Abstract #: 1 Abstract Category: Clinical Practice

A Case of Alectinib Cutaneous Toxicity and Results of a Desensitization Protocol

A 51 year-old smoking male with de-novo metastatic NSCLC was treated with first-line chemoimmunotherapy. After 4 cycles, an EML4-ALK fusion was identified. At time of disease progression, alectinib 600mg BID was started after an 8-week washout period. Within 2 weeks he developed a pruritic rash covering 90% of his BSA requiring hospitalization and IV steroids. Biopsy confirmed a spongiotic and interface dermatitis with eosinophils consistent with a drug eruption. Rash was reported as an adverse event in the ALEX trial in 17% of patients treated with front-line alectinib but grade 3 rash was reported in only 1%.

A literature search demonstrated successful case reports of alectinib de-sensitization and thus a de-sensitization protocol was devised. Alectinib was started at 150mg daily and increased to 300mg BID over 2 weeks. His rash worsened resulting in a drug hold, treatment with oral prednisone, and a dose reduction to 300mg daily. The dose was increased to 300mg/450mg over 1 week when he developed painful mouth erosions. This resulted in a second dose hold and reduction to 300mg BID. After 2 weeks, alectinib was discontinued due to worsening rash with a plan to switch to an alternate ALK TKI, a strategy which has been successfully reported in the literature. Lorlatinib 100mg was recommended given phase 2 data demonstrating very low rates of rash (5% grade 1-2 and <1% grade 3). While he did experience a facial rash within 2 weeks, a dose hold or reduction was not required. Nonetheless, lorlatinib was discontinued after 4 weeks due to other intolerable side effects and hypertriglyceridemia.

Pembrolizumab has a terminal half-life of 22 days with steady state reached at 16 weeks with every 3-week dosing. It is therefore possible that prior exposure to pembrolizumab exacerbated the cutaneous toxicity of alectinib in this case. Multiple studies have shown that combining immunotherapy with alectinib leads to substantially more adverse events.

In patients with alectinib hypersensitivity, a de-sensitization protocol can be attempted. If hypersensitivity recurs, switching to an alternate ALK TKI is warranted. However, if immunotherapy has been previously administered without time for adequate washout, no TKI therapy may be tolerable.

Abstract #: 2 Abstract Category: Clinical Practice

A Cognitive-Behavioral Stress Management Group for Men with Urologic Cancers: Pre and Post-COVID

Urologic cancers and their treatments are associated with significant psychosocial challenges for Veteran men, including sexual dysfunction, incontinence, fatigue, irritability, and depression. Although cancer support groups have been shown to be helpful for psychosocial distress, cognitive-behavioral stress management techniques have the capacity to directly address these challenges. A structured, open-enrollment, six-session biweekly group was created in late 2017 as a cooperative effort between the urology department and comprehensive cancer center of a large VA medical center. Topics were selected based on their relevance to the population: 1) stress and the mind-body connection, 2) mindfulness, 3) sexual functioning and incontinence, 4) pain and sleep, 5) communicating with providers, 6) managing anger and irritability. A clinical psychologist and/or psychology resident leads the sessions, which include demonstration and practice of relaxation and mindfulness techniques, didactic presentations, and discussion. The group is well received by medical providers and receives a regular stream of referrals. Typical group size is between 2-6, and a total of 42 Veterans have attended group sessions. The group was previously physically located in the urology clinic, reducing barriers and potentially stigma of access this type of service. After March 2020, the group transitioned to a weekly telephone-based group, continuing the same skills and topics, with good engagement and feedback from group members. Group members have voiced increased confidence in managing their conditions and communicating with their providers, relief that they are not alone in their experience of potentially embarrassing side effects, and increased use of evidence-based stress management techniques. Continuing this type of service during the COVID-19 pandemic has also been important to help Veteran manage the stress of postponed treatments (e.g., radiation for prostate cancer), share information about hospital policies and procedures, and increase social connectedness with other similar patients.

Abstract #: 3 Abstract Category: Research

A multi-center retrospective study evaluating palliative antineoplastic therapy administered and medication de-escalation in Veteran cancer patients toward the end-of-life

Background/Rationale: Metastatic cancer patients near end-of-life often continue to receive aggressive cancer treatments and are prescribed many chronic futile medications. The American Society of Clinical Oncology recommends avoiding use of chemotherapy towards end of life in solid tumor patients with poor performance due to potential risk of adverse events.

Objective(s): The objective of this multi-site study was to evaluate the incidence of palliative antineoplastic therapy administration for patients with metastatic cancer as well as the number of patients who received non-essential medications at thirty and fourteen days prior to death.

Methods: This was a retrospective, multicenter study conducted at six Veteran Affairs Medical Centers: Southern Arizona, Lexington, Robley Rex, John D Dingell, San Diego and Richard L Roudebush . The electronic medical record system identified patients deceased between July 1, 2016 to June 30, 2018 with metastatic lung, colorectal, prostate, pancreatic cancer, or melanoma. Data was analyzed using descriptive analysis.

Results: 651 patients were included in the multicenter study and the average age of Veterans was 71 years with metastatic lung cancer being the most common malignancy at 55%. 24.6% and 13.2% had an antineoplastic agent within 30 days and 14 days of death, respectively. Within the last 30 days of life, 45% of patients received systemic chemotherapy, 38% received oral targeted agent, and 17% received immunotherapy. Within last 30 days of life, 50% received a 1st line treatment, 26.9% received a 2nd line treatment, and 23.2% received ≥ 3rd line of treatment. There was a large proportion of patients hospitalized (n=208) and/or had ED visits (n=204) due to antineoplastic treatment and/or complications from malignancy. Within the last 30 days of death, 76.3% had ≥1 active chronic medication. Palliative care providers were the top recommenders for medication de-escalation.

Conclusion: The results of this multi-site retrospective study provides some insight into the management of end-of-life care for metastatic cancer patients across the VA health care system. Overall the results of this study demonstrate an opportunity for promoting detailed discussions with patients regarding palliative care earlier after diagnosis of metastatic cancer.

Abstract #: 4 Abstract Category: Clinical Practice

A Rare Case of Triple Positive Inflammatory Breast Cancer in An Elderly Male.

Background:

An 84-year-old male presented with a rapidly growing left breast mass associated with warmth, erythema, and serous discharge from left nipple for 2.5 months. Physical exam revealed 'peau d'orange' appearance of skin and a 3x7 cm, firm, irregular, fixed mass in left breast. Core needle biopsy of left breast revealed invasive ductal carcinoma and a CT scan of chest showed multiple small pulmonary nodules. Patient was diagnosed with inflammatory breast carcinoma (Stage IV, cT4d cN1 cM1), ER/PR positive, HER-2 positive. BRCA testing was negative. After a normal MUGA scan, patient was started on weekly Paclitaxel and Trastuzumab. After 4 cycles patient developed diarrhea and elected to stop Paclitaxel. After 10 cycles of Trastuzumab, patient developed signs of heart failure and a MUGA showed depressed left ventricular ejection fraction (LVEF). Trastuzumab was held and patient was started on Tamoxifen. Patient had progression of primary mass into a fungating lesion and evidence of new pulmonary metastatic disease on Tamoxifen. Primary lesion was treated with palliative radiation and after a subsequent MUGA scan showed normalization of LVEF; Trastuzumab was resumed. Patient has stable disease on Trastuzumab and continues to follow with oncology.

Discussion:

Male breast cancer is < 1 % of all breast cancer but incidence is rising in US. Risk factors include family history, BRCA2 > BRCA1, obesity, cirrhosis, and radiation exposure. Inflammatory breast cancer (IBC) is a rapidly progressive malignancy with a clinicopathological diagnosis. There is paucity of data of IBC in men due to rarity of the disease. Many patients are initially misdiagnosed with mastitis, unresponsive to antibiotics. At diagnosis, most patients have a higher age compared to females (by 5-10 years), and advanced stage, though have a similar prognosis by stage. Prognostic factors and treatment principles are same as females with multimodal approach of chemotherapy, radiation therapy, and hormone therapy.

Conclusions:

IBC in men is very rare and awareness of its risk factors and presentation can lead to early diagnosis and better survival. Urgent referral to oncology is needed if index of suspicion is high. Further research is needed for defining best treatment modalities in elderly males.

Abstract #: 5 Abstract Category: Research

A single center experience of Immune Related Adverse Events from Immune Checkpoint Inhibitors and an attempt to identify populations at high risk

INTRODUCTION:

American Society of Clinical Oncology (ASCO) has developed guidelines on the management of immune-related adverse events (irAEs) associated with immune checkpoint inhibitors (ICPIs). However, many irAEs are under-reported and the studies to investigate predictive factors are limited with variable results.

METHODS:

66 patients who received ICPIs at Stratton VAMC Albany between January 2015 to December 2018 were studied. “Computerized Patient Record System (CPRS)” was used to do a retrospective chart review to identify irAEs and related parameters. IRB approval was obtained.

RESULTS:

63 patients received PD-1 inhibitors (62 males). Our study included 39 patients with lung, 10 renal, 6 head and neck, 4 skin (melanoma) and 2 bladder cancers, and 1 metastatic cancer with unknown primary. Median age of patients with irAEs was 69.5 years versus 66.7 years for patients without irAEs. 23 (36.5%) patients experienced 28 irAEs. 45 patients received nivolumab, 18 (40%) of which had 21 irAEs. 17 got pembrolizumab and 5 (35.2%) had 7 irAEs. Majority of the irAEs were grade 1 (n=10, 35.7%) or grade II (n=11, 39.2%), while 6 (21.4%) grade III and only 1 (3.5%) grade IV irAE was observed. Median time to appearance of irAEs was 2 cycles. Immunotherapy was continued in 12, temporarily held in 7 and permanently discontinued only in 4 patients. No death was attributed to irAEs. 6 patients developed diarrhea, 4 hepatitis, 6 skin rash, 5 thyroid issues and 3 pneumonitis. Rare irAEs included cardiac tamponade (grade IV), uveitis (grade II), central adrenal insufficiency and mild neutropenia in one patient each. 2 patients had pre-existing autoimmune conditions (rheumatoid arthritis and chronic dermatitis), both had transient flares though immunotherapy was continued. Of note, only 3 patients received PDL-1 inhibitors and 1 developed grade II polymyalgia rheumatica and hypothyroidism.

Using multivariate logistic regression, we found no significant association between irAEs and age, body mass index, derived neutrophil to lymphocyte ratio, chronic kidney disease or environmental/medical allergies.

CONCLUSIONS:

ICPIs were generally well tolerated in our population, though prompt recognition of rare and severe irAEs is essential. Larger studies are needed to investigate the predictive risk factors for irAEs.

Abstract #: 6 Abstract Category: Quality Improvement

Analysis of Oncology Telehealth Services in Veterans Health Administration

The purpose of this work is to assess the current utilization patterns of telehealth for oncology care and identify opportunities for increased utilization for underserved regions. In order to accurately and efficiently obtain this information a national data extraction and analysis was required to better understand the current needs.

Approximately 33% of Veterans are considered to live in rural America. A significant proportion of cancer patients must travel long distances to access cutting-edge VA cancer care. Some VAMCs provide academic subspecialized oncology care including next generation sequencing (NGS), genetic counseling, opportunities to enroll in clinical trials, and world-renowned clinical expert consultation. These services are not conveniently accessible for veterans therefore requiring a program which supports access to all.

Baseline assessment measurements were identified to understand resource supply, demand, and telehealth utilization needs. Data was extracted from VA's CDW and VSSCs Service Analysis Services cubes. 15 data measures from 8 data sources were pulled for 141 VAMCs spanning in time period from FY18 to March FY20.

Cluster Analysis, k-means clustering method, were used to classify VAMCs into distinct groups to identify facilities with the highest needs for oncology telehealth services. The evolutionary solving method was used to find the minimum sum of squared estimate of errors (SSE) allowing a more diversified approach in cluster assignment. Three cluster analysis were performed which include a combination of three variables specific to oncology staffing, telehealth usage, patient rurality, and community care consults (CCC).

Results show that 30 (21%) VAMCs are categorized as high need for TeleOncology. These facilities have low staff support, high CCC, and low telehealth usage. Of these, 11 (37%) VAMCs have high percent of rural patients. 11 (8%) of all VAMCs are categorized as having high staff support, low CCC, and high telehealth usage; good hub site candidates for the National TeleOncology Program.

VA is expanding the National TeleOncology Program to offer oncology services to underserved VAMCs and Veterans across the United States. Results of this analysis are being applied to determine where to prioritize telehealth services for oncology care and which sites may serve as hubs.

Abstract #: 7 Abstract Category: Research

Assessing neutropenic fever management at Audie L. Murphy VA Medical Center (ALM VAMC)

Introduction

Neutropenic fever poses a significant risk to cancer patients, with a major complication rate of 30% and mortality rate as high as 11%. Prompt evaluation with labs, imaging, and appropriate antibiotics are crucial to improving outcomes. In an attempt to reduce morbidity and mortality, the Infectious Disease Society of America (IDSA) and American Society of Clinical Oncology (ASCO) have set guidelines for the evaluation and treatment of neutropenic fever. The purpose of this project was to assess the management of neutropenic fever within our institution, and to identify potential areas for improvement in the care of these patients.

Methods

We included patients seen at ALM VAMC between 9/1/2018 and 1/31/2020 for neutropenic fever. We excluded patients without a diagnosis of malignancy and who had not received chemotherapy within the prior 4 weeks. We recorded the times of patient presentation, labs, imaging, and antibiotic administration. These were compared to the standards set forth by IDSA/ASCO. We also calculated average times to lab collection and to antibiotic administration. The proportion of patients who received unwarranted dose reductions of antibiotics was also assessed.

Results

There were 35 unique encounters that met our inclusion criteria. 100% of patients included in the study underwent all recommended diagnostic testing. 3 of 35 (8.6%) patients had CBC/CMP, 2 of 35 (5.7%) had urinalysis, 6 of 35 (17.1%) had blood cultures, and 3 of 35 (8.6%) had a chest x-ray (CXR) within the recommended 15 minutes from time of presentation. 3 of 35 (8.6%) patients received antibiotics within the recommended 1 hour from presentation. The average times to obtain CBC/CMP, urinalysis, blood cultures, CXR, and administration of antibiotics were 52.1 minutes, 162.4 minutes, 49.5 minutes, 96.1 minutes, and 308.4 minutes, respectively. 9 of 35 (25.7%) patients received unnecessary dose reductions of antibiotics.

Conclusions

Although patients received the appropriate evaluation according to IDSA/ASCO guidelines, the times to obtain appropriate diagnostic tests and administer recommend antibiotics were significantly prolonged. Establishing a standardized neutropenic fever protocol, prompt triaging, educational interventions, and identifying patients at risk for neutropenic fever may expedite care and improve outcomes for these high-risk patients.

Abstract #: 8 Abstract Category: Research

Assessing Pathologic Evaluation in Patients with DLBCL Within the Veterans Health Administration

Introduction

Diffuse large B-cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin lymphoma. Patients with DLBCL refractory to initial treatment or who experience relapse have low rates of prolonged disease-free survival. Fluorescence in situ hybridization (FISH) revealing rearrangements in the MYC gene along with either the BCL2 or BCL6 genes (double- and triple-hit lymphomas) demonstrate inferior outcomes when treated with standard front-line chemoimmunotherapy. Immunohistochemistry (IHC) testing for MUM1, CD10, BCL6, and MYC also provides important prognostic information and is used in the Hans algorithm to determine the cell of origin. We assessed how frequently these crucial tests were performed on DLBCL patients within the Veterans Health Administration (VHA).

Methods

We performed a retrospective chart review of 1605 randomly selected records of patients diagnosed with lymphoma seen within the VHA nationwide between 1/1/2011 and 12/31/2017. We included patients diagnosed with DLBCL. We excluded patients whose workup and treatment were outside of the VHA system, and patients with primary CNS lymphoma. We analyzed pathology reports. The proportion of patients who had IHC and FISH testing for each marker was assessed.

Results

725 patients were included in the study. Our patients were predominantly male (96.8%), with a median age of 67. Out of the patients analyzed, IHC to determine cell of origin was performed in 481 (66.3%). Out of those tested, 316 (65.7%) were of germinal center B-cell (GCB) origin, and 165 (34.3%) were non-GCB origin. FISH testing was performed in only 242 patients (33.4%). Out of the population tested, 25 (10.3%) were double- or triple-hit.

Conclusion

Pathological characterization is key to the diagnosis, prognosis, and treatment of DLBCL. It is recommended by the National Comprehensive Cancer Network (NCCN) to obtain IHC testing for MUM1, BCL6, CD10, and MYC, and FISH testing for MYC (with BCL2 and BCL6 if MYC is positive) in all patients with DLBCL. Our study shows that more than one half of patients did not have FISH testing, and that cell of origin was not determined in about one third of patients, indicating a need for improved testing of these protein expressions and gene rearrangements within the VHA.

Abstract #: 9 Abstract Category: Research

Assessing risk for and management of secondary CNS involvement in patients with DLBCL within the Veterans Health Administration (VHA)

Introduction

In diffuse large B-cell lymphoma (DLBCL), approximately 5-10% of patients develop secondary central nervous system (CNS) involvement. CNS disease is associated with very poor outcomes. Therefore, it is important to identify patients at risk, via the CNS International Prognostic Index (IPI), in order to initiate appropriate interventions. Additional independent risk factors for CNS involvement include HIV-related lymphoma and high-grade B-cell lymphomas. The purpose of this study was to assess for appropriate CNS evaluation and prophylaxis in DLBCL patients within the Veterans Health Administration (VHA).

Methods

We performed a retrospective chart review of 1605 randomly selected patients seen in the VHA nationwide who were diagnosed with lymphoma between 01/01/2011 and 12/31/2017. We included patients diagnosed with DLBCL and excluded patients diagnosed or treated outside the VHA. We evaluated CNS IPI score, HIV status, pathology reports to identify high-grade lymphomas, performance of lumbar puncture (LP), and administration of CNS prophylaxis.

Results

725 patients met our inclusion criteria. Patients were predominantly male (96.8%), white (74.5%), had a median age of 67, and presented with advanced disease (stage III 26.5%, stage IV 40.3%). From the included population, 190 (26.2%) had a high-risk CNS IPI score. Of those with high-risk CNS IPI scores, 64 (33.7%) underwent LP and 46 (24.2%) were treated with CNS prophylaxis. 23 (3.2%) were HIV positive; of those, 14 (60.8%) underwent LP and 4 (17.4%) were treated with CNS prophylaxis. FISH results were available in only 242 (33.4%) of patients and of these, 25 (10.3%) met criteria for high-grade lymphoma. Of those with high-grade lymphoma, 9 (36%) underwent LP and 7 (28%) were treated with CNS prophylaxis.

Conclusions

The National Comprehensive Cancer Network (NCCN) guidelines recommend that patients at high risk for CNS involvement undergo LP and treatment with CNS prophylaxis. This study found that within the VHA, patients with DLBCL at high risk for CNS involvement are not being evaluated with LPs or treated with CNS prophylaxis as often as indicated, based on CNS IPI, HIV status, and high-grade pathology. We demonstrate a need for improvement in the evaluation and treatment of these patients in order to improve outcomes.

Abstract #: 10 Abstract Category: Research

Association of Eosinophilia with complete response in patients with metastatic solid tumors treated with Immunotherapy

Background: Immune related eosinophilia is a new immune related adverse effect associated with anti-PD-1 or anti-PD-L1 treatment(Bernard-Tessier, 2017). It appears to be a rare side effect with estimated frequency of 2.9%(Bernard-Tessier, 2017). Recently, there is evidence that changes in blood eosinophilia during anti-PD-1 therapy can be a predictor of long-term disease control in metastatic melanoma (Gaba, 2015). At least 3 studies have correlated immune mediated eosinophilia with high overall response rates up to 69% ((Bernard-Tessier, 2017) (Gaba, 2015) (A, 2017). With this interesting observation, we retrospectively reviewed 36 patients in our center who were treated with PD-1 and anti PD-L1 agents. The Objective of our review was to assess the correlation of eosinophilia with the complete response rate.

Methods: We retrospectively reviewed the medical records of 36 patients from May 2016 -May 2020 who had received anti PD-1 or anti PD-L1 treatment for metastatic solid tumors. Patients who had received consolidation immunotherapy were excluded from the review. Absolute Eosinophil Count (AEC) of over 500 per mm3 was used to define eosinophilia. Incidence rate of eosinophilia was estimated in comparison to the total number of patients who had received the above treatments.

Results: In this small single center cohort of 36 male patients, eosinophilia was observed in 4/36 patients (11.11%). The median time to the absolute eosinophilia was 24 weeks (3 weeks - 52 weeks). 3 out of the 4 patients had complete response. Complete response rates in patients with eosinophilia at any point after initiation of immunotherapy was 75% compared to 2.7% in the non eosinophila group. Overall response rate was 75% (3/4) in the eosinophilia group vs 12.5% (4/32) in the non eosinophilia group.

Conclusion: In our small retrospective cohort of patients, immune related eosinophilia with anti PD-1 and anti PD-L1 treatments appear to be a biomarker and associated with beneficial clinical response. Additional, larger prospective studies are required to validate this. If validated in prospective studies, immune related eosinophilia could serve as a cost effective biomarker to identify responders likely to derive long term disease control with immune therapies.

Abstract #: 11 Abstract Category: Clinical Practice

ATYPICAL CARDIAC METASTASIS FROM A TYPICAL RECTAL CANCER

The heart is an unusual site of metastasis from any malignancy. The pericardium is the most frequently involved site of cardiac metastasis. Myocardial metastasis is rare and metastasis only to heart without evidence of spread anywhere else is extremely rare. Here we present a case of rectal cancer with metastasis only to heart.

A 64-year-old man was found to have a large ulcerated mass in the upper rectum, 15cm above the anal verge during colonoscopy. Biopsy of the mass revealed poorly differentiated invasive adenocarcinoma. After 5 weeks of neo adjuvant capecitabine with concurrent radiation, he underwent robotic low anterior resection(LAR) with coloanal anastomosis with loop ileostomy. Pathology revealed 5cm poorly differentiated adenocarcinoma of rectum invading through muscularis propria with 7/17 lymph nodes and margins involved with adenocarcinoma. He was staged as ypT3pN2bM0 (Stage IIIC, AJCC 8th edition, 2017). Adjuvant therapy was delayed until 12 weeks from surgery due to wound dehiscence/infection. After 5 cycles of adjuvant capecitabine and oxaliplatin, a follow up contrast CT chest/abdomen/pelvis revealed 2.3cm mass extending from pericardium to myocardium. Transesophageal echocardiogram(TEE) and cardiac MRI revealed 2 separate masses(1cm and 2cm) in the right ventricle(RV) free wall projecting into RV cavity concerning for free wall metastases. After 3 weeks, he presented to ED with shortness of breath. Transthoracic echocardiogram(TTE) showed large pericardial effusion with cardiac tamponade. 1250ml of pericardial fluid was removed by pericardiocentesis and cytology revealed metastatic colorectal adenocarcinoma. CT chest/abdomen/pelvis with IV contrast did not show any other site of metastasis. He was started on systemic chemotherapy with Fluorouracil and Irinotecan(FOLFIRI). He has tolerated FOLFIRI for a year without recurrence of pericardial effusion.

Most cardiac metastases are associated with widely metastatic disease, but this case is unique in having only cardiac metastasis from a previously resected rectal adenocarcinoma. Although often clinically silent, cardiac metastases should be considered in any patient with cancer and new cardiac symptoms. TTE is the initial imaging test but TEE, Cardiac CT and Cardiac MRI may help further characterize and delineate the extent of cardiac disease. A multidisciplinary team to evaluate and manage the patient with cardiac metastasis is recommended.

Abstract #: 12 Abstract Category: Quality Improvement

Bridging the Gap: Transforming Oncology Care Through Use of Virtual Tumor Boards

Purpose: A quality improvement pilot study was conducted to assess the feasibility of implementing virtual tumor boards (VTBs) to address barriers in cancer care for Veterans at the VA North TexasHealth Care System (VANTHCS) located in Dallas, Texas.

Background: The VANTHCS is the second largest VA health care system in the country, serving more than 129,000 Veterans with 1.4 million outpatient episodes of care in the FY17. Cancer is one of the leading causes of these episodes of care. This specific population faces unique needs due to the complexity of cancer care. Multidisciplinary tumor boards (MTBs) can serve as facilitators in augmenting quality cancer care for Veterans. Specifically, MTBs have been shown to support diagnostic decision-making, adherence to evidence-based guidelines, as well as enhance collaboration and care coordination. The VANTHCS Cancer Program hosts seven accredited disease-site specific MTBs that meet in a face-to-face conference. However, the COVID-19 pandemic created a gap in continuity cancer care through use of MTBs. Prior to the initiation of this study, no VTBs had previously been implemented.

Methods: In March 2020, key stakeholders within the cancer program formulated a plan to continue MTBs during the pandemic. A multidisciplinary cancer conference coordinator (MCCC) lead this task utilizing a web-based platform in addition to Biomedical Engineering assistance ensuring appropriate applications were correctly interfaced on all VA Computers to properly support imaging. A Plan-Do-Study-Act was conducted to assess for any changes.

Data Analysis/Results: Data was collected and analyzed from January 2, 2020 until July 2, 2020, utilizing a cancer conference tracking tool conducted by the MCCC. A total of 72 MTBs were completed as well as 446 prospective cases were presented. After implementation of VTBs, data showed a 26.8% increase in interdisciplinary attendance rate for MTBs .

Conclusion/Implications: This innovative pilot study provided a unique approach to meet the demands of the COVID-19 pandemic as well as showed the feasibility in enhancing quality cancer care. Virtual tumors boards provide an effective tool in improving accessibility through increased participation at MTBs. This may have future implications in which further research is needed including cancer survival and patient satisfaction rates.

Abstract #: 13 Abstract Category: Program Initiatives

Central Texas Veterans Health Care System's Experiences with Hematology Oncology Clinical Trials

Availability of clinical trials for veterans is limited and more clinical trials are needed. Central Texas Veterans Health Care System (CTVHCS) has been actively involved with hematologic oncologic clinical trials over the last 10 years. This poster describes the number and types of hematology/oncology clinical trials that are either active or completed, and the processes of opening clinical trials, identifying patients, and trial management. Locating clinical trials is key to veteran enrollment into active trials and is accomplished through networking at medical meetings and VA work groups. Developing a clinical trial program requires working closely with the research department/foundations and becoming comfortable with the IRB oversight process. Conduct of a clinical trial is a team effort, with individual members having delegated responsibilities of patient care, data collection, and adverse effect reporting to the sponsors and IRB. The CTVHCS Oncology Section has been active in recruiting and enrolling veterans in clinical trials for treatment of many hematologic malignancies and solid tumors. At the time of this presentation, 49 veterans have been successfully enrolled in one of nine (9) hematology/oncology clinical trials ranging from phase Ib to phase III from 2011-2020. Advantages to opening clinical trials include academic scholarship, authorship in publications, generating revenue and most importantly to provide state of the art treatment for our cancer patients. We have been able to effectively accrue/enroll patients into clinical trials through a collaborative effort between the research department and our oncology department by identifying open clinical trials that fit our unique patient population and having a team of providers aiding in the management and care of these enrolled veterans.

Abstract #: 14 Abstract Category: Clinical Practice

cerebral venous thrombosis, an extremely rare complication of iron deficiency anemia

Introduction:

Cerebral venous thrombosis (CVT) is a rare type of stroke and can be challenging to diagnose. It is most commonly seen in young females and has been linked to thrombophilia, pregnancy, and contraceptive pills. Here we present a rare case of CVT in a young female with iron deficiency anemia.

Case report:

A 19-year-old female patient presented with severe headache, CT scan of the head on admission showed acute superior sagittal sinus thrombosis which was confirmed with CT venogram and MRI of the brain. Patient had intact neurologic exam upon admission. She was started on heparin and admitted for monitoring. Later on she developed expressive aphasia and right sided weakness. She ultimately underwent catheter directed thrombolysis. Follow up CT and MRI scans showed significant decrease in clot burden, and the patient's neurologic function started to improve.

Her initial labs were significant for thrombocytosis with platelet count 840,000/uL, and microcytic anemia with hemoglobin 9.6 g/dL and MCV 79 fL. She had low serum ferritin and iron levels with high total iron binding capacity consistent with iron deficiency anemia. An extensive hypercoagulable work up was done including antithrombin, protein C and S, factor V Leiden mutation, prothrombin gene mutation, hyperhomocysteinemia, antiphospholipid antibodies, anti-nuclear antibodies which all came back negative. Given her high platelet count, a myeloproliferative disorder was entertained however testing of mutations JAK2V617F, CALR, MPL, and BCR-ABL was negative. She also had a bone marrow biopsy that revealed normal bone marrow.

The patient had no prior personal or family history of venous thrombosis, she was not taking any hormonal mediation and pregnancy test was negative. She did report menorrhagia for couple of months prior to admission.

After ruling out genetic prothrombotic states, autoimmune disease, and bone marrow disorders. We think this is a case of cerebral venous thrombosis secondary to reactive thrombocytosis in setting of untreated iron deficiency and menorrhagia. The patient was started on iron supplements with improvement in her iron and hemoglobin levels, and subsequent decrease in her platelet count to normal values. She is going to continue anticoagulation with rivaroxaban for 3-6 months period.

Abstract #: 15 Abstract Category: Research

Clinical and dosimetric predictors of toxicity for treatment of localized prostate cancer using moderately hypofractionated radiotherapy.

Purpose/Objectives

Moderately hypofractionated radiotherapy (MHRT) is a commonly used treatment modality for localized prostate cancer (LPC). In this setting, dosimetric correlations to acute and late toxicities remain poorly defined.

Materials/Methods

Patients with LPC treated with MHRT between 9/2008 and 4/2018 were retrospectively identified. We excluded those with <12 months follow up, elective nodal coverage, or additional boost. All patients received either 70Gy/28fractions or 60Gy/20fractions. Demographics, clinical outcomes, and toxicity data were obtained. Acute and late (≥3 months following MHRT completion) gastrointestinal (GI) and genitourinary (GU) toxicities were determined per CTCAE 5.0. Univariate and multivariate analyses were performed for acute and late grade 2+ GI/GU toxicity via logistic regression and log rank testing for demographic and dosimetric variables.

Results

436 patients with LPC were treated with MHRT. Mean age was 64 years (IQR 60-68), median pre-treatment PSA was 8.7 (IQR 5.7-12.2), and T stages included T1a/2a (357), T2b/2c (58), and T3 (21). Acute grade 3 GU and GI toxicities were observed in 16(3.7%) and 3(0.7%) patients respectively, with no acute grade 4 toxicity events. Late grade 3 GU and GI toxicities were observed in 17(3.9%) and 4(0.9%) patients respectively, with two late grade 4 GI (0.05%) events.

On multivariate analysis, acute grade 2+ GU toxicity was associated with pre-treatment PSA (OR 1.02 95% CI 1.01-1.04, p=0.011) and pre-radiotherapy AUA SS (OR 1.06 95%CI: 1.03-1.09, p<0.001); late grade 2+ GU toxicity was associated with pre-treatment AUA (HR 1.04 95%CI: 1.02-1.06, p<0.001), lack of pre-treatment urinary meds (HR 0.65 95%CI: 0.46-0.92, p=0.049), and ADT use (HR 1.45 95%CI:1.03-2.03, P=0.034); acute grade 2+ GI toxicity did demonstrate significant correlation; late grade 2+ GI toxicity was associated with ethnicity (Black vs White, HR 0.50 95% CI: 0.25-0.99, p=0.008) and pre-treatment PSA (HR 1.02 95%CI: 1.00-1.03, p=0.024).

Conclusions

LPC patients completing MHRT experienced low rates of grade 3+ acute and late GU/GI toxicities. No dosimetric variables demonstrated significance on multivariate analysis of acute or late GU/GI grade 2+ toxicity. Late grade 2+ GU toxicity was associated with ADT use, while late grade 2+ GI toxicity was associated with ethnicity and pre-treatment PSA.

Abstract #: 16 Abstract Category: Research

Clinical and Economic Burden of Mantle Cell Lymphoma in the Veteran Health Administration Population

Background: Mantle cell lymphoma (MCL) is an incurable B-cell non-Hodgkin lymphoma. There is limited data on MCL burden to US veterans.

Objective: This retrospective cohort analysis aims to examine the clinical burden, costs and healthcare resource utilization of MCL to veterans.

Methods: Adults who were newly diagnosed with MCL and initiated treatment were identified in the Veteran Health Administration (VHA) dataset (2014-2018). Treatment regimens are mutually exclusive and categorized as: bendamustine-based (alone or in combination); BTK-based (Bruton's tyrosine kinase inhibitors: ibrutinib or acalabrutinib, alone or in combination); RCHOP-based; rituximab-monotherapy; and other regimen. Treatment discontinuation is defined as no MCL treatment for 60 days from the last day of supply. Treatment regimens, costs and hospitalizations are examined by 1st, 2nd, and 3rd lines of therapy.

Results: Prevalence and incidence of MCL among the VHA population ranged from 8-11 cases, and 0.6-2.6 cases per 100,000 persons, respectively. A total of 390 patients (mean age: 70 years, 85% white) received 1st line (mean duration: 243 days), 146 (37%) patients received 2nd line (mean duration: 259 days), and 47 (12%) received 3rd line (mean duration: 154 days) therapy. Bendamustine-based regimen was the most common 1st line MCL treatment (43%), with lower utilization later (2nd line: 18%; 3rd line: 2%). BTK-based regimen was the second most common 1st line MCL treatment (23%), and the most common MCL treatment in later settings (2nd line: 34%, 3rd line 28%). RCHOP-based regimens were seldomly used in any setting (<5%). The overall treatment discontinuation rate was 82%. Approximately 38% of MCL patients had a hospitalization, with mean length-of-stay (LOS) of 5.6 days. The hospitalization rate was 29% (mean LOS: 3.5), 36% (mean LOS: 4.4), and 26% (mean LOS: 3.1) during 1st, 2nd, and 3rd line, respectively. Per-patient-per-month costs were $19,338 overall, and $19,239, $20,064, and $27,663 respectively, during 1st, 2nd, and 3rd line of therapy.

Conclusion: This study showed that Bendamustine-based and BTK-based regimens were the common frontline treatments among newly diagnosed MCL patients in the VHA population. Future studies are warranted to understand factors associated with treatment selection, discontinuation and clinical benefits among these MCL Veteran patients.

Abstract #: 17 Abstract Category: Clinical Practice

Colorectal Cancer (CRC) Surveillance Utilizing Telehealth Technology in the COVID Era

PURPOSE: Determine the feasibility of telehealth as a safe and effective modality for CRC surveillance in the post-COVID era.

BACKGROUND: CRC survivors require routine cancer surveillance for a minimum of five years as directed by NCCN Survivorship guidelines. The onset of COVID in March 2020 severely limited the ability to have face to face encounters with New Mexico Veterans. Combining social distancing requirements and generalized fear among Veterans made it difficult to maintain routine face to face surveillance.

METHODS: Thirty CRC survivors in the surveillance phase were evaluated using VA Video Connect (VVC) technology. Established CRC Survivorship surveillance notes were completed during the VVC visit. The documented components included COVID screening, general and CRC focused symptomatology, psychological stress, physical exam, laboratory, and radiology studies.

All surveillance questions were completed. Veterans were asked to complete a self-exam with video visualization of non-sensitive anatomical regions. Digital rectal exam was deferred. Lab and radiology studies were ordered to be done at a later time in VA/CBOC.

To assist with poor hearing or visual acuity, VVC communication was enhanced by utilizing screen sharing with the Veteran to review the most recent lab/radiology results, as well as PowerPoint presentations to explain anatomy, disease process, and plan for continued surveillance.

Veterans were assessed for level of anxiety regarding COVID and inability to seek routine medical care.

RESULTS: Veterans and their families were extremely satisfied with the ability to “see” a provider without incurring the risk of exposure and the cost of traveling with the economic hardship of COVID. As a result, the VA did not incur travel fees for remote Veterans. VVC improved access to Veteran specialty care and decreased overall anxiety and concerns regarding possible delayed diagnosis for cancer recurrence due to missed clinic appointments.

CONCLUSION: VVC is a viable option for CRC surveillance, however the Veteran still requires interval physical exam, labs, and imaging. A feasible option is to alternate in-person face to face visits with VVC appointments as a means to meet the expected long-term requirements for social distancing while still providing the vital care and reassurance to our Veterans.

Abstract #: 18 Abstract Category: Quality Improvement

Colorectal Cancer Survivorship: Enhancing Communication During COVID-19 Through Cancer Care Coordinator Virtual Visits

Purpose: Veterans living with a diagnosis of cancer experience increased levels of stress, anxiety, and depression. Added stressors of COVID-19 further impact the survivor's quality of life.

Background: The COVID-19 pandemic led to new foundations of stress and anxiety for the Veteran living with a cancer diagnosis. Veterans at all stages of the treatment trajectory, from initial diagnosis to long-term survivorship remain affected. To meet requirements of social distancing many veterans experienced modifications in treatment protocols or schedules. Those in survivorship, already fearing recurrence, experienced delays of scans, procedures, and lab work.

Providers discovered new ways to interact with Veterans to improve lines of communication through virtual visits. This same concept, utilized by Cancer Care Coordinators (CCC), maintains potential to decrease additional stressors related to COVID. Veterans look forward to individualized face-to-face visits with their CCC, for welcoming and responsive discussions and positive affirmation. Veterans expressed anxiety regarding changes in care: questioning effectiveness and impact on outcome and survival. They also voiced fears related to leaving the safety of their home and re-entering hospital settings. Staying connected and maintaining the Veterans' support network, CCC's can decrease anxiety for our cancer survivors.

Method: Pre-surveys were emailed to Veteran colon cancer survivors. Scheduling occurred based on the Veterans preferred time of day in 20-minute increments. During the visit, Veterans were provided reassurance of COVID cancer treatment and surveillance recommendations. They were informed of safety measures utilized to maintain continuity of care and processes implemented to decrease their potential exposure. Upon virtual visit completion, post surveys were emailed.

Results: Veterans reported an overall decrease in anxiety. Virtual CCC visits reduced COVID stressors, improved patient satisfaction, and augmented trusting relationships.

Implications: Covid-19 empowered innovative improvements in Veteran-Centered care. The friendly face-face virtual visit enabled expression of empathy through conversational body language and attentive listening. Virtual Visits offer facilities the ability to improve the Veteran experience through overall appointment convenience: reduced travel time, less time off work, and lack of parking issues. Continued virtual visits post-Covid-19 maintains potential to increase overall access, efficiency, and Veteran satisfaction, while decreasing related burden of travel reimbursement.

Abstract #: 19 Abstract Category: Clinical Practice

Cost of Care at the End of Life: What Counts?

Background: In spite of high cost, end-of-life care remains sub-optimal with high symptom burden and suffering. Using a statistical model created by VHA Office of Productivity, Efficiency and Staffing, each VA facility is assigned an observed and expected end-of-life (last 6 months of life) care cost for Veterans who die in VA inpatient facility. For our VA facility, the average expected and observed end-of-life care cost of care for inpatient VA death in FY18 is ~ $73,000 and ~ $90,000 respectively; indicating higher than expected end-of-life care cost. Timely hospice-palliative care for Veterans with serious illness has shown to provide high quality and cost-effective end-of-life care.

Hypothesis: We believe that our integrated oncology-palliative care clinic at Topeka VA Medical Center has led to less expensive end-of life care for inpatient cancer deaths.

Intervention: In January 2015, we implemented an integrated oncology-palliative care clinic model with the following elements:

1.Pre-clinic "huddle" among palliative care and oncology staff to identify palliative care needs for patients

2.Shared palliative care and oncology clinic appointments

3.Introduction of palliative care for every new oncology clinic patient, for advance care planning

4.Concurrent oncology and palliative care follow-up for all high-risk patients (aggressive histology, progressing disease, etc.) for goals of care discussions and symptom management

5.Palliative care and oncology staff co-managing oncology patients enrolled in hospice care

Measurements: We conducted a retrospective review (last 6 months of life) of deaths in our VA inpatient facility in FY18 for clinical events such as diagnoses, hospitalizations, location of death, hospice-palliative care services.

Results:

-Of the total 56 inpatient deaths, 14 (25%) had primary diagnosis of cancer.

-Of 14 inpatient cancer deaths, all (100%) occurred on hospice care.

-Average end-of-life care cost for these Veterans with cancer was the least (~ $63,000) and was less than the expected cost (~ $73,000).

Conclusion: Our intervention has shown a positive impact on the cost of end-of-life care for Veterans with cancer.

Future Implications: -Use of innovative clinic models for delivery of collaborative care for complex needs as a cost-effective strategy

Abstract #: 20 Abstract Category: Clinical Practice

Diagnosis and Treatment of an Anaplastic Large Cell Primary Central Nervous System Lymphoma

Background: Primary central nervous system lymphoma (PCNSL) is a rare and aggressive malignancy of predominantly B-cell origins. Where tolerated, strong sensitivity is seen with induction regimens containing high-dose methotrexate and rituximab. However, little is known regarding ideal therapy for T-cell variants, especially anaplastic large cell lymphoma.

Case Report: A 20 year old male with no past medical history developed progressive positional headaches, nausea, and dizziness over several months. Between several hospital visits, he was found to have enhancing lesions of his right caudate, left cerebellum, and right frontal lobe. A lumbar puncture demonstrated pleocytosis (152 WBC, 97% lymphocytes) and a small population of atypical CD5- T-cells on flow cytometry. Preliminary biopsy of the right caudate lesion was inconclusive, significant only for demyelination and a subset of LGL-like T-cells expressing CD3 and TIA-1. Neurology was consulted and he was given high-dose methylprednisolone with significant improvement in his symptoms. However, several months later he returned to the emergency department with new headaches, vomiting, and bilateral nystagmus. A repeat MRI brain showed lesion progression and evidence of hydrocephalus. He received hypertonic saline prior to external ventricular drain placement. Once stabilized, he underwent an uncomplicated left retrosigmoid craniotomy with resection of his cerebellar lesion. Histopathology demonstrated strong CD30 and ALK1 expression, with atypical mature T-cells on flow cytometry (CD4+, CD8+, CD5-). PET/CT imaging, bone marrow biopsy, and an ophthalmologic slit lamp exam were without evidence of systemic disease. He was given a diagnosis of PCNSL of T-cell origin (ALK+ anaplastic large cell subtype) and discharged on a dexamethasone taper. After surgical recovery he was started on induction chemotherapy with high-dose methotrexate, procarbazine, and vincristine (MPV). Interval MR imaging demonstrated marked decrease in the size of his intracranial lesions. He was subsequently transitioned to consolidation with HiDAC with the intent to undergo autologous hematopoietic cell transplant.

Conclusions: Incidence of ALK-positive anaplastic large cell PCNSL is extremely rare, and thus consensus data regarding optimal treatment is lacking. For younger patients with good functional status and renal clearance, induction therapy containing high-dose methotrexate (i.e. MPV) can provide an effective bridge to consolidation and autologous hematopoietic cell transplant.

Abstract #: 21 Abstract Category: Research

DNA Repair Gene Variants in Patients with Prostate Cancer Achieving Durable Clinical Benefit with PARP Inhibitors

BACKGROUND: PARP inhibitors (PARPi's) were recently approved for the treatment of metastatic prostate cancer among patients harboring mutations in an array of genes responsible for DNA repair. We sought to identify whether a subset of these genes correlates with response to treatment more frequently than others. Consequently, an evaluation of the specific DNA repair genotypes associated with durable clinical benefit (DCB) using real-world patient data was undertaken.

METHODS: The U.S. Department of Veterans Affairs (VA) National Precision Oncology Program's (NPOP) database and Corporate Data Warehouse (CDW) were reviewed to select patients who 1) carried a diagnosis of prostate cancer, 2) successfully underwent tumor DNA sequencing through NPOP, 3) were prescribed olaparib, rucaparib, nirapib, and/or talazaporib for their prostate cancer between July 2016 and February 2020, and 4) and achieved DCB, defined as no progression in prostate-specific antigen (PSA) for at least 6 months following PARPi initiation without concurrent systemic or non-systemic therapies other than androgen-deprivation. The DNA repair gene variants and orders placed for NPOP consultative support were reviewed.

RESULTS: Of the 44 prostate cancer patients treated with a PARPi, 6 (13.6%) had tumor DNA sequencing through NPOP and had achieved DCB. Five patients were treated with olaparib and 1 with rucaparib. The median PSA progression-free survival was 8.9 [interquartile range = 8.5 – 11.2] months among these selected patients. Regarding gene variants, 5 patients had 7 BRCA2 mutations, including 4 frameshift, 1 nonsense, 1 single nucleotide variant, and 1 splice site. One patient had frameshift and missense ATM mutations. Referrals to the NPOP consult service were ordered for 2 out of the 5 patients with BRCA2 mutations achieving DCB.

CONCLUSION: Within the VA's NPOP, the presence of BRCA2 gene variants was the most common finding from tumor DNA sequencing among patients with prostate cancer achieving DCB with a PARPi. Further analysis of the genotypes of all patients treated with PARPi in NPOP to assess the differential impact of BRCA2 mutations is needed to confirm the clinical implication of this finding.