102 General Session, Fri, 8:45 AM-10:15 AM and Poster Session (Board #A1), Fri, 12:15 PM-1:45 PM and 5:15 PM-6:15 PM

Metabolic syndrome (MetS) after platinum-based chemotherapy (CHEM): A multicenter study of North American testicular cancer survivors (TCS).

Mohammad Issam Abu Zaid, Wambui G. Gathirua-Mwangi, AnnaLynn Williams, Chunkit Fung, Patrick O. Monahan, Darren R. Feldman, Robert James Hamilton, David J. Vaughn, Clair Beard, Ryan Cook, Sandra K. Althouse, Omar El Charif, Howard D. Sesso, Shirin Ardeshirrouhanifard, Lawrence H. Einhorn, Sophie D. Fossa, Lois B. Travis, For the Platinum Study Group; Indiana University School of Medicine, Indianapolis, IN; University of Rochester School of Medicine and Dentistry, Rochester, NY; Univ of Rochester Medcl Ctr, Rochester, NY; Memorial Sloan Kettering Cancer Center, New York, NY; Princess Margaret Cancer Centre, University Health Network, Toronto, ON, Canada; Abramson Cancer Center of the University of Pennsylvania, Philadelphia, PA; Dana-Farber Cancer Institute, Brigham and Women's Hospital, Boston, MA; The University of Chicago, Chicago, IL; Division of Preventive Medicine, Harvard Medical School, Boston, MA; The Norwegian Radium Hospital, Oslo, Norway

Background: Testicular cancer has an excellent prognosis since the introduction of platinum-based CHEM. However, several European studies report an excess of cardiovascular disease (CVD) in TCS. MetS is a cluster of cardiovascular risk factors that doubles CVD risk, with several European series noting a prevalence ranging from 13-39% in TCS. In the first large multi-center North American study of TCS, we examine the prevalence of and potential risk factors for MetS after modern CHEM (NCI R01 CA157823). **Methods:** Eligible TCS were $<$50 y at diagnosis and treated with only first line CHEM after 1990. TCS underwent physical exams, completed questionnaires regarding co-morbidities and health behaviors and had lipid panels, testosterone, and serum soluble cell adhesion molecule-1 (sICAM-1) measured. A single nucleotide polymorphism, rs523349 (V89L), in 5-α-reductase gene (*SRD5A2*) previously suggested to associate with MetS in TCS was genotyped. MetS was defined as $\geq$3 of the following: hypertension (HTN), waist circumference $\geq$102 cm, triglycerides $\geq$150 mg/dL, HDL $\leq$40 mg/dL, and diabetes (Alberti et al, Circulation 2009). Controls (1:1) derived from the National Health and Nutrition Examination Survey were matched on age, race, and educational status. **Results:** We evaluated 486 consecutively enrolled TCS. Median age at evaluation was 38 y (range: 19-68). TCS had higher prevalence of HTN compared to controls (43% vs 31%, $P < .01$) but lower prevalence of low HDL (24% vs 35%, $P < .01$) and abdominal obesity (28% vs 40%, $P < .01$). Prevalence of MetS was comparable (21% TCS; 22% controls, P = .59). In multivariate analysis, age at evaluation ($P < .01$), serum testosterone $<$3.0 ng/mL (OR = 2.0, P = .005), and elevated sICAM-1 (OR for quartiles 2, 3, 4 vs lowest quartile: 2.7 (P = .01), 3.1 ($P < .01$), and 3.6 ($P < .01$), respectively) significantly correlated with MetS. The variant rs523349 (VL/LL) did not associate with MetS. **Conclusions:** One in 5 TCS treated with CHEM developed MetS. Providers should screen for MetS, adequately treat hypogonadism, HTN and hyperlipidemia, and encourage TCS to maintain a healthy lifestyle. Significant elevations in sICAM-1 underscore a role for inflammation in MetS.

103 **Poster Session (Board #D6), Fri, 12:15 PM-1:45 PM and 5:15 PM-6:15 PM**

Chest CT findings among adult survivors of childhood and young adult cancer with a history of chest radiation.

Emily S. Tonorezos, Dana Barnea, Amber Khan, Joanne F. Chou, Chaya S. Moskowitz, Rana Kaplan, Kevin C. Oeffinger; Memorial Sloan-Kettering Cancer Center, New York, NY; University of Texas Southwestern Medical Center, Dallas, TX

Background: While survivors of childhood and young adult cancer with a history of radiation therapy (RT) to the chest are known to be at increased risk for lung cancer, whether a CT-based lung cancer screening program is appropriate for this population is unknown. We sought to describe CT findings in a clinic-based population of childhood and young adult cancer survivors. **Methods:** We performed a detailed review of all diagnostic chest CT scans performed among patients seen in the Adult Long-Term Follow-Up Program at Memorial Sloan Kettering between August 2005 and May 2016. Included survivors were at least 5 years from diagnosis and had a history of RT to the mediastinum, mantle, axilla, lung, thoracic spine, or total body irradiation fields. Results were reviewed by at least two authors (ET, DB, or AK) and discrepancies were resolved by consultation with a pulmonologist (RK). **Results:** We identified 620 survivors with a history of chest field RT who were at least 5 years from diagnosis. The population was 48% male, with a median age at diagnosis of 17.2 years. Approximately half were survivors of Hodgkin Lymphoma (N=306; 49.5%) and almost one-third had undergone hematopoietic cell transplant (N=188; 31%); other diagnoses included non-Hodgkin Lymphoma and sarcoma. The most frequently cited RT field was mantle (N=219; 36%), followed by total body irradiation (N=142; 24%) and whole lung (N=110;18%). Among 351 survivors with at least one chest CT, 206 (59%) had at least one pulmonary nodule, 174 (50%) had fibrosis, and 132 (38%) had a ground glass opacity. Among those with a pulmonary nodule, the large majority (91% of those with a nodule) were followed expectantly or underwent repeat imaging; these patients were spared biopsy or resection. Among 18 patients who underwent biopsy, wedge resection, fine needle aspiration, or bronchoscopy, 4 were diagnosed with lung adenocarcinoma, 3 with metastatic sarcoma, and one with marginal zone lymphoma (MALT). **Conclusions:** Benign pulmonary nodules among adults with a history of RT for childhood or young adult cancer are common. Any strategy for lung cancer screening in this population will need to account for a high likelihood of benign findings on chest CT.

104 Oral Abstract Session, Fri, 10:45 AM-12:15 PM, and Poster Session (Board #A5), Fri, 12:15 PM-1:45 PM and 5:15 PM-6:15 PM

Prevention of lymphedema in women with breast cancer (BC): Results of CALGB (Alliance) 70305.

Electra D. Paskett, Jennifer Le-Rademacher, Jill Oliveri, Heshan Liu, Drew K. Seisler, Jeffrey Sloan, Jane M. Armer, Michelle Joy Naughton, Karen Hock, Michael A. Schwartz, Gary Walter Unzeitig, Gilbert D. A. Padula, Stephen S. Grubbs, Lisa Yee, Lisa Bailey, Shawna C. Willey, Thomas Dean Sunnenberg, Lisa L. Baddi, Gini F. Fleming, CALGB 70305 Investigators; The Ohio State University Comprehensive Cancer Center, Columbus, OH; Alliance Statistics and Data Center, Mayo Clinic, Rochester, MN; University of Missouri - Ellis Fischel Cancer Center, Columbia, MO; Jupiter Medical Center, Jupiter, FL; Doctor's Hospital of Laredo, Laredo, TX; Cancer Research Consortium of West Michigan (CRCWM) NCORP, Grand Rapids, MI; Delaware/Christiana Care NCORP, Newark, DE; The Ohio State University Medical Center, Columbus, OH; Bay Area Tumor Institute, Oakland, CA; MedStar Georgetown University Hospital, Washington, DC; Sacred Heart Hospital, Pensacola, FL; Presence Resurrection Health Care, Chicago, IL; University of Chicago Comprehensive Cancer Center, Chicago, IL

Background: Lymphedema (LE), a side effect of BC treatment, affects 8%–56% of women. The study tested the effectiveness of an education only vs education + exercise intervention on LE incidence in a group randomized trial (NCT00376597) of 38 cooperative group sites. **Methods:** Newly diagnosed women with stage I-III BC were consented and arm circumference and range of motion were measured pre-surgery. After surgery, patients (pts) were enrolled based on the randomization assignment of their treating institution, stratified by their type of node dissection (sentinel or axillary), and received either: education only: its causes, signs, symptoms and risk reduction strategies, or education + personalized exercise instruction from a physical therapist, with elastic compression garments to wear during heavy arm use and air travel. Pts completed surveys and arm measurements at baseline (BL), 12 and 18 months with the LE endpoint defined as $\geq$ 10% difference in limb volume at any time from BL to 18 months or physician diagnosis of LE. Cochran-Mantel-Haenszel (CMH) tests were used to compare the LE-free rate between arms, adjusted for type of biopsy. Logistic regression assessed predictors of LE. **Results:** 568 pts were enrolled, 45% in education only, and 55% in education + exercise, with 554 (98%) included in the analyses. Pts were on average 57.7 years, White (83%), non-Hispanic (92%) and married (62%). 47% only had sentinel node dissection, 35% had mastectomy, and 37% had chemotherapy. The LE-free rate was 58% in education only vs 55% in education + exercise (CMH $p = 0.73$). Predictors of LE included surgery type (lumpectomy vs mastectomy, OR = 2.22, $p < 0.001$) and chemotherapy (no vs yes, OR = 1.73, $p = 0.02$), after adjusting for BMI and type of node dissection. Only one-third wore the sleeve at least 75% of the time and only 50% did LE exercises at least weekly. **Conclusions:** There was no difference by intervention arm in LE incidence by 18 months. Poor adherence in the education + exercise arm may have been a factor. Additional analyses will assess quality of life, body image and knowledge about LE by arm. Further research is needed to effectively prevent LE in pts after BC surgery. Research Support: UL1TR001409; U10CA037447, UG1CA189823 Clinical trial information: NCT00376597.

105 Oral Abstract Session, Sat, 10:45 AM-12:15 PM, and Poster Session (Board #B5), Sat, 7:00 AM-7:45 AM and 12:15 PM-1:45 PM

Risk of coronary heart disease and ischemic stroke in thyroid cancer patients taking levothyroxine.

Dong Wook Shin, Beomseok Suh, Jae Moon Yoon, Youngmin Park; Seoul National University Hospital, Seoul, South Korea; Seoul National University Hospital, Seoul, Republic of Korea; National Health Insurance Services Ilsan Hospital, Goyang, Republic of Korea

Background: Many thyroid cancer patients are exposed to long-term TSH suppression, in many cases as lifetime treatment, and are consequently subjected to risk for cardiovascular disease. We investigated incidence of CHD and ischemic stroke among thyroid cancer patients and explored possible pathophysiological mechanisms involved. **Methods:** A total of 182,419 subjects who received thyroidectomy for thyroid cancer during 2004-2012 were selected from the Korean National Health Insurance data, which covers approximately 97% of the entire Korean population. Propensity score matching was used to select non-cancer controls. Cox proportional hazards regression analysis was used to determine relative risk of coronary heart disease (CHD), and ischemic stroke. Mean follow-up was 4.32 years. **Results:** Thyroid cancer patients had elevated risk for CHD and ischemic stroke with HR 1.15 (95% CI 1.10-1.22), and 1.15 (1.09-1.22), respectively. This risk was marked in those who received total thyroidectomy and in those who took higher dosage of levothyroxine (HR 1.47, 95% CI 1.34-1.60 for CHD and HR 1.56, 95% CI 1.42-1.72 for ischemic stroke among those who took $\geq$ 170mcg/d). Atrial fibrillation risk was dose-dependently associated with levothyroxine dosage; however, once patients developed atrial fibrillation, ischemic stroke risk was not significantly greater in those who took higher dosage. **Conclusions:** The risk for CHD and ischemic stroke was higher in thyroid cancer patients who received thyroidectomy, and the dosage of levothyroxine administered appears to play a major role. More caution is suggested for the choice of thyroidectomy and TSH suppression therapy, as well as proper management for cardiovascular disease prevention.

106 Poster Session (Board #B6), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Fertility preservation and decisional regret in young breast cancer survivors: A longitudinal analysis.

Samantha Rose Dewald, Loki Natarajan, Irene Su; University of California San Diego, San Diego, CA; Moores UCSD Cancer Center, La Jolla, CA; University of California San Diego, La Jolla, CA

Background: Fertility is important to many young breast cancer survivors (YBCS), who face difficult decisions on whether to undergo fertility preservation prior to treatment. Because few longitudinal data assessing decisional regret are available, the objectives of this study were to assess longitudinal changes in decisional regret on fertility preservation following breast cancer diagnosis; determine if fertility preservation treatment decisions are related to decreased decisional regret. **Methods:** From 3 academic breast cancer programs, 169 YBCS younger than age 45 were recruited at diagnosis between 2009 and 2012 and followed prospectively for ovarian function. Participants completed questionnaires on fertility preservation choices and the Decisional Regret Scale (DRS) during study visits every 6 months for up to 5 years. DRS is scored 0 (no regret) to 100 (highest regret). DRS was dichotomized as none versus any decisional regret. Generalized linear models estimated the change in DRS over time and the association between patient characteristics and DRS. **Results:** Mean age at diagnosis was 38.7 (SD 4.8). Median total follow-up was 176 days (IQR 84 to 1415 days). Enrollment DRS was available for 89 women; 48% reported decisional regret about fertility preservation (median DRS=20). Participants worried about future fertility were more likely to report decisional regret (p=0.009). 31% underwent fertility preservation, but this was not associated with decisional regret (p=0.65). In repeated measures analysis for the entire cohort, no significant change in DRS occurred over this time period (OR 0.8, 95% CI 0.4-1.7). Worry about future fertility remained significantly associated with DRS over time (OR 55.1, 95% CI 7.7-395.1). **Conclusions:** In a cohort of YBCS, experiencing decisional regret about fertility preservation persists for years after diagnosis. Those worried about future fertility are more likely to experience decisional regret regarding fertility preservation.

107 Poster Session (Board #B7), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Challenges in accessing reproductive health care in young cancer survivors.

Bridgette Thom, Catherine Benedict, Danielle Novetsky Friedman, Debbie Diotallevi, Nirupa Jaya Raghunathan, Elaine Pottenger, Joanne Frankel Kelvin; Memorial Sloan-Kettering Cancer Center, New York, NY; Northwell Health, Manhasset, NY

Background: Infertility and early menopause are well-established late and long-term effects of many cancer treatments. Fertility preservation (FP) before (and in some cases after) treatment allows many survivors to achieve their family building goals despite gonadotoxic treatment. FP, however, is costly, and there is inconsistent, incomplete, or absent coverage across insurances. Furthermore, as many young survivors are un- or underinsured, disparities in referrals and service utilization have emerged. This presentation provides an overview of reproductive health care-related financial issues affecting young adult survivors, including cost of care, access to services, and relevant advocacy efforts, and highlights an analysis of the impact of income on FP decisions in a national sample of female survivors. **Methods:** We recruited female survivors aged 18-35 via social media and collected data using a web-based survey. Analyses included bivariate statistics and multiple logistic regression. Outcomes were receiving a fertility intervention (undergoing evaluation and/or fertility preservation of any sort) and freezing eggs/embryos before or after treatment. **Results:** 346 survivors, who were an average of 4.9 years (sd = 5.4) post-treatment, participated. 296 (86%) reported income: 35% <$50K; 39% $50K-100K; and 26% over 100K. Of 259 respondents who did not undergo FP, 27% reported cost as a barrier. In logistic regression, income was significantly related with receiving an intervention and freezing eggs/embryos. Controlling for age and nulliparity, high-income survivors were more likely to receive a fertility intervention (OR = 3.0, 95% CI: 1.3, 6.9) and to freeze eggs/embryos (OR = 3.4, 95% CI: 1.2, 9.5) than low-income survivors. **Conclusions:** Our findings of disparity in utilization of reproductive health care among cancer survivors were similar to the published literature, with income impacting respondents' receipt of fertility intervention and freezing of eggs/embryos. Clinical interventions and policy initiatives must address this service gap. Health care providers can help ensure that cancer survivors have access to available financial resources to assist with cost to facilitate their reproductive health care.

108 Poster Session (Board #B8), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Development of a decision aid for young canadians diagnosed with breast cancer who are at risk of infertility following cancer treatment.

Brittany Speller, Marcia Facey, Amanda Sissons, Corinne Daly, Erin Diane Kennedy, Kelly A. Metcalfe, Nancy N. Baxter; St. Michael's Hospital, Toronto, ON, Canada; University of Toronto, Toronto, ON, Canada; Canadian Partnership Against Cancer, Toronto, ON, Canada; Mount Sinai Hospital, Toronto, ON, Canada

Background: Young breast cancer patients are at risk of temporary or permanent infertility following the administration of gonadotoxic cancer treatments. Currently patients do not feel they receive enough information to make informed fertility decisions before treatment. We aim to determine the fertility-related information health care providers and breast cancer survivors consider valuable to include in a Canadian decision aid (Can-DA) for young breast cancer patients by reviewing existing decision support resources. **Methods:** A qualitative descriptive approach was used to evaluate 6 decision support resources created in other jurisdictions. Using purposeful sampling, 8 multi-disciplinary health care providers and 8 breast cancer survivors from across Canada evaluated 1 to 2 decision support resources in structured interviews. Interviews were conducted in-person and by telephone from March to June 2016 and ranged in length from 30 to 90 minutes. Interviews were transcribed verbatim, organized in NVivo, and analyzed deductively using the pre-defined sections of the interview guide as a framework. **Results:** Each decision support resource had valuable components to adapt for the Can-DA. Participants valued the inclusion of Canadian-specific and accurate information on resources for additional support and the success rates and cost ranges of fertility preservation procedures. There were mixed views on the impact and value of including in-depth fertility information such as adoption and other fertility-related options after treatment. Discrepancies were also seen on the value of personal stories and an explicit values clarification exercise. There was consensus on the inclusion of only pertinent fertility-related information that does not replicate information in supplementary patient education material to avoid overwhelming patients. **Conclusions:** The evaluation provided valuable insight on the information and design features to consider for the Can-DA. Findings will be used in combination with the International Patient Decision Aid Standards criteria to ensure the Can-DA meets the fertility information needs of young breast cancer patients in Canada.

109 **Poster Session (Board #B9), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM**

Preserving fertility for adolescent and young adult cancer survivors: A community model.

Stephanie L. Lawrence, Karen H. Albritton, Emily Berry, Aurelio Rodriguez, Keith Edward Argenbright; Moncrief Cancer Institute, The University of Texas Southwestern Medical Center, Fort Worth, TX; Cooks Children's Medical Center, Fort Worth, TX; Moncrief Cancer Institute, Fort Worth, TX; UT Southwestern Medical Center, Fort Worth, TX

Background: Loss of fertility is a significant late effect of cancer treatment for those patients diagnosed during their reproductive years. This loss is a source of considerable distress for patients who have not yet started or completed building their families. Fertility preservation counseling to discuss reproductive concerns regardless of treatment phase can ease this burden. However, due to access- and health-related barriers, approximately half of oncologists report having never referred a patient for a fertility consultation, and as many as 60% of cancer survivors do not recall receiving this information from their healthcare team at time of diagnosis. **Methods:** The Moncrief Cancer Institute (MCI) Fertility Preservation Program synchronizes services between oncology care providers and fertility specialists. This model is designed to remove discomfort associated with discussing options while enhancing access to care by arranging physician and patient education opportunities specific to fertility preservation and the treatment options available, patient care coordination for fertility preservation treatment, and financial assistance for fertility preservation treatment for underinsured and uninsured adolescent and young adult cancer patients. **Results:** Referrals for fertility counseling have been provided from 5 institutions through an established referral network comprised of non-profit organizations, local hospitals, and private practice providers. MCI partners with 2 reproductive specialty care groups who offer treatment at reduced rates, which MCI further subsidizes based on financial need. No patients are turned away for inability to pay. The institutions that MCI has targeted for education and partnerships support an environment that meet the distinct needs of adolescent and young adult patients with cancer. **Conclusions:** Program impact is evaluated by the number of patients and providers receiving education, and the number of patients receiving care coordination and/or financial support for fertility preservation treatment. In the fight against cancer, MCI is assisting patients to protect their future families through fertility preservation education and care coordination.

110 Poster Session (Board #B10), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Increased late mortality in underweight survivors of childhood cancer: A report from the Childhood Cancer Survivor Study.

Emily S. Tonorezos, Lillian R. Meacham, Joanne F. Chou, Chaya S. Moskowitz, Wendy M. Leisenring, Danielle Novetsky Friedman, Charles A. Sklar, Kimberley Jo Dilley, Melissa M. Hudson, Ann C Mertens, Gregory T. Armstrong, Leslie L. Robison, Kevin C. Oeffinger; Memorial Sloan-Kettering Cancer Center, New York, NY; Emory University, Atlanta, GA; Fred Hutchinson Cancer Research Center, Seattle, WA; Lurie Children's, Chicago, IL; St. Jude Children's Research Hospital, Memphis, TN

Background: Approximately one-in-ten adult survivors of childhood cancer are underweight. While the consequences of being overweight or obese have been well-described, outcomes among underweight childhood cancer survivors are unknown. **Methods:** Underweight was defined as a body mass index (BMI)$<$ 18.5 kg/m^2, calculated from self-reported height and weight on either the baseline or the first follow-up questionnaire from the Childhood Cancer Survivor Study (CCSS). National Death Index provided death data and self-reported subsequent malignant neoplasm were validated by pathology report. Chi-square test was used to examine the association between underweight status ($<$ 8.5 kg/m^2 vs $\geq$ 18.5 kg/m^2) and baseline demographic characteristics. Marginal models with generalized estimating equations were used to evaluate the associations between BMI and outcomes. **Results:** Of 9454 survivors (median age 35 years old, range 17-58, with an average of 17.5 years from diagnosis), 627 (6.6%) participants were underweight at baseline and had at least two years of additional follow-up. 29 of 184 deaths were among underweight survivors. In univariate analysis, underweight status was more common among females (9.1% vs 4.5 %, p$<$0.01) and participants with younger age (8.2% for $<$5 yrs vs. 6.1% for $>$=5yr, p$<$.01), lower household income (8.9% for $<$$20,000 vs. 6.0% for $>$=$20,000, p$<$0.01), and a history of a grade 3 to 4 chronic condition (p = 0.05). After adjustment for these factors, in addition to race/ethnicity, prior smoking, and a history of radiation therapy, the odds of all-cause mortality within two years of BMI report was 2.82 (95% CI: 1.64-2.2; p$<$0.01) for underweight survivors, compared to normal weight survivors. The risk of subsequent malignant neoplasms within two years of BMI report among underweight survivors compared to normal weight survivors was not significantly increased (OR 1.31; 95% CI: 0.60-2.85; p = 0.49). **Conclusions:** Childhood cancer survivors who are underweight are at significant risk for late mortality that is unrelated to smoking status, chronic illness, or second malignancy. Whether targeted nutritional interventions would ameliorate this risk is unknown.

111 Poster Session (Board #B11), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Late effects among young thyroid cancer survivors.

Brenna Blackburn, Patricia A. Ganz, Kerry G. Rowe, Yuan Wan, Vikrant Deshmukh, Michael Newman, Alison M Fraser, Ken R Smith, Jaewhan Kim, Anne C. Kirchhoff, Christina Poruznik, Heidi Hanson, Marcus Monroe, Mia Hashibe; University of Utah, Salt Lake City, UT; University of California, Los Angeles, Los Angeles, CA; Intermountain Health Care, Salt Lake City, UT; Pedigree and Population Resource, Population Sciences, Huntsman Cancer Institute, Salt Lake City, UT; University of Utah Health Sciences Center, Salt Lake City, UT; University of Utah, Huntsman Cancer Institute, Salt Lake City, UT; Huntsman Cancer Institute, University of Utah, Salt Lake City, UT; Health Promotion and Education, Department of Health, Kinesiology, and Recreation, University of Utah College of Health, Sale Lake City, UT; Department of Pediatrics, University of Utah, Salt Lake City, UT; Division of Public Health, Department of Family and Preventive Medicine, University of Utah, School of Medicine, Salt Lake City, UT; Division of Otolaryngology-Head and Neck Surgery, Department of Surgery, University of Utah, School of Medicine, Salt Lake City, UT; Division of Public Health, Department of Family and Preventive Medicine, University of Utah School of Medicine, Salt Lake City, UT

Background: Thyroid cancer is the most rapidly increasing cancer with over 600,000 thyroid cancer survivors in the U.S. Thyroid cancer affects a young population and the 5-year survival rate is over 98%. There have been few studies on the late effects of thyroid cancer, especially in younger populations. The aim of this study was to examine if thyroid cancer survivors diagnosed < 40 years experience greater risks of late effects than older age groups for diseases associated with aging. **Methods:** Up to 5 cancer free individuals were matched to each thyroid cancer survivor based on birth year, sex, birth state, and follow up time from case diagnosis date, within the Utah Population Database. Electronic medical records, statewide ambulatory surgery and inpatient discharge data were used to identify late effects stratified over three time periods: 1-5, 5-10, and > 10 years after cancer diagnosis. Cox proportional hazards models were used to estimate hazard ratios (HR) with adjustment on matching factors, race, BMI at diagnosis, and Charlson Comorbidity Index at diagnosis. **Results:** There were 4,060 thyroid cancer survivors and 18,557 matched cancer free individuals (1,407 cases diagnosed ages < 40 years, 2,076 cases diagnosed ages 40-65 years). The risk for hypertension was significantly increased in both younger (HR = 1.54, 95%CI = 1.18, 2.01) and older patients (HR = 1.30, 95%CI = 1.11, 1.53) > 10 years after cancer diagnosis. For heart disease, increased risks persisted for the young patients > 10 years after cancer diagnosis for heart valve disorders (HR = 2.43, 95%CI = 1.36, 4.33) and for peri-, endo- or myocarditis (HR = 5.12, 95%CI = 1.04, 25.14), while corresponding HRs for the older age group did not suggest increased risks. For osteoporosis, the younger patients had a higher risk (HR = 8.77, 95%CI = 3.18, 24.18) than the older population (HR = 2.55, 95%CI = 2.07, 3.13) 1-5 years after cancer diagnosis. **Conclusions:** Thyroid cancer survivors diagnosed at < 40 years had increased risks for diseases associated with aging such as hypertension, heart disease, and osteoporosis. As thyroid cancer affects a young population, understanding what late effects may result from the treatment can lead to better surveillance and disease management.

112 Poster Session (Board #B12), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Risk for pulmonary late effects in childhood Hodgkin lymphoma survivors.

Jennifer Elise Agrusa, Austin L Brown, Viral Kothari, Gary Lewis, Bin S. Teh, Arnold Paulino, Carl E. Allen, Philip Lupo, Maria Monica Gramatges; Baylor College of Medicine, Houston, TX; Houston Methodist Hospital, Houston, TX; The Methodist Hospital, Houston, TX; The University of Texas MD Anderson Cancer Center, Houston, TX

Background: Survivors of Hodgkin lymphoma (HL) are at risk for pulmonary late effects, including pulmonary fibrosis (PF). Established risk factors such as younger age at diagnosis and specific therapeutic exposures explain a fraction of the risk for these outcomes. Notably, systemic inflammation and impaired telomere maintenance are associated with adverse pulmonary outcomes in adult populations, but have not been explored in cancer survivors. Our aim was to identify pulmonary diffusion defects in HL survivors, and evaluate the impact of short lymphocyte telomere length (LTL) and systemic inflammation on these outcomes. **Methods:** Blood samples, demographic and treatment data, and lung carbon monoxide diffusion capacity corrected for hemoglobin and alveolar volume (DLCO) were obtained from HL survivors ≥6 months off therapy and without history of relapse or transplant. LTL was measured by telomere flow FISH (Repeat Diagnostics), and age-based percentiles determined from population controls. Plasma elevations in pro-inflammatory cytokines (HCYTMAG panel, EMD Millipore) were detected on a Luminex platform. Associations between clinical features and most recent DLCO were determined by linear regression, adjusted for age, sex, radiation, and race/ethnicity. In a subset of subjects, cytokine levels and LTL were compared in survivors with DLCO above or below the mean using a Student t-test or Fisher's Exact test, respectively. **Results:** Seventy-two HL survivors met inclusion criteria (mean age at diagnosis=14 years, range: 3-18 years). Mean off-therapy DLCO was 75% (range: 52-98%), below the lower limit of normal (76%) in healthy populations. DLCO was inversely associated with female sex ($p = 0.002$). Five of 24 survivors (21%) had LTL ≤10th percentile for age, but there was no difference in LTL relative to DLCO. Survivors with DLCO ≤75% had higher IL1α and IL1β levels ($n = 30$, $p = 0.07$). **Conclusions:** HL survivors had lower than expected DLCO, with females at highest risk for impaired pulmonary diffusion. Twice as many survivors as expected had LTL ≤10th percentile, and PF-related cytokine profiles were observed in survivors with lower DLCO, suggesting inflammation and telomere maintenance defects may contribute to late effects in HL survivors.

113 Poster Session (Board #C1), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Identifying characteristics of women cancer survivors with a recent history of falls.

Kerri M. Winters-Stone, Thais Reis, Sydnee Stoyles, Nathan Dieckmann; Oregon Health & Science University, Portland, OR; Sao Paulo State University, Sao Paulo, Brazil

Background: Epidemiologic data suggest that fall rates are increased among women with a history of cancer compared to women never diagnosed with cancer. However, the unique characteristics of women cancer survivors who fall are not completely understood. Our study aimed to identify the demographic, clinical and physical attributes of women treated for cancer and who experienced falling in the past year. **Methods:** Secondary data analysis of baseline data from aging women cancer survivors (greater than 50 years of age) about to participate in clinical exercise trials (n = 611). Based on self-report of having fallen in the last year (yes/no), women were compared on the following: age, cancer type (breast vs. other), cancer stage, time since diagnosis, presence of neuropathy or pain, comorbidities, BMI, physical activity, maximal leg press strength, chair stand time, walk speed, gait patterns, and the short physical performance battery (sPPB). Stepwise regression was run to determine attributes significantly associated with fall history. **Results:** 28% of women reported falling in the last year (n = 173) and 79% of fallers experienced a related injury. Women cancer survivors who fell were significantly more likely than women who did not fall to have: not received chemotherapy (25% vs. 13%), higher morbidity scores (2.2 vs. 1.8), higher BMI (30.6 vs. 29.2 kg/m^2), more neuropathy (49 vs. 39%), wider base of support (10.0 vs. 8.8 cm), more of the gait cycle spent in the stance phase (64 vs. 63%), longer chair stand times (12.8 vs. 11.9 sec.), and lower PPB scores (10.3 vs. 10.8). In stepwise regression models, receipt of chemotherapy, comorbidities, maximal leg strength, neuropathy, base of support, and % time in the stance phase of gait were significantly associated with the odds of having fallen in the last year. **Conclusions:** Women cancer survivors over 50 years old have a prevalence of falls approaching the 33% reported by the general population of women over 65; however, the rate of injurious falls is much higher in our sample of women cancer survivors. Fall prevention should be considered in women cancer survivors at an earlier age than usual for older women, particularly for survivors at higher risk for falls, and focus on exercise to improve gait and leg strength.

114 Poster Session (Board #C2), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Changes in arm tissue composition with slowly-progressive weight-lifting among women with breast cancer-related lymphedema.

Xiaochen Zhang, Justin C. Brown, Electra D. Paskett, Babette Zemel, Andrea L. Cheville, KATHRYN H. SCHMITZ; Penn State College of Medicine, Hershey, PA; Dana-Farber Cancer Institute, Boston, MA; The Ohio State University Comprehensive Cancer Center, Columbus, OH; The Children's Hospital of Philadelphia, Philadelphia, PA; Mayo Clinic, Rochester, MN

Background: We evaluated baseline differences in arm tissue composition (fat mass, lean mass, bone mineral content [BMC] and bone mineral density [BMD]) between the affected and unaffected arms in women with breast cancer-related lymphedema (BRCL). We compared changes in arm tissue composition and self-reported lymphedema symptoms after one-year of weight-lifting vs. usual-care. **Methods:** We utilized data from the PAL trial that included 141 women with BRCL. Arm tissue composition was quantified using dual-energy x-ray absorptiometry. The severity of lymphedema was quantified using self-report survey. Weight-lifting was performed at community fitness facilities. **Results:** At baseline, the affected arm had more fat (D= 89.7$\pm$21.0g; P $<$ 0.001) and lean mass (D= 149.1$\pm$25.3g; P $<$ 0.001), but less BMC (D= -3.2$\pm$ 0.9g; P $<$ 0.001) than the unaffected arm. No difference was observed in BMD. After 12-months of weight-lifting, composition of the affected arm was improved: lean mass (71.2$\pm$27.9g; P = 0.01) and BMD (0.01$\pm$0.01g; P = 0.02) increased, arm fat percentage decreased (0.01$\pm$0.01; P = 0.003). No changes observed in fat mass and BMC. Baseline body mass index and BCRL grade modified the relationship between weight-lifting and tissue composition changes. Increases in lean mass were associated with less severe BCRL symptoms. With every one-percent decrease in arm fat percentage, affected limb volume reduced 13.81mL. **Conclusions:** Among women with BRCL, affected and unaffected arms differ in tissue composition. These differences may be improved with weight-lifting. Changes in arm tissue composition correlate with improved BCRL symptoms. Investigating the combined effects of exercise and weight-loss on arm tissue composition and BCRL symptoms may provide additional insight to the benefits of lifestyle modification on lymphedema biology. Clinical trial information: NCT00194363.

116 Poster Session (Board #C4), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Racial disparities in breast cancer mortality among women with diabetes mellitus.

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Background: Multiple reasons have been cited for racial disparities in breast cancer survival, including differences in screening, tumor biology, estrogen receptor status, stage at presentation, treatment and comorbidities. Recent studies suggest that minority women are more likely to have diabetes and diabetes has been shown to increase breast cancer risk and worsen cancer prognosis. We sought to evaluate whether there is disparity in breast cancer mortality among breast cancer survivors with comorbid diabetes. **Methods:** We identified women >65 years diagnosed with primary breast cancer between 2007 and 2010 from the SEER-Medicare database and followed them for 36 months after cancer diagnoses. Our primary outcome was breast cancer mortality. We excluded patients for whom diagnoses were obtained from death certificates or at autopsy, with incomplete data with regards to the stage at diagnosis and those without Part B coverage. The association between race and breast cancer mortality was assessed using a multivariable Cox regression with competing risk analysis. **Results:** A total of 9,545 breast cancer survivors with pre-existing diabetes were included in the analysis. Black women were more likely to be diagnosed at later stage and to be younger ($p<0.001$). There were no differences in cancer treatment by race. After a median follow-up of 36 months, 68.9% of black vs. 73.9% of white patients were still alive ($p< .0001$). After censoring women who died from other causes and adjusting for age, year of diagnosis, stage, cancer treatment (surgery, chemotherapy and/or radiation) and Charlson comorbidity score, black race remained associated with increased breast cancer mortality (Hazard Ratio 1.45 (95% CI, 1.20-1.73). **Conclusions:** Even after controlling for cancer-related treatment factors, black breast cancer survivors with diabetes have significantly worse breast cancer survival. Further research should investigate how to improve care for minority women who are at higher risk for breast cancer mortality.

117 Poster Session (Board #C5), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Long-term outcome of patients with lower extremity Ewing sarcoma.

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Background: With improved survival rates of patients with Ewing sarcoma the quality of long-term survivorship needs to be addressed. In this study, general recovery and restitution of function following intensive bone tumor treatment were analyzed by assessing the clinico-functional outcome and physical activity using self-reporting and objective measurement tools. **Methods:** Long-term outcome of 224 former patients with lower extremity Ewing sarcoma, registered between 1980 and 2009 in consecutive clinical trials of the GPOH, were assessed using the TESS, SF-36, BSI, and RSES questionnaire scales, and the accelerometric StepWatch Activity Monitor (SAM). To compare results with healthy subjects, 111 non-random peer controls were selected. Median observation time was 13.8 years from primary diagnosis (range 4.1-31.2). **Results:** Absolute values from the questionnaire scores indicated no major clinical findings in former patients. Compared to controls, unfavorable outcomes were however seen on physical TESS (d=-0.85), PCS (SF-36) (d=-1.08) and BSI-S scores (d=0.65) ($P<0.001$), in contrast to mental MCS (SF-36), BSI-A, BSI-D, RSES scores ($d<0.40$). Former patients were less active than the control group (10067 vs. 12430 steps per day; d=-0.56; $P<0.001$), but on average did reach the recommended level for an active life-style (>10000 steps). Comparing local therapy modality, physical scores for SAM, TESS, PCS were 10978, 91.2, T=50.2 for patients treated with surgery (N=101), 11097, 90.0, T=48.6 in patients with combined modality treatment (N=108), and 10093, 92.8, T=50.0 for patients with definite radiotherapy (N=15) (P=0.648; P=0.580; P=0.368). **Conclusions:** Survivors of primary lower extremity Ewing sarcoma exhibited moderately reduced self-reported and objectively measured physical outcome scores. Continuous long-term observation will be important in order to identify disease-specific prognostic factors for these patient-oriented outcomes.

118 Poster Session (Board #C6), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Prospective surveillance using l-dex monitoring results in significant reductions in the chronic rate of breast cancer related-lymphedema (BCRL) in high-risk breast cancer patients.

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Background: Survivorship represents an increasing focus in the management of breast cancer with chronic toxicities including breast cancer-related lymphedema (BCRL). This study looked at prospective surveillance using bioimpedance spectroscopy (BIS) to reduce risks of chronic BCRL requiring referral for complete decongestive therapy (CDT). **Methods:** 132 patients at high-risk for the development of BCRL were prospectively followed using BIS with serial monitoring. This included a pre-operative baseline assessment and a minimum of two post-operative follow up assessments. Interventions were initiated when the L-Dex score increased by greater than 10 units from baseline and consisted of conservative treatment with a compression sleeve for four weeks. Patients were also clinically monitored for the development of BCRL. **Results:** Median follow-up was 19.3 months (range 4-54 mos). Of the 132 patients evaluated, 24 (18.1%) were subsequently diagnosed with elevated L-Dex scores and underwent intervention. Of the 24 that underwent treatment, 14 (58%) had resolution of their elevated L-Dex scores following four weeks of therapy with 10 having persistent elevations and clinical BCRL which necessitated referral to physical therapy for CDT. A further 7 subjects were diagnosed and not treated for elevated L-Dex scores, but had complete resolution (return to baseline) at last visit. At last follow-up, only 10 patients (7.6 %) had unresolved, clinical stage 1, BCRL. **Conclusions:** The use of L-Dex to prospectively follow our high-risk patients and prescribe intervention with a compression sleeve for 4 weeks when scores are elevated resulted in only a 7.6 % rate of stage 1, chronic BCRL. This rate of BCRL has been reported as 15-20%, suggesting that a prospective program of screening and intervention using L-Dex does result in clinically meaningful reductions in this long-term sequelae of treatment.

120 Poster Session (Board #C8), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Brentuximab-induced peripheral neuropathy: Risk factors and patient experiences.

Sarah Nagle, Lauren E. Strelec, Alison W. Loren, Daniel Jeffrey Landsburg, Sunita Nasta, Anthony R. Mato, Stephen J. Schuster, Jakub Svoboda; Abramson Cancer Center of the University of Pennsylvania, Philadelphia, PA

Background: Brentuximab vedotin (BV) is an immunoconjugate used in Hodgkin lymphoma (HL) and other CD30+ lymphomas. The dose-limiting adverse effect is peripheral neuropathy (BIPN). Predictors of BIPN, effect on outcomes, and the biopsychosocial impact are not well defined. **Methods:** We conducted a single institution, mixed-methods study of lymphoma patients (pts) who received BV between 1/2010 and 5/2016. A retrospective analysis was conducted in all pts; an open-ended survey was given to pts seen in the prior year. A univariate analysis examined the association between BIPN and potential predictors. Overall survival (OS) and progression-free survival (PFS) were calculated using the Kaplan Meier method. Survey data were analyzed qualitatively via a framework approach. **Results:** Eighty-nine pts were eligible: 56% were male, 54% had HL, 71% had prior neurotoxic drugs, 93% received single agent BV. The median number of BV doses was 5. Forty-three (48%) pts developed BIPN. It resolved completely in 14 (33%) pts at a median follow-up of 12 mo. The median time to resolution was 13 wks. BV therapy was altered in 21 (24%) pts due to BIPN. There was no difference in PFS (6 vs. 12 mo., p = 0.09) or OS (NR vs. 26 mo., p = 0.11) in pts who had therapy altered due to BIPN. Table 1 lists significant risk factors for BIPN. No additional factors investigated (age, sex, prior neurotoxic agent, underlying neuropathy, diabetes mellitus or BMI) increased risk for BIPN. Fourteen of the 18 (78%) surveyed pts reported BIPN. At a median follow-up of 24 mo., 10 (71%) pts reported ongoing symptoms. BIPN affected quality of life in 50% and work in 20% of pts. Despite significant symptoms from BIPN, all pts were satisfied with their decision to receive BV regardless of disease response. **Conclusions:** BIPN is a significant adverse event and may fail to resolve in a large subset of pts. Surveyed pts reported that the benefits of BV outweigh the risks. Changes in therapy due to BIPN occur, but this did not affect outcomes in our cohort. Clinicians should be aware of the risk for BIPN and educate pts accordingly.

Variable	OR (95% CI)	P-value
Disease Response to BV	9.38 (2.53-34.84)	< 0.001
Number of BV Doses	1.28 (1.12-1.46)	< 0.001
Cumulative Dose of BV	1.002 (1.001-1.003)	< 0.001

121 **Poster Session (Board #C9), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM**

Post-transplantation long-term outcomes in 43 HIV-positive patients affected by high-risk or relapsed lymphoma.

Ernesto Zanet, Pascual Balsalobre, Martina Taborelli, Jose Diez-Martin, Alessandro Re, Josep M. Ribera, Maurizio Rupolo, Philippe Genet, Diego Serraino, Gaelle Guillerm, Mario Mazzucato, Cristina Durante, Ian Gabriel, Kate Cwynarski, Eulogio Conde Garcia, Maria Rosario Varela Gomez, Rosanna Ciancia, Umberto Tirelli, Mariagrazia Michieli; National Cancer Institute, Aviano, Italy; Hospital Gregorio Marañón, Madrid, Spain; National Cancer Institute CRO Aviano, Aviano, Italy; Spedali Civili di Brescia, Brescia, Italy; ICO-Hospital Germans Trias i Pujol, Jose Carreras Research Institute, UAB, Badalona, Spain; Hôpital Victor Dupouy, Argenteuil, France; CHRU, Brest, France; Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom; Royal Free Hospital, London, United Kingdom; Hospital U. Marqués de Valdecilla, Santander, Spain; Complexo Hospitalario Universitario, A. Coruña, Spain

Background: The advent of highly active antiretroviral therapy (HAART) allowed to extend autologous stem cell transplantation (ASCT) to HIV-positive patients affected by lymphoma. In the literature, data are lacking on long-term events developed by this population. **Methods:** Herein we are reporting the preliminary analysis of long-term data of 43 pts out of 61 pts, affected by high-risk or relapsed lymphoma and treated by ASCT in different European countries. These 61 pts reached a complete response after ASCT and received HAART concomitantly to chemotherapy. We considered the following events after ASCT: lymphoma relapses, second cancers, opportunistic infections (OIs) and cardiovascular events. **Results:** Thirteen pts experienced OIs, after 0.36 years from ASCT (IQR: 0.12 -2.91). Twelve pts had a secondary malignancy and 6 pts had a lymphoma relapse, at a median time of 4.90 years (IQR: 2.56 – 9.90) and 2.88 years (IQR: 0.57 – 4.27) from ASCT, respectively. Six pts developed a cardiovascular event at 6.29 years (IQR: 4.84 – 9.32) from ASCT. Eight pts died: 3 of lymphoma relapse, 3 of second malignancy, 1 of acute myocardial infarction and 1 of car accident. With a median of 9.18 years of follow-up, (IQR: 5.99-12.43) the OS, PFS and EFS of the entire sample of pts were 82%, 75% and 35% at 10 years, respectively. **Conclusions:** Thirty-five out of 43 pts are still alive and in long-term complete remission after ASCT. These data confirm the long-term dramatic efficacy of ASCT. We support surveillance of OIs early after ASCT and of second cancers, lymphoma relapses and cardiovascular events from ASCT. Secondary malignancies developed by our pts are non-AIDS-defining cancers and a majority are linked to a viral pathogenesis or lifestyle behaviours (i.e. smoking). Secondary cancers and lymphoma relapses are the main causes of death in this population. Cardiovascular events may represent a cause of death but also a major reason of disability.

122 Poster Session (Board #C10), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Visual functioning in adult survivors of retinoblastoma.

Danielle Novetsky Friedman, Joanne F. Chou, Jennifer Ford, Jasmine Francis, Charles A. Sklar, Yuelin Li, Mary S. McCabe, Leslie L. Robison, Ruth Kleinerman, Brian Marr, David H. Abramson, Kevin C. Oeffinger, Ira J. Dunkel; Memorial Sloan-Kettering Cancer Center, New York, NY; MSKCC, New York, NY; St. Jude Children's Research Hospital, Memphis, TN; National Cancer Institute, Rockville, MD

Background: Retinoblastoma (Rb) survivors are at risk for adverse oculo-visual outcomes. Limited data are available regarding long-term visual functioning among adult Rb survivors. **Methods:** Rb survivors, diagnosed from 1932–1994 and treated in New York, completed a comprehensive questionnaire that included the National Eye Institute Visual Function Questionnaire (VFQ-25), which measures self-reported vision-targeted health in individuals with chronic eye diseases. Items are scored from 0–100 with 100 representing the best possible score. **Results:** 470 adult Rb survivors participated (53.6% with bilateral disease; mean age at study 43.3 yrs, standard deviation [SD] 11); 86% had at least one eye removed (one eye: 74.5%; both eyes: 11.5%) and 53.4% were treated with radiotherapy. 61.3% rated their eyesight as excellent/good while 16.5% reported complete blindness. Among Rb survivors with some vision, 4% described staying home "most of the time" due to their eyesight and 12% reported often feeling frustrated due to their visual status. The overall VFQ composite score for all Rb survivors was 89.2 (SD 10.1) [unilateral Rb survivors: 92.2 (SD 6.3); bilateral Rb survivors: 84.1 (SD 13.0); $p < 0.001$).Survivors with bilateral disease were significantly more likely to report inferior visual functioning in all domains when compared to those with unilateral disease (Table 1). **Conclusions:** Rb-related ocular problems continue to impact survivors' functional status into adulthood, particularly among those with bilateral disease.

Self-reported visual functioning among 470 retinoblastoma survivors, by laterality.

NEI VFQ-25 Subscales	Unilateral Rb Survivors (n = 218) Mean (SD)	Bilateral Rb Survivors (n = 252) Mean (SD)	p-value*
General Health	78.1 (20.4)	69.0 (22.9)	< .001
General Vision	84.3 (14.4)	46.1 (22.9)	< .001
Near Vision	94.5 (10.5)	71.8 (25.7)	< .001
Distant Vision	94.4 (10.3)	71.1 (24.9)	< .001
Driving	89.6 (13.0)	81.0 (20.0)	< .001
Peripheral Vision	80.1 (22.5)	59.0 (32.8)	< .001
Color Vision	99.2 (5.1)	87.0 (23.9)	< .001
Ocular Pain	90.4 (12.8)	84.5 (18.7)	0.002
Role Difficulty	91.4 (17.7)	75.9 (25.8)	< .001
Dependency	97.5 (9.3)	81.6 (22.8)	< .001
Social Functioning	96.9 (8.7)	80.0 (24.5)	< .001
Mental Health	88.3 (13.8)	75.0 (23.1)	< .001

123 Poster Session (Board #C11), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Sexual function in adult cancer survivors.

Emily Jo Rajotte, K. Scott Baker, Leslie Heron, Karen Leslie Syrjala; Fred Hutchinson Cancer Research Center, Seattle, WA; Fred Hutch, Seattle, WA

Background: Sexual dysfunction is a common treatment sequela across numerous cancer diagnoses and treatments, causing increased distress, discomfort and negatively impacting quality of life. **Methods:** Before their survivorship-focused clinic appointment, adult cancer survivors were asked to complete a comprehensive patient -eported outcomes survey that included detailed questions on their health status including sexual function. **Results:** Between April 2015 to July 2016, 94 patients completed the survey. They were 66% female, mean age 45 years (SD 16, range 21-82) and 34% leukemia/lymphoma, 18% breast cancer, and 12% genito-urinary cancer survivors. Patients were a mean of 6.7 years (SD 7.9, range 0-42) from their cancer diagnosis at the time of clinic appointment. Nearly half (48%) were married or living with a partner and 49% were living alone (single, divorced, widowed). 70.2% reported being sexually active (alone or with a partner) in the last year: of these only half (55.3%) reported being sexually active in the last month. For those who were not sexually active the most commonly cited reasons included lack of interest (24.5%) and not having a partner (30.9%), with 12.8% reporting not being sexually active due to a physical problem. Survivors rated their sexual satisfaction in the past month as a 5.0 (SD 3.7; scale of 0-10, 0=not at all satisfying 10=extremely satisfying). An independent samples t-test revealed a statistically significant difference in sexual satisfaction between survivors under 45 years in age and $\geq$45 years in age ($t=4.4$, $df=68.0$, $p < 0.05$). Older survivors (mean=3.71, SD=3.7) reported significantly lower levels of sexual satisfaction than did younger survivors (mean=7.11, SD=2.8). The most commonly reported sexual function issues for women included vaginal dryness (23.4%) and for men included difficulty getting an erection (7.4%). **Conclusions:** Sexual dysfunction is a common long-term effect of cancer across diagnoses and most treatments, warranting widespread implementation of targeted interventions to manage sexual dysfunction and improve quality of life for these survivors.

124 Poster Session (Board #C12), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Symptom burden in long-term head and neck cancer survivors.

Gaia Pocobelli, Rebecca Ziebell, Monica Fujii, Jennifer McClure, Jessica Chubak; Group Health Research Institute, Seattle, WA

Background: The symptom burden faced by long-term head and neck cancer survivors could inform clinical decision making but it is not well understood. **Methods:** In 2016 we surveyed current enrollees of Group Health (an integrated health care delivery system in Washington State) who were aged ≥18 years when diagnosed with head and neck cancer in 2011 (n = 54). Symptoms experienced in the past 24 hours were assessed using the validated MD Anderson Symptom Inventory head and neck cancer module (MDASI-HN). Survivors were asked to report on a 10-point scale the severity of the problem at its worst ("not present" to "as bad as you can imagine"). Self-reported risk factor and demographic information were also collected. **Results:** Eighty percent of persons responded to the survey (n = 43) via web questionnaire (n = 12), mailed questionnaire (n = 26) or telephone interview (n = 5). One person who reported to have not been diagnosed with head and neck cancer was excluded, leaving 42 participants. Overall, 29% had no more than mild symptoms (all MDASI-HN symptoms rated <5), 43% had no more than moderate symptoms (all MDASI-HN symptoms rated <7), 57% had one or more symptoms rated as severe (at least one MDASI-HN symptom rated ≥7), and 45% had two or more symptoms rated as severe. The symptoms most commonly rated as severe were: dry mouth (38%), difficulty swallowing or chewing (17%), pain (17%), fatigue (17%), disturbed sleep (15%), feeling sad (15%), choking or coughing (15%), problems with tasting food (15%), problems with teeth or gums (15%), problems with mucus in the mouth or throat (12%), and feeling distressed (12%). Persons who rated one or more symptom as severe were more likely than those who did not to have had cancer recurrence (44% versus 6%), receipt of cancer treatment in the previous three years (36% versus 17%), age ≥65 years at diagnosis (63% versus 17%), non-white race (21% versus 6%), no more than high school education (33% versus 17%), current unemployment/disability/retirement (71% versus 44%), and annual household income <$100,000 (71% versus 56%). **Conclusions:** In the context of limited data on this topic, in this small study we found that it was not uncommon for five-year survivors of head and neck cancer to experience one or more symptoms which they rated as being a severe problem.

126 Poster Session (Board #D2), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

The effect of cerebellar tumor resection on pain perception in pediatric patients.

Katie E. Silva, Julia Rosner, Nicole A. Ullrich, Christine Chordas, Lino Becerra, Peter E. Manley, Eric A. Moulton; Boston Children's Hospital, Boston, MA; Children's Hospital, Boston, MA; Dana-Farber Cancer Institute, Boston, MA

Background: Acute cerebellar infarctions have been shown to lead to affective and cognitive deficits in pediatric patients. However, the consequences of cerebellar insult on pain processing are unknown. Recent evidence not only suggests that the cerebellum plays a role in affective processing, but it also demonstrates increased activity in this area when individuals experience experimental or clinical pain, particularly in the posterior cerebellum. The goal of this study is to evaluate the effect of cerebellar resection of low-grade astrocytomas in children on pain perception. Describing the impact of this treatment may be of particular importance in children, as it may alter sensory development into adulthood. **Methods:** Twelve pediatric patients treated with surgery only for non-malignant astrocytomas (mean age = 13.78 $\pm$ 5.64) and ten age-, gender-, race- and handedness-matched healthy controls (mean age = 14.52 $\pm$ 5.96) were evaluated using quantitative sensory testing and magnetic resonance imaging, comprising diffusion tensor imaging, resting state and event-related functional MRI scans. Five of these patients had tumors localized to the posterior cerebellar hemispheres. The psychophysical measures assessed included heat and cold detection thresholds (HDT, CDT), heat and cold pain thresholds (HPT, CPT), and cold pain tolerance using a cold pressor task. **Results:** Patients with lesions in the posterior cerebellum (n = 5) were shown to have a significantly lower tolerance to the cold pressor test than controls (n = 10). No significant differences were detected for the threshold measures. This suggests increased pain sensitivity in these patients to suprathreshold noxious stimuli compared to controls. Patients with lesions that did not include the posterior cerebellar hemispheres (n = 7) did not show significant differences with controls in terms of cold pain tolerance or thresholds. **Conclusions:** The differences in cold pain tolerance between patients and controls are presumed to result from damage to the posterior cerebellar hemispheres, potentially interfering with the modulation of pain pathways. Analysis of the preliminary imaging data is underway and recruitment is ongoing. Support: NIH/R21CA185870(EM)

127 Poster Session (Board #D3), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Systematic evaluation of risk factors for acquired heart disease in sarcoma survivors.

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Background: Sarcoma survivors are at high risk for severe heart disease at a young age. The study objective is to evaluate risk factors for cardiac disease in sarcoma survivors receiving more than 300 mg/m2 of Doxorubicin. Left ventricular ejection fraction is a routinely used test but is not predictive. It is imperative to determine which modifiable cardiovascular risk factors increase cardiac risk. **Methods:** Our unique Sarcoma Survivorship Clinic was established to evaluate high risk sarcoma patients for the long-term and late effects of cancer and its treatment. Each patient regularly electronically completes NIH's PROMIS questionnaires developed for this clinic. Family medical history is reviewed. Chemotherapy doses are abstracted from original medical records. Data collected includes: blood pressure, lipid profile, high-sensitivity C-reactive protein (hs-CRP), basic metabolic panel, chemistries, renal and pulmonary function, echocardiography. We will compare standardized cardiac risk assessments with mediastinal calcification and epicardial fat on serial chest CT scans. All patients signed an informed consent. **Results:** The 24 patient cohort had a cumulative dose of $>$ 300 mg/m2 of Doxorubicin. No patient had chest radiation. All patients had normal left ejection fractions (median= 60%). Eight patients (33%) had an elevated hs-CRP ($>$3) and 10 patients (42%) had elevated blood pressure. Framingham risk may underestimate risk in this relatively young population and other metrics may be required. **Conclusions:** Our findings suggest high risk sarcoma survivors' follow-up management requires a comprehensive approach to establish the patient's overall cardiac risk profile. Symptoms may be discounted and/or attributed to other causes, leading to delayed and/or inappropriate treatment of cardiovascular disease. We must improve our knowledge of the long-term cardiac risk associated with surviving a bone or soft tissue sarcoma to effectively counsel survivors and offer effective intervention strategies to prevent or minimize the impact of adverse late effects.

128 Poster Session (Board #D4), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Effect of chemotherapy-induced peripheral neuropathy on postural control in cancer survivors.

Haley K. Herman, Scott M. Monfort, Xueliang Jeff Pan, Ajit M.W. Chaudhari, Maryam B. Lustberg; The Ohio State University College of Medicine, Columbus, OH; Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH; Center for Biostatistics, The Ohio State University Comprehensive Cancer Center, The Arthur G. James Cancer Hospital and Richard J. Solove Research Institute, Columbus, OH; The Ohio State University Medical Center James Comprehensive Cancer Center, Columbus, OH

Background: Advances in screening and treatment have significantly improved the survival of cancer patients. However, chemotherapy-induced peripheral neuropathy (CIPN) is a common dose-limiting toxicity of curative treatment; many patients either cannot complete planned course of treatment or have long standing effects on quality of life. CIPN has been shown to lead to pain, falls, and difficulty walking. Balance changes have been reported with other neuropathies but have not been investigated in depth in cancer patients. This study aims to improve our understanding of changes in postural control associated with CIPN. We hypothesize that patients who report more significant CIPN symptoms will perform more poorly on balance testing. **Methods:** Eleven cancer patients were enrolled (9 female/ 2 male; 9 breast cancer/ 2 GI cancer; 1.67 $\pm$ 0.05 m; 85.8 $\pm$ 19.3 kg; 56.5 $\pm$ 14.5 yrs). These patients included cases (n = 7), tested within 6 weeks of finishing taxane or oxaliplatin chemotherapy, and controls (n = 4) who did not receive chemotherapy. Patients' sensory symptoms were assessed by EORTC QLQ-CIPN20. Standing on a balance plate, patients were instructed to close their eyes and remain still while their center of pressure (CoP) was recorded. Medial-lateral root mean squared CoP excursion (RMS) was calculated to provide a measure of postural stability, with higher values indicating poorer control of CoP position and being predictive of falls. **Results:** Groups were not statistically different in terms of height, mass, or age ($p > 0.1$). Cases had an average of 3.8 mm (95% CI: 1.7 mm, 6.0 mm) increase in RMS over controls ($p = 0.004$). Furthermore, cases scored an average of 37.6 points (95% CI: 19.5 points, 55.7 points) lower on a normalized CIPN 20 scale, suggesting worse sensory symptoms ($p = 0.002$). **Conclusions:** Patients with CIPN symptoms displayed significantly poorer control of their CoP. This supports the hypothesis that CIPN symptoms associate with poorer balance. The balance deficits reported here are consistent with increased risk of falls and negative post-treatment sequelae. This further suggests a need for closer monitoring and even targeted balance-focused rehabilitation following chemotherapy.

129 Poster Session (Board #D5), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Long-term side effects of high-risk neuroblastoma survivors in a referral center in central Illinois.

Beth Speckhart, Reuben Antony, Karen S. Fernandez; Children's Hospital of Illinois, Peoria, IL; UC Davis Comprehensive Cancer Center, Los Angeles, CA; Valley Children's Hospital, Madera, CA

Background: Neuroblastoma (NBL) is the most common extra-cranial solid organ malignancy in children. Although low and intermediate-risk patients have a survival of close to 90%, the same cannot be said for patients with high risk (HR) disease. In the last decade multi-modality treatment of HR NBL patients has been intensified to include chemotherapy, surgery, radiation, bone marrow transplantation and immunotherapy and has resulted in improved survival (Yu, 2009). Data regarding the medium to long-term side effects of this intensive multi-modality therapy is now being collected as the population of HR neuroblastoma survivors continues to grow. **Methods:** We retrospectively reviewed the clinical data of survivors of HR NBL treated at the Children's Hospital of Illinois diagnosed since 2009 and evaluated the long-term side effects of survivors through 2015. **Results:** We found 14 NBL patients of whom 10 had HR disease. Four patients died of progressive disease. Therapy-related, long-term side effects occurred in 6 patients: hearing loss (n = 6), adrenal insufficiency (n = 2), focal nodular hyperplasia of the liver (n = 2), linear growth retardation (n = 1). No patient in our cohort developed thyroid or cardiac problems and no patient was diagnosed with a second malignancy in the 5 years of observation. **Conclusions:** While the improved outcomes seen in HR NBL patients is encouraging, we found in our small cohort hat survivors of multimodality therapy for high-risk neuroblastoma experience significant long-term effects of treatment which impact their quality of life as well as growth and development. As the number of NBL survivors increases our understanding of the long-term therapy related side effects will continue to improve. Larger longitudinal studies are needed to monitor for other possible side effects that may manifest overtime such as cardiomyopathy, disturbances in sexual development, fertility, intellectual function, learning problems and therapy related second malignancies later in life.

130 General Session, Fri, 8:45 AM-10:15 AM, and Poster Session (Board #A2), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Protection from late-occurring anthracycline-related cardiotoxicity among childhood cancer survivors with a RARG coding variant.

Emily S. Tonorezos, Vijai Joseph, Dana Barnea, Danylo Villano, Jaya Satagopan, Danielle Novetsky Friedman, Charles A. Sklar, Kevin C. Oeffinger, Kenneth Offit; Memorial Sloan-Kettering Cancer Center, New York, NY; Memor Sloan-Kettering Cancer Center, New York, NY

Background: Susceptibility to late-occurring anthracycline-related left ventricular (LV) dysfunction is poorly understood. While higher dose of anthracyclines, radiation therapy, and younger age at exposure are relevant, heterogeneity persists. A recent report suggests that survivors with the rs2229774 retinoic acid receptor γ (RARG) variant represent a high-risk group. We sought to replicate this finding in our population of adult survivors of childhood and young adult cancer. **Methods:** We collected germline DNA among 455 survivors of childhood and young adult cancer seen in the Memorial Sloan Kettering Long-Term Follow-Up Programs. Participants were 48% male and more that 90% were white, non-Hispanic. Median age at diagnosis was 15 years and median time from diagnosis was 17.8 years. The most common diagnosis was Hodgkin Lymphoma (31%) followed by sarcoma (29%) and leukemia (10%). Initial genetic testing was performed using a low density SNP array (Illumina Exomearray), followed by full gene analysis by LD block testing. LV dysfunction was defined as ventricular ejection fraction less than 55%. Bonferroni-adjusted p values were used to determine significance in a multivariate model. **Results:** Of 455 participants, 120 did not have a history of anthracycline exposure, 1 was excluded for lack of echo data, and 17 were excluded due to poor genotyping quality control. Out of the remaining 317 participants, 41 had LV dysfunction. On initial testing, survivors with the rs2229774 variant were at lower risk for LV dysfunction (OR 0.14; 95% CI 0.02-0.99; p = 0.02), compared to survivors with other variants. Of note, the allele frequency in those without LV dysfunction was similar to reported studies and public data. In full gene analysis, those with a missense variant in ESPL1 (separase), within LD block but upstream of RARG, were at significantly increased risk of LV dysfunction (OR 5.61; 95% CI 1.48-21.3; p=0.005) compared to those without the ESPL1 variant. **Conclusions:** Based on these findings, rs2229774 RARG variant does not appear to confer genetic susceptibility to left ventricular dysfunction. ESPL1, a nearby candidate, may be the risk-conferring variant. Replication efforts are ongoing.

131 Poster Session (Board #D8), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Cardiovascular late effects among endometrial cancer survivors in a cohort study.

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Background: Endometrial cancer is the second most common cancer among female cancer survivors in the US, with an estimated 757,000 endometrial cancer survivors in 2016. Cardiovascular disease is the leading cause of death among endometrial cancer survivors. Cardiovascular disease risk may be increased among endometrial cancer survivors due to shared risk factors such as obesity or because of cancer treatment. Because of the high overall survival rate and the large number of endometrial cancer survivors, studies that examine late effects among endometrial cancer survivors are critical. **Methods:** Cohorts of 3,337 endometrial cancer survivors diagnosed between 1997 and 2012, and 19,420 age-matched cancer-free women were identified using the Utah Population Database. All ICD-9 diagnosis codes were collected from the state's two largest healthcare systems and statewide ambulatory surgery and inpatient visits. Diagnoses were collapsed into cardiovascular system disorders according to the Healthcare Cost and Utilization Project's Clinical Classification Software. Cox regression models were used to estimate hazard ratios (HR) at 1-5 years and 5-10 years after cancer diagnosis. Models were adjusted for race/ethnicity, baseline BMI, and baseline Charlson Comorbidity Index. **Results:** Approximately 89.4% of cancer cases were diagnosed with stage I or stage II disease. At 1-5 years after diagnosis, the highest risks among endometrial cancer survivors were observed for phlebitis and thrombophlebitis (HR: 3.36, 99% CI: 1.96-5.77), lymphatic diseases (HR: 1.89, 99% CI: 1.64-2.19), pulmonary heart disease (HR: 1.82, 99% CI: 1.36-2.43), hypotension (HR: 1.64, 99% CI: 1.18-2.29), and atrial fibrillation (HR: 1.61, 99% CI: 1.25-2.06). At 5-10 years, elevated risk persisted for these and 17 out of 66 additional outcomes among the endometrial cancer survivors. **Conclusions:** Endometrial cancer survivors in this population are at higher risk for various long term cardiovascular outcomes compared to cancer-free women. This study presents sufficient evidence to suggest that increased monitoring is necessary for women diagnosed with endometrial cancer in the first several years after diagnosis, and out to ten years as well.

132 Poster Session (Board #D9), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Sinoatrial node dysfunction after stereotactic ablative radiation therapy in the chest.

Yushen Qian, Sara Aileen Dudley, Kiran Kumar, Aadel Chaudhuri, Alexander Chin, Jeremy Phillip Harris, Nicolas Prionas, Chika Nwachukwu, Hilary Bagshaw, Erqi L. Pollom, Ben Durkee, David Benjamin Shultz, Michael F. Gensheimer, Maximilian Diehn, Billy W. Loo; Department of Radiation Oncology, Stanford University School of Medicine, Stanford, CA; University of Chicago Pritzker School of Medicine, Chicago, IL; Stanford University, Stanford, CA; Stanford Unversity, Stanford, CA; Stanford Radiation Oncology, Stanford, CA; Mayo Medcl School, Rochester, MN; Stanford Hospital, Palo Alto, CA; Stanford Hospital, Stanford, CA; Stanford Univ, Stanford, CA; Univ of Washington Medcl Ctr, Seattle, WA; Stanford University School of Medicine, Stanford, CA

Background: Sinoatrial node (SAN) injury following stereotactic ablative radiation therapy (SABR) in the chest has not been reported in the literature. We report SAN dysfunction as a potential toxicity of SABR in the chest. **Methods:** We examined the clinical courses and SABR plans of 47 patients treated for T1 or T2 non-small cell lung cancer of the right upper lobe, middle lobe, lower lobe, or hilum. After developing a contouring atlas for the SAN, based upon the junction between the superior vena cava and the right atrium, dose to the SAN was retrospectively determined for each patient. We identified 13 patients whose treatment imparted significant dose to the SAN, as defined by the SAN encompassed within the 10% prescription isodose (IDL) line. Biologically effective doses (BED), acute and chronic, were correlated with SAN toxicity. **Results:** Patients underwent SABR to the right lung to a dose of 40-50 Gy in 4 or 5 fractions, with mean acute BED (alpha/beta ratio = 10) of 100.2 Gy and late BED (alpha/beta ratio = 3) of 222.7 Gy. Mean volume of the GTV and PTV were 26.1 and 75.1 mL, respectively. Mean follow-up was 25.5 months. The mean volume of the SAN was 0.37 mL. Average max dose and mean dose to the SAN were 24.7 and 70.7 Gy, respectively. Of the 13 patients whose treatment imparted significant dose to the SAN, one patient without prior arrhythmia developed symptomatic SAN dysfunction requiring pacemaker placement at 6 months after completion of treatment. The sinoatrial node of the patient received a maximum dose of 44.8 Gy in 4 fractions, correlated with an acute BED (alpha/beta ratio = 10) of 90 Gy and late BED (alpha/beta ratio = 3) of 194.1 Gy, and a mean dose of 35.5 Gy in 4 fractions, correlated with an acute BED (alpha/beta ratio = 10) of 71 Gy and late BED (alpha/beta ratio = 3) of 153.8 Gy. This was the third highest max dose and second highest mean dose to SAN in the cohort. **Conclusions:** We report sinoatrial node dysfunction as a potential toxicity of SABR in the chest for non-small cell lung cancer. Caution is advised when treatment imparts significant dose to the sinoatrial node.

133 Poster Session (Board #D10), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Developing a cardiac monitoring plan in at-risk cancer survivors.

Aubri Veneruso, Megan Rae Slocum, Sheetal Mehta Kircher, Nausheen Akhter, Gillian Murtagh, Jonathan Blake Strauss; New York Presbyterian/Lawrence Hospital, Bronxville, NY; Northwestern Medicine, Chicago, IL; Robert H. Lurie Comprehensive Cancer Center of Northwestern University, Chicago, IL; Northewestern Medicine, Chicago, IL; Northwestern Memorial Hospital, Chicago, IL

Background: Improvements in early detection, screening, and treatment of cancer translate into survivors living longer, highlighting the need for guidelines to address the late and long-term effects of cancer treatment. A particularly concerning effect is Cancer Therapeutics-Related Cardiac Dysfunction (CTRCD). Cancer treatments can result in a range of cardiovascular toxicity including left ventricular dysfunction, heart failure and radiation-induced heart disease (RIHD). Various consensus statements related to cardiovascular care for adult cancer survivors exist; however there are no globally accepted follow-up guidelines. Our purpose is to create a protocol to stratify a survivor's cardiac risk and provide a basis for follow-up recommendations. **Methods:** We first evaluated existing resources within our institution and identified key stakeholders who were recruited to form a multidisciplinary workgroup (2 survivorship advanced practice providers, an oncologist, a radiation oncologist, and 2 cardio-oncologists). We then reviewed current research and literature on cardiotoxic cancer therapies and identified two consensus statements from the American Society of Echocardiography and the European Association of Cardiovascular Imaging which helped inform our protocol. Finally, we created a cardiac assessment that could be applied in the pre-treatment phase and extend into the post-treatment phase. **Results:** Two assessment tools were developed. The first is an algorithm initiated in the pre-treatment setting by an oncologist when a Type I or Type II cardiotoxic agent is planned. The second is a risk assessment tool that is initiated in the post-treatment setting to stratify cardiac risk and provide follow-up recommendations. **Conclusions:** Development of standardized guidelines for assessment and treatment of late and long-term effects of treatment is critical. This protocol has been developed to account for the many factors that contribute to overall cardiac risk after various anti-cancer therapies. Further data is needed to evaluate long-term cardiac and survival outcomes based on this protocol.

134 Poster Session (Board #D11), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Development of a senior oncology clinic for geriatric cancer patients.

Sarah Sangermano, Anthony James Caprio, Shannon Cormier, Markecia Cooper; Carolinas Rehabilitation/Levine Cancer Institute, Charlotte, NC; Carolinas Heathcare System, Charlotte, NC; Levine Cancer Institute, Charlotte, NC

Background: By 2030, more than 70% of all new cancer diagnoses will affect patients older than 65. The National Comprehensive Cancer Network recommends performing a Comprehensive Geriatric Assessment for elderly patients with cancer. Levine Cancer Institute (LCI) has developed a Senior Oncology Clinic to address the unique needs of geriatric oncology patients. **Methods:** Prior to the clinic visit, the patient completes a standardized questionnaire. During the visit, the patient is evaluated by a pharmacist, physical or occupational therapist, geriatrician and oncologist. The pharmacist reviews the vaccination history, prescription and non-prescription medications, and supplements. The therapist assesses balance, strength, and fatigue. The geriatrician assesses cognition, medical comorbidities, and geriatric syndromes. The oncologist screens for depression, and reviews oncologic treatment options. Final recommendations are sent by the team to the referring provider and primary care physician. **Results:** The Senior Oncology Clinic at LCI saw 31 survivors in 2015, and has seen 24 survivors in 2016. Patients receive referrals to a variety of services such as outpatient therapy, nutrition services, and social work. Recommendations are shared with referring providers to address common conditions in older adults as well as cancer-specific treatment recommendations. Due to the success of the program, the clinic has recently been expanded to a second site, LCI-Albemarle. This site utilizes a telemedicine model to provide the clinic at a rural location. Challenges to the program's effectiveness include provider scheduling, clinic space, data management, and administrative management. A Program Coordinator was recently hired to oversee these aspects of the clinic. Patient challenges include transportation, medical complexity of the population, and missed appointments. **Conclusions:** A Senior Oncology Clinic is an effective way to perform a multidisciplinary assessment to guide cancer treatment in the geriatric population. These assessments can improve treatment decisions, detect geriatric syndromes, and recommend interventions to help improve the quality of life.

135 Poster Session (Board #D12), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Exercise physiology in cancer care.

Sarah Sangermano, Terrence Pugh, Susan I Yaguda; Carolinas Rehabilitation/Levine Cancer Institute, Charlotte, NC; Levine Cancer Institute, Charlotte, NC

Background: Cancer survivors can benefit from exercise at many points in the cancer care continuum. The Exercise Physiology Internship was developed by the University of North Carolina at Charlotte and Levine Cancer Institute (LCI) to address the exercise needs of patients with cancer. Although the interns had a background in physical fitness, they required training regarding the medical complexity of this population and how this affects their ability to exercise. To bridge this gap, LCI approached Carolinas Rehabilitation to assist in providing safe and effective exercises to cancer survivors. **Methods:** The intern program was modified to include cancer rehabilitation. Education was performed by the rehabilitation team, with emphasis on treatment-related side effects, contraindications for exercise, cancer-related fatigue, and safety considerations. Interns assisted therapists with impairment based rehabilitation to learn how physical fitness integrates with rehabilitation. Prior to 1:1 intern consults, the therapist and intern reviewed the most recent oncology notes, and the intern consulted the therapist regarding safety considerations or exercise modifications. The intern also worked with a clinical nurse specialist at LCI who provided information regarding disease processes, treatment side effects and potential residual implications of treatment and disease. **Results:** Following modification of the program, interns reported feeling more prepared and confident when providing 1:1 consults to survivors. Referrals from providers within LCI grew, with 5 consults in Spring 2016, 13 consults in Summer 2016, and at least 19 consults to be completed this semester. Interns also became more integrated into the cancer center, providing consults during infusion and in physician clinics. **Conclusions:** Exercise physiology interns are an asset to the cancer survivorship and rehabilitation teams. By collaborating with the rehabilitation team, interns can provide safe and effective exercise prescriptions to cancer survivors. Interns can also provide rehabilitation referrals for patients who require impairment-based therapy. With continued program development, opportunities for intervention may present throughout the continuum of care.

136 Poster Session (Board #E1), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Cancer rehabilitation outpatient consultation: Patient characteristics, symptom burden and quality of life.

Carolina Gutierrez; UTHealth Science Center at Houston, Houston, TX

Background: Cancer rehabilitation focuses on the functional and psychological needs of cancer survivors. Patient-reported outcomes have been increasingly used as part of the standard of care during clinical encounters. We review characteristics that patients present to their outpatient cancer rehabilitation consultation at a large academic hospital. **Methods:** Patients presenting for their first outpatient cancer rehabilitation consultation completed a paper copy of the PROMIS-10 (Patient Reported Outcomes Measurement Information System) instrument immediately prior to meeting with the physician. It includes 10 items evaluating quality of life, social life, functional activity, mental health, pain, and fatigue. A caregiver or health care provider could provide assistance in completing the form. Patient-reported outcomes were analyzed as part of an IRB-approved protocol. Data were analyzed using descriptive statistics and the "PROMIS Scoring Global Short Form v1.0 and v1.1" (12/16/2010). T-Score distributions are standardized such that a 50 represents the average (mean) for the US general population, and the standard deviation around that mean is 10 points. **Results:** Twenty-seven patients presented for consultation (63% women, 37% men) from 3/2014 through 6/2015 with an average age of 54.5 (44-76 range). Disease types included 52% brain tumors, 33% breast, 5% prostate, and 1% of each of the following: melanoma, myelofibrosis, and multiple myeloma. For our population, the physical health subscale score was 11.51 with a T-Score 38.6, standard error 4.1, a T-Score more than one standard deviation below the population mean. The mental health subscale was 11.92 with a T-Score 43.5, standard error 3.6, representing less than one standard deviation below the mean. The global health score was 28.55, which fell 2 standard deviations below the population mean. **Conclusions:** Compared to the US population mean, cancer survivors presenting for a cancer rehabilitation consultation had lower physical health than mental health. Our findings suggest the importance of screening cancer survivors for physical impairments and providing interventions focused on functional recovery.

137 Poster Session (Board #E2), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Late effects among head and neck cancer survivors in Utah cancer survivorship study.

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Background: Sites of head and neck are associated with chewing, swallowing and speaking. As for treatment of head and neck cancer (HNC), we have to consider organ preservation as well as clinical outcomes. Although non-surgical treatments have been preferred in recent years, complications after treatment have been a concern. The aim of this study was to evaluate the late effects in a cohort of HNC survivors in Utah compared to a matched cohort of cancer free individuals. **Methods:** Up to 5 cancer free individuals were matched to each HNC survivor on birth year, sex, birth state, and follow up time. Electronic medical records and statewide ambulatory and inpatient surgery data were used to identify late effects over two time periods: 1-5 and 5-10 years after cancer diagnosis. Cox proportional hazards models were used to estimate the risks of late effects. We adjusted for matching factors, race and number of hospital visit. **Results:** In this study, 2,432 HNC survivors and 12,149 matched controls were enrolled. More than 80% cases had loco-regional disease and a histological type of squamous cell carcinoma. Hazard ratio (HR) for second primary HNC was notably increased among HNC survivors for both 1-5 years (HR: 1498.46; 95% confidence interval (CI), 158.58-14159.69) and 5-10 years (HR: 1509.62; 95% CI, 147.94-15404.15) post cancer diagnosis. And, HRs for respiratory disease, including respiratory system, lung cancer and pneumoniae, were also increased among HNC survivors for both 1-5 years and 5-10 years post cancer diagnosis. As for hearing loss, HNC survivors had a increased HR for 1-5 years post cancer diagnosis (HR: 5.90; 95% CI, 2.67-13.01) and this association was consistent for 5-10 years post cancer diagnosis (HR: 5.01; 95% CI, 2.06-12.18). **Conclusions:** In this study, we found HNC survivors have notable associations with second primary HNC, smoking related respiratory disease, and hearing loss which might be associated with chemotherapy when compared to cancer free subjects.

138 Poster Session (Board #E3), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Prevalence of vitamin D insufficiency and falls in older cancer patients.

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Background: More than 60% of cancer patients are older adults. Such patients undergo age and cancer therapy related changes. Older adults also have geriatric risk factors for falls such as frailty, cognitive impairment (mild cognitive impairment [MCI] and dementia), and malnutrition-including vitamin D deficiency. Objective: To assess the prevalence of vitamin D insuffiency and risk factors for falls in older cancer patients. Retrospective cohort study. **Methods:** Patients underwent prospective data collection and retrospective analysis. Patients underwent a comprehensive geriatric assessments, including cognitive, functional, nutritional, physical, and comorbidity assessment. Vitamin D was assayed. Bone densitometry was performed. Analysis: Descriptive statistics, and multivariable logistic regression. **Results:** We enrolled 318 patients and 305 patients with complete data were included for final analysis. Patients were undergoing active cancer care. Patients had gastrointestinal, urologic, breast, lung and gynecologic cancers. The mean age was 78.4 $\pm$ 6.9 years. Low bone mass and osteoporosis were very common (80%) in this cohort. Twenty-six percent had one or more falls in the preceding six months. Dementia and mild cognitive impairment were seen in 33% and 37% of patients, and 53% presented frailty. In 256 patients, 48.8% (n = 125) had Vitamin D insufficiency ($<$ 30 ng/ml). In univariate analysis, co-morbidity (p = 0.05), frailty (p $<$ 0.01), and cognitive impairment (0 = 0.02) were significantly associated with falls, while in multivariate analysis, frailty remained significantly associated with falls (OR = 3.51, 95%CI = 1.88, 6.52). **Conclusions:** Older cancer patients have a high prevalence of falls, osteoporosis and vitamin D insufficiency, raising the possibility of injurious falls (fractures). Frailty was found to be the most prominent risk factor for falls in this cohort. Greater awareness and targeted interventions such as vitamin D replacement, physical therapy, nutrition interventions, and therapy for low bone mass/osteoporosis will be effective preventing injurious falls.

139 Poster Session (Board #E4), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Ongoing needs in 625 women living beyond early breast cancer.

Marta Capelan, Nicolo Matteo Luca Battisti, Anne McLoughlin, Nikki Snuggs, Vivienne Maidens, Patrycia Slyk, Clare Peckitt, Susannah Jane Stanway, Natalie Doyle, Theresa Wiseman, Alistair E. Ring; The Royal Marsden NHS Foundation Trust, Sutton, United Kingdom

Background: In some healthcare systems people with a diagnosis of early invasive breast cancer (BC) are discharged from hospital-based follow-up after completion of initial treatment. However there are limited data on the prevalence of specific ongoing physical and psychological needs in such people. **Methods:** We conducted a retrospective study involving survivors of BC who entered into the Open Access Follow-Up (OAFU) program at The Royal Marsden Hospital (UK) from January to December 2015. The ongoing needs were assessed using the Holistic Needs Assessment (HNA) (a checklist questionnaire regarding physical, emotional, family, practical and spiritual needs) or extracted directly from the Electronic Patient Record (EPR). **Results:** Six hundred and twenty-five invasive survivors of BC were seen for the first time in the OAFU program after completing their initial treatment. Ongoing needs were identified in 214 (34%) from their returned HNA and in 411 (66%) direct from EPR. Demographic and treatment characteristics were not significantly different between the two groups. The median age was 59 year-old. Median time from diagnosis to assessment was 8.9 months. Ongoing needs were categorized in 3 different groups: 0, 1-4 and $\geq$ 5 needs. 513 (82%) survivors of BC had 0-4 ongoing needs and 18% had $\geq$ 5 needs. Physical and emotional needs were the most frequently reported (55% and 24% respectively). Rates of ongoing needs were more frequently identified using formal HNA assessment than extraction from EPR: overall physical needs: 79% vs. 43% ($p < 0.001$) and emotional needs 50% vs. 10% ($p < 0.001$). The most frequent specific ongoing needs were: hot flushes (23%), fatigue (21%), pain (19%), worry, fear and anxiety (16%), sleep problems (14%), tingling in hands/feet (11%), dry, itchy or sore skin (11%) sadness and depression (10%), changes in weight (10%) and memory or concentration problems (10%). **Conclusions:** Fifty-five percent survivors of BC reported at least one physical need and 24% an emotional need. Consistently higher levels of ongoing needs were identified using the HNA formalized checklist. The HNA enables people self-reflection and promotes discussion with the health professional in order to identify ongoing needs and provide on-going supportive care.

140 Poster Session (Board #E5), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Patient screening tool as input to the survivorship summary of care plan appointment.

Patricia A. Robinson, Julia Rachel Trosman, Pam Khosla, Claudia B. Perez, Shakuntala Shrestha, Sofia F. Garcia, Carol A. Rosenberg, Stephanie Boecher, Javier Macias, Rosa Berardi, Frank J. Penedo, Sheetal Mehta Kircher, Megan Slocum, Christine B. Weldon; Loyola University Medical Center, Chicago, IL; Center for Business Models in Healthcare, Glencoe, IL; The Mount Sinai Comprehensive Cancer Center, Chicago, IL; Loyola University Medical Center, Maywood, IL; Mount Sinai Hospital, Chicago, IL; Northwestern University Feinberg School of Medicine, Chicago, IL; NorthShore University HealthSystem, Highland Park, IL; Advocate Sherman Hospital, Elgin, IL; The Leukemia & Lymphoma Society, Chicago, IL; The Coleman Foundation, Chicago, IL; Robert H. Lurie Comprehensive Cancer Center of Northwestern University, Chicago, IL

Background: A review of the literature failed to identify a screening tool specific to the unique needs of cancer survivors. The Coleman Supportive Oncology Collaborative (CSOC) developed a tool to evaluate psychosocial, physical and practical concerns, and emotional distress for concurrent use during the cancer survivorship visit. Based on pilot results of the tool, minor modifications were made and tested. **Methods:** The CSOC (v.3) survivorship tool was used in patients (n = 49) who had completed their adjuvant therapy at one of two safety net hospitals in Chicago, IL. The CSOC v.3 screening tool items (n = 44) include: PHQ4, fear of another cancer or recurrence, financial, social and religious concerns, nutritional concerns, physical concerns, lifestyle risk factors, and treatment/care concerns. **Results:** The most common patient concerns included: fear of another cancer 53% (26/49), tingling in my hands/feet 53% (26/49), concerns about diet 51% (25/49), pain 51% (25/49), sleep 51% (25/49), dry skin 47% (23/49); endorsement of these concerns were not significantly associated. Of the 44 items, 16 were reported by at least 30% of patients, and 3 items were reported by less than 10% of patients. There was an average of 15 items/concerns noted by patients with a maximum of 27 items and a minimum of 5 items. Clinicians (n = 7) reported the use of the screening tool results aided the survivorship appointment discussion, directing the focus to reported patient's concerns. **Conclusions:** Survivors continue to experience multiple concerns and distress, thus they may benefit from a comprehensive tool that is tailored to capture their unique survivorship needs. Administration of the tool at the beginning of the survivorship appointment provided the framework for the patient's appointment narrative. An additional study is planned to compare use of the tool versus current practice at a large academic center.

141 Poster Session (Board #E6), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Risk assessment for lymphedema in breast cancer survivors.

Martha Bonney Lyman, Marita Ferro Truax; Bryn Mawr Hospital, Bryn Mawr, PA

Background: Breast cancer patients are receiving survivorship care plans that describe potential late effects of treatment. The potential for lymphedema ranges from 5% to 53% and is a serious long term problem. In the past, water displacement was the "gold standard" for measuring lymphedema; this involves placing the arm into a large graduated cylinder filled with water to measure displacement compared with the opposite arm. This method is inconvenient for both patient and practitioner and can cause significant anxiety. **Methods:** In 2010 we began assessing women undergoing unilateral axillary surgery for preclinical and clinical lymphedema using a method that measures bioimpedance, using the L-Dex U400 analyzer. L-Dex uses a mild electrical current to assess fluid levels in the extracellular compartment, earlier than a patient might feel a change in size or weight. One hundred thirty -seven patients were assessed using both volume displacement and L-Dex preoperatively, as a baseline and repeating at 3 to 6 month intervals for three years. **Results:** Of the patients followed, 83% had sentinel node excision only and 17% had completion axillary dissection. Our study identified an overall lymphedema rate of 7%. Of the patients with full axillary dissection the lymphedema rate was 9% and those with sentinel node excision were found to have no clinical lymphedema (0%). In every case where the patients developed lymphedema the L-Dex bioimpedance measurement identified a change 100% of the time before fluid volume displacement became out of range. **Conclusions:** Based on our results and the ease of use of the bioimpedance analysis, we have added lymphedema assessment using the L-Dex analyzer to our survivorship process. Patients with invasive cancer undergoing unilateral axillary node surgery are assessed at the same time they receive their sentinel node tracer injection. If there is a sentinel node excision only they are checked once or with any symptom. Patients who have a complete axillary dissection are to be followed for three years. This modest intervention should reduce anxiety surrounding one of the most serious late effects of breast cancer.

142 Poster Session (Board #E7), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Risk-assessed exercise and diet in prostate cancer survivors: Consequences of cancer treatment on cardiopulmonary fitness and cardiovascular risk.

Sara Faithfull, Jonathan Aning, Karen Poole, John Saxton, Bruce Griffin, Ralph Manders, Agnieszka Lemanska, Sophie Gasson, Stephen Langley, Joe Wainwright, John Marshall, John Heyworth, Kerri M. Winters-Stone; University of Surrey, Guildford, United Kingdom; Freeman Hospital, Newcastle upon Tyne, United Kingdom; Northumbria University, Newcastle upon Tyne, United Kingdom; Royal Surrey County Hospital NHS Foundation Trust, Guildford, United Kingdom; Prostate Cancer UK, London, United Kingdom; Oregon Health & Science University, Portland, OR

Background: Evidence from large observational studies suggests that men with prostate cancer have a higher risk of cardiovascular events due to accelerated atherosclerosis linked to androgen deprivation therapy (ADT). Adults > 70 years of age have poorer outcomes from cancer treatment in the UK. However, it is not yet clear what might be contributing to poorer outcomes among older men with prostate cancer. Thus the purpose of this study was to assess the health and fitness of a cohort of prostate cancer survivors, from 2 regions in the UK, and identify factors that may influence cardiovascular health. **Methods:** Baseline assessments from 83 men with prostate cancer with no evidence of distant disease particpated. Men undertook a Cardiopulmonary Exercise Test (CPET), sit to stand, step test, grip strength, hip to waist ratio, self-reported exercise questionnaire (Godin), and co-morbidity index. Men were 1-3 years post diagnosis. Age-group comparisons were made using analysis of covariance against cardiac risk profile (QRisk2). **Results:** Men who were older (> 75) were more likely to have poorer cardiopulmonary fitness, as measured by VO_2 Peak , and worse grip strength than age standardised values. Increased obesity across all groups (raised BMI) and higher B/P all contributed to a raised QRisk2 (mean: 36.9±6.1), which is higher than men of a similar age. Older men perceived themselves to be less physically active and were more likely to be on ADT. **Conclusions:** In our sample, men older than 75 had greater CVD risk, poorer physical function and lower strength. Improvements in diet and physical activity could improve physical function and reduce cardiovascular risk factors. Older men were more likely to be on ADT so to reduce long term co-morbidities other risk factors need to be addressed. More comprehensive functional health assessment at point of treatment could help clinicians optimise therapy to reduce long term comorbidities.

	< 65 (n = 22)	65-75 (n = 47)	> 75 (n = 14)	Significance
QRisk2	12±8.5	19.9±5.7	36.9±6.1	P < 0.001
CPET VO_{2Peak} (mL/kg/min)	24.9±7.8	20.3±5.1	15.8±3.8	P < 0.001
Grip strength	42.3 ± 8.4	39.5 ± 8.2	28.6± 5.2	P < 0.001
ADT	6 (27.2%)	15 (31.9%)	11 (78.5%)	P = 0.003

143 Poster Session (Board #E8), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Patient reported symptom severity in cancer survivors.

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Background: At Stanford Health Care, patient-reported symptom severity is routinely assessed during cancer survivorship visits. Aim: Our objective is to identify the proportion of moderate to severe symptoms reported during first visit by patient group (breast cancer, lymphoma, allogeneic BMT recipients). **Methods:** Our cohort were unique patients evaluated in a cancer survivorship clinic between 9/1/15 and 8/31/16. Cohort patient report of presence and severity of 23 symptoms using a six-point Likert scale on a paper-based written instrument were collected and analyzed (0 = absent, 1-2 = mild, 3-4 = moderate, 5 = severe). Symptoms include fatigue, pain, constipation, diarrhea, uncontrolled loss of urine, limb swelling, shortness of breath, oral problems, trouble swallowing, muscle weakness, unusual sweating, ability to exercise, numbness in limbs, depression, fear, changes in sleep, body image, skin/hair, appetite, weight, sexual health, cognition and/or balance. **Results:** 337 unique patients (median age 50, female 64%) were a median of 140 days and mean of 851 days after treatment completion. Overall, the symptoms that have the highest responses in the moderate to severe range (score 3-5) are fatigue (31%), sleep change (23%), memory change (17%), depression (14%) and fear (19%). Breast cancer survivors had similar symptoms overall, but lymphoma survivors reported a higher rate of moderate to severe fatigue (49%), sleep change (38%), memory change (33%) and fear (29%), and the alloBMT group reported a higher rate of moderate to severe fatigue (39%), depression (20%) and fear (25%). **Conclusions:** Standard use of patient-reported symptom severity assessment shows a high prevalence of moderate to severe physical and psychological symptoms among patients seen in a cancer survivorship clinic. These findings can help focus management on the most prevalent and severe symptoms based on cancer type and time from treatment.

144 Poster Session (Board #E9), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Utility of annual screening serum testosterone level in men on surveillance for clinical stage I testicular cancer.

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Background: Testicular cancer occurs in young men and is usually cured leaving survivors with many life years at risk from long term treatment effects. Risks increase with treatment intensity and include cardiovascular disease associated with the metabolic syndrome (Haugnes 2012, de Haas 2013). Testosterone deficiency (TD) is associated with metabolic syndrome & reduced QoL (Huddart 2005). Serum testosterone levels (STLs) are also influenced by underlying testicular dysgenesis & the effects of ageing (Skakkebaek 2001, Oldenburg 2016). We added annual screening STL to our surveillance protocols in 2013 & reviewed the value of this practice. **Methods:** Men followed in our Testicular Surveillance Clinic from 01 Jan 2006 to 31 Dec 2015 were identified electronically & data extracted retrospectively. Men eligible for this analysis had clinical stage I (CS I) testicular cancer treated with unilateral orchiectomy alone. Outcomes of interest were STLs, Endocrinology referral (Endo) & treatment with androgen replacement therapy (ART). TD was defined by 3 cutoffs of most recent screening STL: $<$ 8.6 nmol/L [age 20-49] (or $<$ 6.7 nmol/L [age $>$ 50]) (local laboratory), $<$ 10.1 nmol/L (Huddart 2005), or $<$ 12.1 nmol/L (EAA & EAU). **Results:** 77 eligible men were identified: median age 34 years (range, 15-65), seminoma/nonseminoma/mixed/other (45/27/4/1). By the 3 STL cutoffs, TD was present in 13 (16.9% [95%CI, 9.3-27.1%), 22 (28.6% [18.8-40.0%] & 37 (48.1% [36.5-59.7%]); respectively. Nine men (11.4%) were referred to Endo, 1 had morning STL pending & 1 was using OTC ART. Of 8 men assessed by Endo, 5 (6.5%) were prescribed ART. Six men had no screening STL done (3 nonadherent, 1 prostate cancer & 2 unknown). Two men were discharged from clinic with unequivocal low STL. **Conclusions:** Annual screening STL appears to be useful and may be necessary. 15 CS I men (19.5%) in our clinic had unequivocal TD &/or were referred to an Endo. An additional 20 men (26%) had STLs in a range associated with reduced QoL. Almost half had STLs considered suitable for ART in the presence of symptoms. Two men (2.6%) were discharged with low STLs unaddressed. Guidelines for the optimal assessment and management of men with positive screening for TD are needed.

145 Poster Session (Board #E10), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Metabolic syndrome in childhood cancer survivors.

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Background: Reavan in 1988 noted that several risk factors for cardiovascular diseases commonly cluster together, and he recognised them as a disease, named syndrome X, currently known as metabolic syndrome. Metabolic syndrome is a group of disorders related to insulin resistance, characterized clinically by central obesity, hyperglycemia, dyslipidemia and hypertension. There is a growing body of evidence indicating that pediatric cancer survivors are at a greater risk of developing metabolic syndrome. We studied the prevalence of metabolic syndrome in children with cancer who completed their treatment and on follow up. **Methods:** All relevant past medical data (of the disease, treatment and all events) were collected from the medical records. Tanner staging was perfomred, height was measured using a Harpenden stadiometer. Weight/WAIST circumference were measured. The body mass index (BMI) was calculated as weight (kg)/(height $(m)^2$). BMI $\geq 90^{th}$centile as per CDC chart was taken as abnormal. Blood pressure was measured on the right arm of the patient. Presence of family history of diabetes, cardiovascular diseases and hypercholesterolemia were taken. Fasting Blood sugar, insulin, HbA1C, lipid profile were done. We used IDF(International diabetes federation) criteria to assess the metabolic syndrome among cancer survivors. This study was approved by our university ethics comittee. **Results:** Seventy five children who fulfilled the inclusion criteria were included in this study. Out of which 48 were males and 27 were females. Among these, majority of children are treated for acute lymphoblastic leukemia. 8.25% of total population satisfied the criteria of metabolic syndrome. Age, gender, diagnosis, modality of treatment were not to be of statistical significance, however majority of children with metabolic syndrome are in adolescent group. **Conclusions:** With the better care committed to children with cancer even in developing country, the survival rates are greatly improving and so metabolic syndrome is becoming the major target for intervention in the follow up of cancer survivors. As metabolic syndrome cannot treated by a single drug therapy, it is necessary to have cancer survivors follow up screening.

146 Poster Session (Board #E11), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Immediate-term chemotherapy-related cognitive impairment (CRCI) following administration of intravenous (IV) chemotherapy.

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Background: The acute impact of chemotherapy on cognition is unknown. This study utilized performance on the psychomotor vigilance task (PVT) and trail-making test B (TMT) to assess CRCI immediately following chemotherapy administration. **Methods:** Patients aged 18-80 years receiving first-line IV chemotherapy for any stage of breast or colorectal cancer were eligible. Patients with brain metastases, neurologic disorders or allergic reactions to chemotherapy were excluded. Patient symptoms, peripheral neuropathy and Stanford Sleepiness Scale were assessed. A five-minute PVT and TMT were completed on a tablet computer pre-chemotherapy and immediately post-chemotherapy. Paired Wilcoxon Rank Sum tests were used to assess changes in median PVT reaction time, TMT completion time, TMT errors and PVT lapses. A priori, increases of 20 ms or over in median PVT reaction times (approximating reaction time changes with blood alcohol concentrations of 0.04 to 0.05 g%) were considered clinically relevant. **Results:** 144 patients (74 breast, 70 colorectal, median age 55.5 years) were tested. Post-chemotherapy, median PVT reaction time slowed by an average of 12.4 ms ($p = 0.01$). Post-chemotherapy median PVT times slowed by over 20 ms in 59 patients (40.9%). TMT completion post-chemotherapy was faster by an average of 6.1 seconds ($p < 0.001$). No differences were seen in TMT errors ($p = 0.417$) or PVT lapses ($p = 0.845$). Change in median PVT reaction time was not associated with age, gender, number of prior chemotherapy cycles, use of paclitaxel (which contains alcohol), peripheral neuropathy grade, or self-reported anxiety, fatigue or depression. **Conclusions:** Median PVT reaction time was significantly slower immediately after chemotherapy compared to a pre-chemotherapy baseline, and impairment correlating to effects of alcohol was seen in 41% of patients. This effect appears independent of age, self-reported symptoms or prior chemotherapy cycles. Further studies assessing the functional implications of immediate-term CRCI are warranted.

147 Poster Session (Board #E12), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Early post-therapy prescription drug usage among survivors of childhood cancers.

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Background: Childhood cancer survivors often develop treatment-associated morbidities. We hypothesized that emerging treatment-related medical morbidities would be reflected in patterns of prescription drug usage among survivors in the first three years after therapy completion. **Methods:** Using the Truven Health MarketScan Commercial Claims database, we identified survivors of childhood (0-21 years-old at diagnosis) leukemia, lymphoma, central nervous system (CNS), bone, or gonadal tumors who completed therapy during 2000 - 2011. Patients were identified using diagnosis codes and cancer-specific procedure codes for chemotherapy, surgery, or radiation therapy. Prescription fills during the first three years following therapy completion were examined and categorized by drug class. Median numbers of prescriptions per survivor were compared to age- and sex-matched children without cancer. Relative risks (RR) for any prescription and for prescriptions by drug class were calculated comparing survivors to children without cancer. **Results:** We identified 1,414 survivors and 14,140 children without cancer. The median number of unique drug class prescriptions among survivors ranged from 4 [gonadal] to 8 [CNS] in year 1 and from 2 [gonadal] to 6 [CNS] in year 3 compared to a median of 1 among children without cancer ($p < 0.001$ for all comparisons). Increased risks for fills of antibiotics (RR in year 1: 1.5 [CNS, gonadal], 1.7 [bone], and 1.8 [leukemia, lymphoma]) and opioids (RR in year 1: 2.4 [lymphoma], 2.7 [gonadal], 4.0 [CNS], and 4.8 [leukemia, bone]) persisted throughout the three years among all cancer groups. Survivors of leukemia, lymphoma, CNS, and bone tumors had 2-4 times the risk for antidepressant prescriptions and 4-10 times the risk for anxiolytics. Survivors of leukemia, lymphoma, and bone tumors had 8-10 times the risk for ACE inhibitor prescriptions by the third year off therapy. **Conclusions:** Compared to children without cancer, childhood cancer survivors have higher rates of prescription drug use across many drug classes indicative of their higher burden of medical morbidities. Careful attention should be given to emerging morbidities during the early off-therapy period.

148 Poster Session (Board #F1), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Heart rate variability (HRV) training for symptom control in cancer survivors.

Mark Allen O'Rourke, Sherry Stokes, Franco Regina, Kerri Susko, William Hendry, Annie Anderson, Jameson Sofge, Jay Ginsberg, James Burch; Center for Integrative Oncology and Survivorship, Greenville, SC; Clemson University Department of Public Health, Clemson, SC; Greenville Health System Center for Integrative Oncology and Survivorship, Greenville, SC; Greenville Health System Cancer Institute, Greenville, SC; University of South Carolina, Columbia, SC; Dorn VA Medical Center, Columbia, SC

Background: Late effects of cancer and its treatment include pain, fatigue, stress, and depression, all mediated by autonomic dysfunction. Heart Rate Variability (HRV) coherence is an established measure of optimal autonomic function. HRV coherence is achieved when the heart beat-to-beat intervals increase and decrease with respiration in a smooth rhythm. High coherence is associated with improved mood, cognition, executive function, and optimal pulmonary gas exchange. Cancer survivors have lower HRV than controls. Low HRV has been associated with early mortality, inflammation, and other adverse intermediary outcomes. HRV biofeedback (HRV-B) training improves HRV coherence, restores autonomic health, and reduces the above symptoms. HRV-B is non-pharmacologic, inexpensive, and self-maintained. This report describes a feasibility study of HRV-B in symptomatic cancer survivors. **Methods:** In a randomized, waitlist-controlled clinical trial, 179 were screened, 35 enrolled and 31 completed the protocol. Participants in the intervention arm received weekly HRV-B training up to six weeks. Outcome measures assessed at baseline (pre) and after week six (post) included HRV coherence plus the Brief Pain Inventory (BPI), Multi-Dimensional Fatigue Inventory (MFI), Perceived Stress Scale (PSS) and Beck Depression Inventory II (BDI-II). Data analyzed using linear-mixed models for repeated measures (SAS Proc Mixed). **Results: Conclusions:** Delivering HRV Biofeedback training to cancer survivors is feasible in a clinical setting. This study provides preliminary evidence that HRV-B training for cancer survivors improves HRV and reduces pain, fatigue, stress, and depression. HRV-B training has potential for symptom control in cancer survivors. Controlled, multisite studies are indicated.

	HRV-B Intervention		Waitlist Control			
	Pre	Post	Pre	Post	P value	Intervention Trend
HRV coherence	.379	.847	.385	.348	.036	Improved HRV
BPI severity	2.42	1.97	2.81	2.73	.184	Improved pain
BPI interference	2.05	1.44	3.59	3.37	.015	
MFI	51.8	43.4	62.5	58.5	.010	Improved fatigue
PSS	17.0	12.3	18.8	17.8	.012	Improved stress
BDI-II	12.9	5.8	16.1	14.0	.008	Improved depression

149 Poster Session (Board #F2), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Does menopausal status influence the symptom experience of women prior to breast cancer surgery?

Melissa Mazor, Steven M. Paul, Christine Miaskowski; UCSF, San Francisco, CA; Department of Physiological Nursing, University of California, San Francisco, San Francisco, CA

Background: Breast cancer treatments can change women's hormonal milieu and alter their symptom experience. Little is known about associations between menopausal status and menopausal symptoms in women with breast cancer prior to treatment with surgery, chemotherapy, and/or hormonal therapy. The purpose of this study was to evaluate for differences in menopausal symptom experience between pre- and post-menopausal women prior to breast cancer surgery. **Methods:** A total of 312 women with breast cancer completed the Menopausal Symptoms Scale, a self-report measure that evaluates the occurrence, severity, and distress of 46 common symptoms associated with menopause. **Results:** Of the 312 patients enrolled, 37.4% (n=116) were premenopausal and 62.6% (n=196) were postmenopausal. No differences were found in the total number of symptoms reported between premenopausal ($\bar{x}$ = 13.3$\pm$7.8) and postmenopausal ($\bar{x}$ = 12.0$\pm$8.6; t = 1.35, p=.177) patients. Premenopausal patients reported higher occurrence rates for tearful/crying spells, painful/tender breasts, anxiety, lost interest in things, anger, tension, lost sexual interest, fatigue or tiredness, impatience, headache, and nervousness ($p<.05$ for all). Premenopausal patients reported lower occurrence rates for joint pain/stiffness (p=.011), difficulty falling asleep, vaginal dryness, daytime sweats, and hot flashes ($p<.01$ for all). A significant interaction was found between age and menopausal status. In the premenopausal group, as age increased, these women were significantly more likely to have hot flashes (p=.033). In the postmenopausal group, as age increased, these women were significantly less likely to have hot flashes, wake during the night, have headaches, and report nervousness ($p<.01$ for all). In the bivariate and multivariate analyses, none of the symptom severity or distress scores were significantly different between the pre- and post-menopausal patients. **Conclusions:** Findings from this study suggest that, regardless of menopausal status, women report a high occurrence of menopausal symptoms. The association between menopausal symptom occurrence and menopausal status depends on the specific menopausal symptom and the patient's age. Clinical trial information: NCT00769821.

150 Poster Session (Board #F3), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Behavioral adjustments, supplements, and medications to manage bowel dysfunction in rectal cancer survivors.

Virginia Sun, Christopher Wendel, Marcia Grant, Joanna E Bulkley, Carmit K. McMullen, Mark C. Hornbrook, Lisa J. Herrinton, Robert S. Krouse; City of Hope, Duarte, CA; University of Arizona, Tucson, AZ; Center for Health Research, Kaiser Permanente Northwest, Portland, OR; Kaiser Permanente Medical Care Program, Oakland, CA; University of Pennsylvania, Philadelphia, PA

Background: Bowel dysfunction is a common long-term treatment effect that adversely impacts the quality of life (QOL) of rectal cancer (RC) survivors. Research suggests that self-care strategies such as behavioral adjustments and supplements/medications are used to achieve bowel control. Evidence describing the specific types of self-care strategies is lacking. The purpose of this study is to describe behavioral adjustments and supplement/medications use in long-term ($\geq$ 5 years) RC survivors for managing bowel dysfunction. **Methods:** Long-term RC survivors with or without permanent ostomies who were enrolled in two Kaiser Permanente Regions completed a survey that included questions eliciting behavioral adjustments and supplements/medications used for bowel control. Written comments from the questions were coded for content and themes. The themes were reviewed and agreed upon by the research team. Responses mentioned $<$ 9 times were combined into broader categories; those mentioned $\geq$ 9 times were coded separately. **Results:** A total of 577 RC survivors responded to the survey. 118 survivors (20.4%) responded to the behavioral adjustment question, while 248 (43%) responded to the helpful supplements/medications question. Behavioral adjustments included controlling meal portions (38.9%), eating meals at regular times (19.4%), not eating late or before bedtime (10.1%), and grazing (8.4%); they mitigated constipation, obstruction, bloating, frequency, urgency, and improved bowel predictability. Other behavioral adjustments include not eating before or after activities (5.9%), not eating (5.1%), snacking at regular times (2.5%), and eating less when traveling (1.6%). Helpful supplements/medications include anti-diarrheals (23.6%), dietary fiber supplements (16.6%), stool softeners (15.0%), laxatives (12.6%), antacid (5.6%), probiotics (5.0%), and opioids (3.6%). **Conclusions:** RC survivors used multiple behavioral adjustments and supplements/medications to achieve bowel control. The specific adjustments and strategies varied greatly. Findings will aid in developing personalized strategies to manage bowel symptoms during survivorship.

151 Poster Session (Board #F4), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Subgroups of survivors with distinct aggravating factors associated with chemotherapy-induced neuropathy (CIN) in the feet.

Judy Mastick, Grace Mausisa, Melissa Mazor, Steven M. Paul, Bruce A. Cooper, Betty Smoot, Kimberly Topp, Gary Abrams, Lee-may Chen, Margaret Chesney, Kord Kober, Yvette Conley, Jon Levine, Christine Miaskowski; Department of Physiological Nursing, University of California, San Francisco, San Francisco, CA; University of California, San Francisco, San Francisco, CA; UCSF, San Francisco, CA; University of California San Francisco, San Francisco, CA; UC San Francisco, San Francisco, CA; University of Pittsburgh, Pittsburgh, PA

Background: CIN is the most prevalent neurologic complication of cancer treatment. Inter-individual variability exists in survivors' reports of the factors that aggravate CIN in their feet. The purpose of this study was to identify groups of survivors with CIN in their feet based on distinct aggravating factors and evaluate for differences in demographic, clinical, symptom characteristics and quality of life (QOL) based on group membership. **Methods:** Cancer survivors (n = 403) who received a platinum and/or a taxane and rated their altered sensation/pain in their feet at $>$ 3 on 0-10 scale were enrolled and completed study questionnaires, including a list of 22 factors that could make pain worse. Medical records were reviewed and sensory and motor tests were done. Latent class analysis was used to identify groups of survivors based on the occurrence rates for aggravating factors. Differences among the groups were evaluated using parametric and nonparametric statistics. **Results:** Three groups were identified based on occurrence rates for aggravating factors in the feet (i.e., Activity and Temperature (40.2%), Activity (25.8%), Few Factors (34.0%)). No differences were found among the groups in demographic characteristics, or sensory (light touch, temperature, pain, vibration) and motor (Timed Up and Go, Fullerton Assessment of Balance) tests. Compared to the Few Factors group, the other two groups had higher BMI, worse foot pain, poorer functional status and sleep, more depressive symptoms, and lower QOL. Survivors who received a platinum compound were more likely to be in the Activity and Temperature group. Those that received a taxane compound were more likely to be in the Few Factors or Activity groups. **Conclusions:** Survivors who reported a higher occurrence of aggravating factors had a higher symptom burden and poorer QOL. Objective measures did not differ among the groups. Aggravating factors associated with the CTX received supports previous work in that the survivors who received platinum drugs noted cold temperatures aggravated their CIN. Findings suggest that subgroups of survivors can be identified based on their reports of CIN aggravating factors.

152 Poster Session (Board #F5), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Cancer-related side effects and diabetes self-management.

Keerti Murari, Jordonna Brown, Juan P. Wisnivesky, Jenny J Lin; Icahn School of Medicine at Mount Sinai, New York, NY; Divisions of General Internal Medicine and Pulmonary and Critical Care Medicine, Icahn School of Medicine at Mount Sinai, New York, NY

Background: Cancer survivors often experience cancer and treatment-related side effects and may also have comorbidities that may further impact their quality of life. Little is known about how cancer-related side effects and health status impact survivors' beliefs and management of comorbidities. We undertook this study to assess the relationship between cancer-related side effects and diabetes (DM) self-management behaviors (SMB) and beliefs in cancer survivors with comorbid diabetes. **Methods:** We recruited diabetes patients recently diagnosed with early-stage breast or prostate cancer who were taking at least one oral hypoglycemic agent. Side effects for prostate cancer survivors were assessed using the Expanded Prostate Cancer Index Composite; side effects for breast cancer survivors were assessed using a standardized questionnaire for hormonal therapy-related side effects. Patients were asked to rate their overall health status and about the perceived impact of cancer treatment on DM. We measured DM medication adherence using the 8-item Morisky Medication Adherence Scale, and DM SMB were evaluated using the Summary of Diabetes Self-Care Activities. Descriptive and univariate analyses were used to assess factors associated with DM SMB. **Results:** Of the 52 patients recruited, 32 (62%) were male. Twenty-four (46%) patients reported cancer or treatment related side effects, with most (21, 88%) being moderately or severely bothered by these symptoms. Of these patients, 20 (83%) reported non-adherence to their DM medications and 18 (71%) reported checking their fingersticks < 5 times a week. Yet most patients (20, 84%) felt that their diabetes care was at least equally as important as their cancer care. Neither the presence nor severity of side effects was associated with DM SMB. However, patients who reported poorer overall health status were more likely to be worried about the impact of cancer treatment on diabetes management (75% vs. 25%, $p < 0.01$). **Conclusions:** Many cancer survivors report moderate to severe treatment-related side effects, although severity of side effects was not found to be associated with DM SMB. Further effort should focus on addressing survivors' concerns about the impact of cancer treatment on comorbid disease management.

153 Poster Session (Board #F6), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

A multidisciplinary clinic to mitigate the toxicity of therapy for newly diagnosed metastatic prostate cancer undergoing chemohormonal therapy: A feasibility study.

Jeffrey Hough, Tammy J. Rodvelt, Miles Thomas, Brian Ma, Michael W. Rabow, Rami Weinberg, Greta Macaire, Nancy Shepard, June M. Chan, Erin Van Blarigan, Gonzalo Choque-Gonzales, Mina Lee, Terence W. Friedlander, Won Kim, Charles J. Ryan, Eric Jay Small, Rahul Raj Aggarwal; UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, CA; University of California, San Francisco, San Francisco, CA; University of California San Francisco, San Francisco, CA; University of California San Francisco Medical Center, Fairfax, CA; UC San Francisco, San Francisco, CA; University of California San Francisco Medical Center, San Francisco, CA; Division of Hematology/Oncology, University of California, San Francisco, San Francisco, CA

Background: Chemohormonal therapy is standard of care for newly diagnosed metastatic prostate cancer (mPC) patients (pts) but is associated with significant adverse effects and negative metabolic changes. We performed a pilot study to investigate whether participation in a multi-disciplinary clinic to mitigate adverse effects of treatment is feasible. **Methods:** Pts with recently diagnosed mPC who were planning to start or had recently started chemohormonal therapy were prospectively enrolled in a multi-disciplinary clinic that included individualized monthly counseling from a physical therapist, oncology dietitian, and palliative care specialist on a rotating basis for 12 months. Patients were assessed quarterly for changes in % body fat, weight, serum levels of 25-OH vitamin D, fasting lipids/glucose/insulin, and quality of life (QOL). DXA bone density scans were performed at baseline and end of 12 months. The primary endpoint was the completion rate of scheduled visits. **Results:** 7 pts were enrolled between September 2015 and June 2016. All patients had extensive disease ($>$ 4 bone metastases and/or visceral metastases) at the time of study entry, and all 7 patients completed six cycles of docetaxel-based chemotherapy, and remained on hormone therapy for the duration of study. The percentage of completed visits was 98% (54/55 planned visits). The percentage of completed assessments including QOL questionnaires was 81%. No skeletal-related complications were observed. Median percent increase from baseline in body weight and % body fat was 3.51% and 20%, respectively. Four of the seven patients had osteopenia at baseline. Patient reported satisfaction was high and positive impact on psychosocial well-being was observed. **Conclusions:** Participation in a multi-disciplinary clinic by men receiving intensive chemohormonal therapy for metastatic prostate cancer was feasible. Patients are at risk for adverse metabolic and bone toxicity with therapy, underscoring the potential positive impact of a multi-disciplinary clinic. A randomized study to detect objective improvements in health outcomes is underway. Clinical trial information: NCT02168062.

155 Poster Session (Board #F8), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Integrating the patient (pt) voice with clinician reports to identify cancer-specific subsets of symptomatic adverse events (SymAE).

Jim Shaw, Rebecca Speck, William Lenderking, Caroleen Quach; Bristol-Myers Squibb, Princeton, NJ; Evidera, Bethesda, MD

Background: The Pt-Reported Outcomes Version of the Common Terminology Criteria for AE (PRO-CTCAE) was developed for pts to report on the frequency, severity, and interference of SymAE. A study was conducted to identify a hepatocellular carcinoma (HCC)-relevant subset of the PRO-CTCAE's 124 items to enhance evaluation of SymAE in HCC trials and long-term effects in survivorship. **Methods:** Qualitative and quantitative data were collected from medical oncologists specializing in HCC and pts diagnosed with HCC stratified by Child-Pugh class and treatment. Oncologists were asked about HCC diagnosis, treatment, and SymAE and provided ratings (ranging from 0 = unimportant to 10 = very important) of the following: 1) importance to pts of 34 prevalent SymAE from past HCC trials (all phases); 2) importance to pts of each PRO-CTCAE item; and 3) their own perceived importance of each PRO-CTCAE item with regard to tolerability. Pts were asked about their diagnosis, treatment, and experience of SymAE after which they completed the PRO-CTCAE and were debriefed on the importance of each item. **Results:** Four medical oncologists from Spain, Taiwan, Korea, and Hong Kong with $\geq$ 20 years of experience completed interviews. SymAE from prior trials rated highly important to pts (mean rating across oncologists $\geq$ 7) included hand-foot syndrome, diarrhea, fatigue, decreased appetite, rash, vomiting, and weight loss. PRO-CTCAE items rated highly important to pts included diarrhea, vomiting, shivering or shaking chills, hand-foot syndrome, rash, fatigue, difficulty swallowing, and loss of control of bowel movements. Items rated highly for tolerability included diarrhea, shivering or shaking chills, and hand-foot syndrome. Pt interviews (planned up to 24) are ongoing. **Conclusions:** Oncologists identified 10 clinically relevant items from sponsor SymAE data and the PRO-CTCAE for use in HCC trials. Findings from pt interviews will compare provider and pt perspectives about SymAE and strengthen the set of selected items. Combining clinician and pt ratings with clinical trial data may be a promising method for identifying cancer-specific PRO-CTCAE item sets for use throughout the cancer care continuum.

156 Poster Session (Board #F9), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Using the NCCN survivor assessment questionnaire as a tool to tailor educational needs of cancer survivors.

Wendy Crabbe, Praveena Iruku; UTHSCSA, San Antonio, TX; The University of Texas Health Science Center at San Antonio, San Antonio, TX

Background: Survivor care after cancer treatment includes assessment of fatigue, pain, cognitive dysfunction, cardiac toxicity, sexual function, and the patient's habits related to nutrition, physical activity, sleep and stress management. Using a tool to evaluate these symptoms and lifestyle habits is needed to determine the educational needs of the cancer survivor for the survivor treatment summary visit. **Methods:** We have used the National Comprehensive Cancer Network (NCCN) Survivorship Assessment tool for the past 12 months to develop a survivor care plan. It is a pre-visit 25 question survey completed by the patient. The patient responses help focus education based on current symptoms and lifestyle habits. A total of 50 questionnaires were completed over the past year. **Results:** Of the 50 patients, 46 were women, 45 had breast cancer, 3 colorectal and 2 other. The average age was 56 years old, 70% were Hispanic, 86% received chemotherapy and there were 4 recurrences. The average time from finishing adjuvant therapy to the survivor treatment summary visit was 7 months. Fifty percent of patients were on adjuvant hormonal therapy (Aromatase Inhibitor or Tamoxifen). Persistent symptoms at the time of the survivor visit are detailed in the table below. Regarding nutrition and physical activity, 44% of survivors were obese with 44% who said they get regular physical activity. Of the 44% who get regular physical activity, it can be further broken down to 1-3 days a week (10%), 4-7 days a week (28%) and 46% of patients said they ate 2.5 cups of fruits and vegetables per day. **Conclusions:** At the time of the survivor treatment summary visit there are still residual side effects from treatment including cognitive dysfunction, pain, fatigue, trouble sleeping and problems with sexual function. The NCCN Survivor Assessment questionnaire is a good tool to determine persistent side effects from treatment and educational needs of cancer survivors.

Symptoms	% Patient Symptoms
Cognitive Dysfunction	54
Pain	54
Pain VAS 0 to 5	88
Fatigue	36
Insomnia	40
Sexual Dysfunction	20
Shortness of Breath	20
Depression	20
Anxiety	14

157 Poster Session (Board #F10), Sat, 7:00 AM-7:55 AM and 12:15 PM-1:45 PM

Subgroups of survivors with distinct aggravating factors associated with chemotherapy-induced neuropathy (CIN) in the hands.

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Background: CIN is the most prevalent neurologic complication of cancer treatment. Inter-individual variability exists in survivors' reports of the factors that aggravate CIN in their hands. The purpose of this study was to identify groups of survivors with CIN in their hands based on distinct aggravating factors and evaluate for differences in demographic, clinical, symptom characteristics and quality of life (QOL) based on group membership. **Methods:** Cancer survivors (n = 307) who received a platinum and/or a taxane and rated their altered sensation/pain in their hands at $>$ 3 on 0-10 scale were enrolled and completed study questionnaires, including a list of 22 factors that could make pain worse. Medical records were reviewed and sensory and motor tests were done. Latent class analysis was used to identify groups of survivors based on the occurrence rates for aggravating factors. Differences among the groups were evaluated using parametric and nonparametric statistics. **Results:** Three groups were identified based on occurrence rates for aggravating factors in the hands (i.e., Activity and Temperature (41.0%), Activity (8.7%), Few Factors (52.2%)). No differences were found among the groups in demographic characteristics, or sensory (light touch, temperature, pain, vibration) and motor (grip strength, pegboard) tests. Compared to the Few Factors group, the Activity and Temperature group had more comorbidities, poorer sleep, greater fatigue, and more anxious and depressive symptoms. Survivors who received a platinum compound were more likely to be in the Activity and Temperature group. Those who received a taxane compound were more likely to be in the Few Factors or Activity groups. **Conclusions:** Survivors who reported a higher occurrence of aggravating factors had a higher symptom burden and poorer QOL. Most differences were found between the Few Factors group and the Activity and Temperature group which may be due to the small sample size of the Activity group. Objective measures did not differ among the groups. Findings suggest that subgroups of survivors can be identified based on their reports of CIN aggravating factors.

