a tumor metastasis in the lung that resembled the primary prostatic adenocarcinoma with a distinctively different immunosignature to the neuroendocrine-type carcinoma.

**Conclusions:** The overall metastatic tumor burden of a prostatic neuroendocrine carcinoma secreting VIP hormone led to this patient’s eventual demise. To our knowledge, this is the first reported case of a VIP-producing transdifferentiated prostate cancer.

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**Peri-discharge Platelet Transfusion: Necessity and Impact on Cost and Safety Following Transplantation**

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**Background:** Avoidable transfusions may increase cost, unnecessarily expose patient to blood products and impact bone marrow recovery following transplant. At our institution, indications for platelet transfusions include a transfusion trigger of <= 20,000/mcl for discharge/outpatient status (DOD), and <= 50,000/mcl for invasive procedures. Central venous line removal (CVLR) trigger varies by provider (lower limit 20,000/mcl).

**Methods:** We reviewed platelet transfusions within 24 hours of discharge of 182 adult allogeneic or autologous stem cell transplant recipients between April 2011 and June 2014. We excluded 68 patients for transfusion > 24 hours prior to discharge, 56 patients who never required platelet transfusions, 7 patients with delayed platelet engraftment, and 2 patients for miscellaneous reasons.

**Results:** Of the 49 study patients, 28 (57%) were transfused on DOD, 16 (33%) within 24 hours peri-discharge, and 5 (10%) post-discharge. The most common indication for transfusion was DOD/outpatient status (29/49, 59%). Of this cohort, 28 transfusions (97%) were due to a platelet count <= 20,000/mcl, with 12/28 patients (43%) demonstrating platelet counts >15,000/mcl but < 20,000/mcl. The second most common indication for platelet transfusion was CVLR (17/49, 35%). Nine transfusions (53%) were unavoidable due to platelet counts <=15,000/mcl. Eight transfusions (47%) would be potentially avoidable by decreasing threshold to <= 15,000/mcl for line removal.

**Conclusions:** Reducing the transfusion trigger to <= 15,000 for DOD/outpatient and CVLR would have avoided transfusions in 20 patients thus decreasing resource utilization and improving marrow recovery while minimizing exposure/risks associated with transfusions.
Optimizing Stem Cell Mobilization Strategies for Patients with Lymphoma

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Background: Autologous stem cell transplantation requires an adequate number of mobilized CD34+ stem cells to optimize outcomes. Many potential mobilization strategies exist, ranging from growth factor, alone, to a variety of chemo-mobilization regimens, with the option of plerixafor, as well, after failed mobilization.

Depending on individualized treatment history, stem cell reserve and mobilization risk, several factors warrant consideration when designing an ideal mobilization strategy. At our institution, a standardized strategy for the heterogenous population of lymphoma patients proceeding to transplant has been less clearly defined than for other patient subsets, largely due to the widely variable cytoreductive regimens required for these patients, off of which stem cell mobilization is often attempted. We therefore sought to characterize the mobilization history at our center, to date, for this lymphoma patient cohort, with the goal of developing a standardized approach to optimize stem cell mobilization.

Methods: We performed a retrospective review of patients undergoing stem cell mobilization for autologous stem cell transplant at our institution, from January 2007 to April 2014. Patients with Hodgkin Disease (HD) or Non-Hodgkin Lymphoma (NHL) being mobilized during the study period were included.

Results: A total of 122 mobilizations occurred during the study period (n=27 for HD; 95 for NHL). 5 patients failed to mobilize (4%). The most common protocols utilized included: Neupogen/(R)ICE (ICE +/- Rituximab; n=29), Neupogen (n=23), Neupogen/Plerixafor (n=14) and Neupogen/Cyclophosphamide (n=10). Of the most common protocols examined, Neupogen/(R)ICE mobilized the highest stem cell yield per day on average (5.7 x 106 CD34+ cells/kg).

Conclusions: Development of an optimal stem cell mobilization strategy for lymphoma patients to maximize efficacy, efficiency, safety, cost and utilization of resources is feasible, based on review of prior institutional outcomes, with prospective confirmation of results a necessary next step. Further, based on review of additional stem cell collection data, a regimen-specific timecourse of post-mobilization collection dates can be clarified, such that a risk-adapted approach and predictive scheduling may then be implemented.
Improving functional independence with rehabilitation following a metastatic melanoma brain tumor resection

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**Background:** A 67 year-old male with a one year history of melanoma complained of headaches 1-2 weeks prior to admission to an acute care hospital in New Mexico with left sided hemiplegia and dysarthria. A head CT scan revealed an intracerebral hematoma and a lesion suspicious for metastasis within the right parietal lobe. A right parietal craniotomy, evacuation of the hematoma and resection of the brain tumor were performed and the pathology revealed metastatic melanoma. This case report examined the improvements in his functional independence in the inpatient rehab setting following neurosurgery and rehabilitation.

**Methods:** On initial evaluation, the patient required maximum assist for all functional mobility and presented with the following impairments: dense left sided hemiplegia; left sided sensory loss; minor left sided visual neglect; and poor balance and alignment in all functional positions. In inpatient rehab, the Functional Independence Measure (FIM) was used to measure his independence, create goals, and help with discharge planning. Interventions included balance training, therapeutic exercise, functional mobility training, gait training using the LiteGait® partial-weight-bearing device and treadmill™, and mirror therapy for feedback regarding postural alignment.

**Results:** After a 21-day stay in the inpatient rehab setting with 3 hours of therapy daily, minimal assistance was required for functional mobility. The patient’s FIM total score improved 24 points from 56/126 to 80/126. Minimally clinically important difference (MCID) on the FIM for brain injury is 22.

**Conclusions:** The patient improved in all aspects of independent functional mobility and self-care upon discharge to a skilled nursing facility.

Long-term Survival Utilizing Lymphodepletive Chemotherapy and Donor Lymphocyte Infusion for Relapsed Secondary Acute Myeloid Leukemia Following Allogeneic Stem Cell Transplant

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**Background:** The prognosis for secondary, therapy-related acute myeloid leukemia (t-AML) is poor compared to de novo AML. In addition to a greater incidence of high-risk cytogenetics, t-AML has been shown to be an independent predictor of
reduced survival. Furthermore, relapsed t-AML after allogeneic hematopoietic stem cell transplant (HSCT) portends an even poorer prognosis. One potential therapy for post-transplant relapsed AML is donor lymphocyte infusion (DLI), done to harness the adoptive immunotherapeutic benefit of a graft-versus-leukemia (GVL) effect by donor T-lymphocytes to control leukemia cells. However, outcomes have generally been disappointing, especially in the absence of chronic graft-versus-host disease (GVHD), felt to enhance the likelihood of a GVL effect, and the DLI approach is largely considered a temporary measure, mainly utilized to buy time as a “bridge” to another (alternative donor) allogeneic stem cell transplant. Some improvement in outcomes has been anticipated utilizing DLI soon after lymphodepletive chemotherapy (versus DLI alone), based on presumed enhancement of in-vitro donor T-cell expansion to promote immunogenicity. However, results have been variable, with noted increase in both incidence and severity of acute GVHD. In short, the optimal delivery and long-term role of DLI in post-transplant relapsed AML remains to be elucidated.

Methods: Here we describe a woman who was diagnosed with breast cancer at age 41 in 1995, treated with modified radical mastectomy and cyclophosphamide, methotrexate and 5-fluorouracil (CMF) chemotherapy. She then developed presumed t-AML (normal cytogenetics) in 2005 and underwent successful induction, followed by a matched-related donor allogeneic HSCT. Unfortunately, she relapsed 6 months later. She was then treated with salvage reinduction chemotherapy (mitoxantrone and etoposide), followed 72 hours later by G-CSF-primed DLI (G-primed DLI).

Results: The patient achieved a CR, confirmed by day +30 bone marrow biopsy, with subsequent course complicated by cutaneous, gastrointestinal and hepatic acute GVHD, pulmonary embolism, avascular necrosis and a non-ischemic dilated cardiomyopathy. Subsequently, she has manifested low-grade chronic GVHD, with no evidence of recurrent leukemia, now 8 years from DLI.

Conclusions: This represents a rare case of long-term disease-free survival following lymphodepletive chemotherapy and G-primed DLI after post-transplant relapse of AML, and it demonstrates the viability of this treatment strategy in the context of manageable, chronic GVHD.

Dueling Cancers: A Clinical Dilemma in the Treatment of Concurrent Tonsillar Squamous Cell Carcinoma and Pulmonary Adenocarcinoma

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Background: When confronted with two different neoplasms, especially when there is significant variation in the chemotherapeutic agents and modalities (radiation versus resection) used in treatment, the timing and type of therapy delivered can
be a difficult and complex decision. The risk is that by optimizing treatment for one neoplasm, the inherent delay in treating the second, may allow that second neoplasm to progress. By presenting a clinical case of an individual who presents with two concurrent solid tumors – SCC and pulmonary adenocarcinoma – I hope to elucidate the clinical decision-making that is involved in taking care of such a patient.

**Methods:** Clinical case presentation of a 49 year old man with a history of smoking and heavy alcohol use who presents with 4 weeks of enlarging, nontender neck mass. He is found on further evaluation to have two different primaries cancers – squamous cell carcinoma (SCC) of his tonsils and pulmonary adenocarcinoma.

**Results:** After a diagnostic workup, PET scan revealed a 2cm left tonsillar mass endoscopically biopsied as SCC (T2N1) and a 6cm right upper lung (RUL) mass bronchoscopically diagnosed as pulmonary adenocarcinoma (T2N0). For treatment, he underwent six cycles of neoadjuvant chemotherapy (one cycle carboplatin/paclitaxel, five cycles carboplatin/pemetrexed), RUL lobectomy and wedge resection of his pulmonary adenocarcinoma, followed three months later by a radical left neck dissection removing his SCC and a course of post-operative radiation. Currently he has radiographic evidence of remission nine and six months out from his respective resections.

**Conclusions:** Treating his pulmonary adenocarcinoma first was felt to be the course that provided the best chance to treat the patient with curative intent.

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**Successful treatment of steroid refractory idiopathic pneumonia syndrome with TNF-alpha inhibition following autologous stem cell transplant**


*Dartmouth Hitchcock Medical Center*

**Background:** Idiopathic pneumonia syndrome (IPS) is a potentially devastating, non-infectious, inflammatory lung process characterized by diffuse interstitial pneumonitis and alveolitis that may occur during the first several weeks following hematopoietic stem cell transplantation (HSCT). While theoretically this sequela of conditioning therapy received prior to transplant may occur in both autologous and allogeneic recipients, the vast majority of cases are reported in the allogeneic transplant setting. In over half the cases, its clinical course is one of rapid progression to respiratory failure with reported mortality rates of 50-80%. Theories of its pathogenesis include cytotoxicity due to high-dose chemotherapy regimens, concomitant occult infection, and damage from inflammatory cytokines. In preclinical models, tumor necrosis factor-α (TNF-α) has been identified as a key effector of immune mediated injury, leading to consideration for the use of TNF-α inhibitors in the treatment of IPS. To date, a few small, retrospective studies have suggested a role for etanercept plus steroids in the treatment of IPS when
used early in the clinical course, though a recent placebo controlled, randomized trial showed no clear benefit with etanercept addition, a study unfortunately limited by its small sample size. At present, the future role of etanercept is unclear, and management of this potentially fatal HSCT complication remains speculative.

Here we present the case of a 28 year old woman who underwent myeloablative conditioning with cyclophosphamide, carmustine, and etoposide, then autologous stem cell transplant for Hodgkin lymphoma, with a course complicated by IPS and progressive respiratory deterioration. Aggressive evaluation was unrevealing for infection, and the patient was treated with high-dose corticosteroids without benefit, then salvage etanercept with dramatic improvement resulting in successful avoidance of ventilatory support and wean from supplemental oxygen. The treatment of IPS remains challenging and clinical outcomes overall poor. In cases of steroid refractoriness, TNF-α inhibitors should still be considered a viable therapeutic option in both autologous and allogeneic stem cell transplant settings.

The development of a clinical pathway and identifying resource utilization for extracorporeal photopheresis (ECP) for the treatment of graft-versus-host disease (GVHD)

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Background: ECP is an established therapy for the treatment of GVHD following an allogenic stem cell transplant. We performed a prospective analysis of patients receiving ECP treatment for GVHD to define the time commitment and resource utilization of this process.

Methods: The study population included consecutively identified allogeneic stem cell recipients with the diagnosis of GVHD. ECP was performed using the CELLEX TM Photopheresis System or the UVAR XTS Photopheresis System (Therakos,Inc,Exton,Pa). We performed a Time and Motion Study for each patient. Based on these results, a clinical pathway was developed and resource utilization was identified, using the hospital cost accounting department fees.

Results: Patients were treated with either CELLEX (n=18) or UVAR (n=5). Total time commitment for each procedure for the two machines differed. The average ECP time was 107 minutes (median: 107, SD: 24) using Cellex machine compared with 156 minutes (median: 145, SD: 22) using UVAR machine. Using 2012 costs data, total costs of each ECP procedure was similar for each machine, costing $4262 with Cellex vs $4226 for UVAR.

Conclusions: This is the first study that documents time commitment and costs of ECP for the treatment of GVHD. There is a considerable time commitment among patients
and staff when employing ECP to treat allogeneic recipients with GVHD. ECP costs are significant considering this is a prolonged therapy used over several months. The time required is longer using the UVAR machine, but the costs are nearly equivalent between the two machines. Factors influencing the length of ECP procedure include the type of venous access (central vs peripheral), hematocrit, lipid and bilirubin levels.

Characteristics and treatment decisions in women 75 years old and older with a diagnosis of breast cancer

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Background: Many physicians question the benefit of screening mammogram and cancer treatment in women over 75. Our objective was to describe the characteristics of these women, their tumors, and treatment patterns.

Methods: We identified a cohort of women age 75+ diagnosed with breast cancer between 2010-2013 within our health system. Both chart review and extracted registry data were used to establish a descriptive database. Patients were excluded if adequate records were not available for review.

Results: 160 women were identified in the cohort. 21 patients were excluded. In this cohort, 73 (52.5%) were aged 75-79, 40 (28.9%) aged 80-84, and 26 (18.7%) aged 85+. Sixty-one (43.8%) had a comorbidity score of 0-1, 44 (31.3%) of 2-3, and 81 (19.5%) over 4. Thirty-six (25.2%) had a prior history of breast cancer. Forty (28.8%) came to attention via a palpated lump while 91 (65.4%) by screening mammography.

Regarding tumor characteristics, 17 (12.2%) were DCIS, 82 (59%) were invasive ductal with the remainder of tumors classified as invasive lobular, LCIS, or invasive other. Twenty (14.4%) were stage 0, 73 (52.5%) were stage 1A, and 31 (22.2%) were 2A or higher.

We found 14 (10%) declined surgery, 88 (63.3%) underwent lumpectomy, 35 (25.18%) underwent unilateral mastectomy, and 2 (1.4%) underwent bilateral mastectomy. Twenty-seven (22.5%) of women treated surgically had a complication.

Conclusions: In this cohort of elderly women, a majority of tumors were low grade and a substantial proportion had surgical complications, calling into question the benefit of screening for this population.
History of the Northern New England Clinical Oncology Society

In 1990 Dr. A. Collier Smyth of New Hampshire and Dr. Ronald Carroll of Maine began initial activities to start a regional clinical oncology society in the three northern New England states, Maine, New Hampshire and Vermont. The regional model was selected because each of the three states individually had only a small number of oncologists in clinical practice. With the three states combined there were about thirty oncologists, exclusive of those in academic practice. By-laws were written and NNECOS was incorporated in New Hampshire.

Representing Northern New England

Formed to promote the quality and accessibility of clinical oncology care in Northern New England, NNECOS immediately became the representative organization to the Medicare Regional Carrier Advisory Committee, to the American Society of Clinical Oncology’s Clinical Practice Committee, and to the Association of Community Cancer Centers’ Presidents’ Retreat. Providing representation to these organizations dominated NNECOS activities for about its first ten years. NNECOS’ original bylaws required face to face meetings of the Board of Directors in order to take any action, a task made difficult by the mountainous geography of Northern New England. This restriction limited the effectiveness of the Board of Directors and severely hampered the ability of NNECOS to undertake additional activities.

NNECOS into the 21st Century

In 2000, the NNECOS Board rewrote the bylaws, allowing for telephonic meetings of the Board and a single face to face Annual Meeting. NNECOS membership now includes community and academic oncologists as active members, as well as oncology nurses, mid-level practitioners and practice managers as associate members.

Tri-State Leadership

The Presidency is rotated annually among the three states and has been held by both community and academic oncologists, recognizing our common interest in the delivery of high quality cancer care in our region. Many members of NNECOS have been involved in leadership positions in ASCO, allowing NNECOS to influence the national and international course of cancer research and treatment. Additionally our members have benefited from ready access to developments in the political arena which have such a profound influence on our ability to care for our patients. The administrative functions of NNECOS have also been strengthened through the appointment of an Executive Director.

NNECOS Continues to Grow

The combination of these factors has resulted in growth and progress in NNECOS’ ability to meet its Mission and Vision. NNECOS Annual Meetings are increasing in attendance, providing an opportunity for Continuing Medical Education from nationally known speakers and a chance to socialize with old and new friends and colleagues. The Northern New England states remain beautiful places to live, and the future of the Northern New England Clinical Oncology Society is strong.
Your NNECOS Membership Makes a Difference!

Your membership increases our visibility, voice, and influence on a national scale, and helps each and every oncology practice within Maine, New Hampshire and Vermont.

What NNECOS Membership Offers to You

• Networking opportunities with physicians, nurses, administrators and other health professionals in the region that share similar patient populations and reimbursement challenges.
• Educational resources in regards to reimbursement issues.
• Shared patient resources about specific diseases and financial resources to pay for the care of those diseases.
• Support for a nationally recognized quality improvement program, QOPI.
• Networking and brainstorming opportunities to meet quality standards of Medicare, JCAHO, the Commission on Cancer and other accrediting and payer organizations.
• Opportunities to work with ASCO on legislative and advocacy programs.
• Access to funds for locally initiated research programs.
• Support of fellows, junior faculty, and nursing education in creating and presenting abstracts.
• Access to ASCO (Conquer Cancer) funding for regional quality improvement initiatives.
• Access to high quality CME accredited professional education programs presented at an economical price close to home.
• Opportunities to participate in local and regional advocacy programs.
• Opportunities to promote your cancer program through linkage to the NNECOS website.

Renew today at www.nnecos.org!
The Northern New England Clinical Oncology Society gratefully acknowledges the following supporters. Their on-going support allows NNECOS to fulfill its mission to assure availability of and access to high quality cancer care in our region.

Boehringer-Ingelheim ~ Bristol-Myers Squibb
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SAVE THE DATES

March 27-28, 2015
Spring Meeting & OCN Review Course
Residence Inn / Portsmouth Harbor Events

October 23-24, 2015
Annual Meeting & Palliative Care Symposium
Portland Marriott at Sable Oaks