Late-Breaking Abstracts From the Oncology Nursing Society 11th National Conference on Cancer Nursing Research

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Podium Session

DX

THE IMPACT OF SECONDARY LYMPHEDEMA AFTER HEAD AND NECK CANCER TREATMENT ON SYMPTOMS, FUNCTIONAL STATUS, AND QUALITY OF LIFE.

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Patients with locally advanced HNC are treated with multimodality treatment that often leads to a damaged lymphatic system. Head and neck lymphedema may involve external sites (e.g., neck) and internal structures (e.g., larynx). Our study identified that 75.3% patients had lymphedema after HNC treatment. Theoretically, lymphedema may result in substantial physical and psychological symptom burden, functional loss, and decreased QOL.

Currently, no studies directly examine the impact of lymphedema in HNC patients. We aimed to examine the associations among the severity of lymphedema, symptoms, function, and QOL in HNC patients.

The Theory of Unpleasant Symptoms directed the study.

A cross-sectional, correlational design was used. The sample included 103 patients who were 3 months post HNC treatment. External lymphedema was graded using Foldi's Scale through physical examination. Internal lymphedema was determined using Patterson's Scale through endoscopic exam. Vanderbilt Head and Neck Symptom Survey was used to assess physical symptoms specific to HNC/its therapy. Psychological symptoms were evaluated using the Hospital Anxiety and Depression Scale and Body Image Scale. Function was evaluated by direct examination, including neck range of motion, hearing, and mouth range of motion. QOL was assessed using Functional Assessment Cancer Therapy-Head & Neck and Linear Analog Self-Assessment scale. Regression analysis was used for the analyses.

The severity of lymphedema was statistically significantly associated with swallowing difficulty, mucous/dry mouth (xerostomia)-related symptoms, nutrition-related symptoms, and impaired body image. Patients with more severe external lymphedema were more likely to have a decrease in neck forward flexion and neck left/right rotation. Patients with combined internal and external lymphedema were more likely to have hearing impairment. Patients with more severe lymphedema experienced poorer QOL. Findings suggest that HNC-related lymphedema can significantly impact patients' symptoms, function, and QOL. Healthcare professionals need to be equipped with HNC-related lymphedema knowledge, conduct physical examination to detect lymphedema, evaluate lymphedema-related symptomatology, functional impairment and QOL. Additional studies are warranted to identify causations of lymphedema and explore strategies to manage lymphedema.

DY

EFFECTS OF CANCER PATIENTS' RACE AND LANGUAGE ON PATIENT-CENTERED CARE AND PATIENT OUTCOMES.

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Far less is known about disparities in nursing care than disparities in physician care. Understanding the equalities/inequalities in nursing care provides opportunities to decrease cancer care disparities.

The purpose was to examine relationships between hospitalized cancer patients' race and language, patient-centered nursing care (PCC-N) delivered at the bedside, and patient outcomes (PT-OUT).

This secondary analysis used the non-experimental, longitudinal prospective design of the primary study, and the Quality Health Outcomes Model provided the guiding theoretical framework.

The sample comprised 179 cancer in-patients at an urban safety net hospital. Variables included race, language spoken at home, PCC-N (nurses' responsiveness, care individualization, proficiency and care coordination).PT-OUT variables included trust and health-related quality of life (HRQOL): optimism, distress, sense of well-being (SOWB) and authentic self-representation. PCC-N, trust and HRQOL variables were operationalized by valid, reliable questionnaires. Medical record data operationalized patient characteristics (co-morbidities, metastatic disease, etc). Analysis included stratification into two race categories: White (W), African-American-Black/Others (AA-B/O). Multivariable path models were constructed and tested using Mplus software; fit was assessed with criterion statistics: CFI>.95, TLI>.95, RMSEA<.06, SRMR<.08.

Findings comprised two path models that met criteria; models differed for the two racial groups. Statistically significant relationships were found for both groups between: (1) nurses' responsiveness and patient trust, and (2) individualization and SOWB. Language was related to responsiveness in the AA-B/O group only. Other findings unique to the AA-B/O group were: (1) proficiency's relationship to trust, and (2) individualization's relationship to optimism and authentic self-representation. In addition, a relationship between care coordination and self-representation was found in the White group only. In conclusion, minority patients' lack of trust in providers has been identified as a barrier to effective cancer care. This study identifies that responsive and proficient nursing care was associated with subsequent patient trust. Individualized care resulted in better HRQOL outcomes for minority patients. Implications for policy and practice include that the equity of PCC-N and associated PT-OUT can be measured and monitored with the goal of decreasing disparities. In future studies, relationships between PCC-N equity and health care system factors (e.g., cultural competency training, language services, nurses' specialty expertise) can be tested.

DZ

ASSOCIATION BETWEEN INTERLEUKIN 1 BETA GENE POLYMORPHISM AND FATIGUE IN WOMEN WITH BREAST CANCER.

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Fatigue is a common symptom in women with breast cancer, and fatigue severity negatively impacts quality of life. Substantial heterogeneity exists in patients' experience of fatigue.

To investigate possible contributory factors to this heterogeneity, we evaluated whether frequency of the rs1143627 polymorphism of the interleukin 1 beta gene (IL1B), a key anti-inflammatory cytokine, differed among subgroups of patients who differed in their experience with fatigue.

The Theory of Symptom Management provided the theoretical framework for this study, with genotype conceptualized as part of the "Person" domain.

Over six months, 398 women with breast cancer completed a standardized measure of fatigue, the Lee Fatigue Scale (LFS), at seven time points (just prior to and monthly for six months following breast cancer surgery.) Growth mixture modelling was used to identify latent classes of fatigue trajectories. A chi-square test was used to assess examine differences in IL1B genotype frequency between the latent classes.

Two latent classes of breast cancer patients with distinct fatigue trajectories were identified: Low Fatigue group (38.5%) and High Fatigue group (61.5%). Patients who were younger, had more education, or reported higher baseline levels of trait or state anxiety were more likely to be classified in the High Fatigue group. The frequency of the rs1143627 minor G allele was 27.4%; the distribution of rare allele homozygotes differed among the latent classes with individuals in the High Fatigue Group being more likely to be rare allele homozygotes than the Low Fatigue Group (p=0.005). This study provides preliminary evidence for groups of breast cancer patients who differ in their experience with fatigue over time. In addition, the findings provide preliminary evidence of a genetic association between a pivotal proinflammatory cytokine (IL1B) and fatigue in breast cancer patients. Use of latent class methods to identify patients at higher risk for fatigue during and after cancer treatments and to identify genetic risk factors for this common and distressing symptom may lead to the design and evaluation of more targeted clinical interventions.

EA

THERAPEUTIC GROUP BY TELECONFERENCE RANDOMIZED CLINICAL TRIAL WITH AFRICAN AMERICAN WOMEN WITH BREAST CANCER.

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The effects of a therapeutic group (TG) by teleconference for African American women with breast cancer (AAWBC) have not been documented although the benefits for European women are well established.

AAWBC may experience social disconnection, a sense of being cutoff from partners, family and friends due to side effects of treatment and fatalistic beliefs about cancer. A TG by teleconference may assist AAWBC to feel connected to women in a similar situation, to learn ways to talk about cancer and may decrease fatalistic beliefs. The purpose of the study was to determine if TG participants had significantly better social connection, less fear, less isolation, and less fatalism than a control group receiving usual care.

The study used the Heiney conceptual model of social connection in AAWBC.

A randomized trial design was used in which participants were assigned to the TG or usual psychosocial care. The randomization was stratified by treatment type. Data were collected at baseline, the end of the intervention, and 16 weeks from baseline. A mixed-effects repeated measures model was used to assess outcome variables of social connection (social support and social well being), fear, isolation, and fatalism. Moderator effects were tested using procedures of Baron and Kenny.

Participants' (n = 185) mean age was 53 and about 79% were partnered. The mixed model revealed significant time by group interactions for social well-being (p=.0156) and fatalism (p=.0277). There were no significant effects for social support, fear or isolation. Age, partner status, time from diagnosis physical well being and number of co-morbidities did not moderate the treatment effect of social connection. The results suggest that TG participants improved their social connection (relationships with partners and family) over time unlike control participants whose social connection worsened. Fatalistic attitudes toward cancer decreased in

the TG and continued to worsen in the control group. Our study documented the benefits of a TG for AAWBC and tested a model of social connection. Further testing and refinement of the model is needed. The TG by group is a novel way to provide support to AAWBC, especially those in rural communities.

Poster Sessions

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INFECTION OUTCOMES IN ONCOLOGY PATIENTS BASED ON TYPE OF INTRAVENOUS CONNECTOR. C. Chernecky, Physiological and Technological Nursing, Georgia Health Sciences University, Augusta, GA; D. Macklin, Consultant, Marietta, GA; and J. Waller, Biostatistics, Georgia Health Sciences University, Augusta, GA

CR-BSI (catheter related bloodstream infection) is a major risk for oncology patients, since vascular access is required for treatments and tests. The FDA, SHEA/ISDA and CDC are voicing concerns about connectors and their relationship to CR-BSI. No clinical studies have been published comparing different types of connectors in oncology patients on CR-BSIs. One study has been published that shows a 50% reduction in occlusion rates when changing from a split septum needle-free (NF) connector to an intraluminal protection device (IPD) connector.

The purpose of this study was to determine infection rates for split septum, negative mechanical valve and IPD connectors in both critical care and medical in-patient oncology patients.

Infection is a physiological response based on fibrin and biofilm formation that is related to dilutional and concentration theory of quantitative microbiology, bacterial load, physics of flow, anatomy and physiology.

This prospective study in Texas and New York ICU and medical oncology units compared split septum (7,251 catheter days) and negative mechanical valve connectors (2,477 days) for a total of 9,728 catheter days to an IPD connector (10,186 catheter days) on infection rates per infection control personnel. Same data collection methods used at each site, data compared to same time periods and no other changes in care or personnel instituted.

CR-BSIs decreased 96.3%, from 2.9 to 0.1 infections per 1000 catheter days, when changing from a split septum to an IPD connector, and 88.9%, from 3.7 to 0.4 infections per 1000 catheter days, when changing from a NMV to an IPD connector. Overall percent decrease in infections was 92.6%. Use of best products to decrease or eliminate CR-BSI's can negate treatment delays, add time to nursing care, decrease costs, decrease mortality and increase quality of life for the patient and family. Clinical nurses must be patient advocates at the bedside, in committees and during educational inservices regarding decreasing CR-BSIs and implementing use of best products based on research.

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CHARACTERISTICS AND IMPACT OF SUDDEN ONSET OF FATIGUE IN PATIENTS WITH BREAST CANCER. H. Wu, College of Nursing, Wayne State University, Detroit, MI; J.E. Davis, College of Nursing, Wayne State University, Detroit, MI; Z. Nahleh, School of Medicine, Wayne State University, Detroit, MI; and M. Dodd, School of Nursing, University of California San Francisco, San Francisco, CA

The symptomatology of cancer-related fatigue (CRF) is not fully understood. The onset of CRF is often unexpected, more abrupt, and more exhausting than typical fatigue. The unpredictability and dramatic changes in energy levels severely disrupt patients' daily lives. Although sudden fatigue has been anecdotally documented, the phenomenon needs to be systematically investigated.

The purpose of this study was to describe the prevalence and symptom characteristics of sudden onset fatigue and its impact in breast cancer patients receiving chemotherapy.

Based on the Concept of Symptom Clusters, sleep disruption, depression, and fatigue are related symptoms and often occur concurrently in oncology.

This cross-sectional descriptive study enrolled 109 breast cancer chemotherapy outpatients from urban and rural settings. Ages ranged 29-75 (Mean=51.5, SD=9.3), majority Black (62%) and unemployed (71%). Subjects completed a battery of self-administered instruments, including an investigator-developed Sudden Onset Fatigue Questionnaire and other psychometrically sound measurements - Pittsburgh Sleep Quality Index (PSQI), Center for Epidemiological Studies-Depression Scale, and Cancer-Related Fatigue Distress Scale. Descriptive statistics described the prevalence and characteristics of sudden onset. T-tests examined the differences between those who did and did not experience the sudden onset.

About half of the patients (45%) had experienced sudden onset fatigue in the past seven days. The majority experienced 1-3 episodes per day (75%) each lasting 10-120 minutes (73%). Sudden fatigue was most likely to occur between 11am-4 pm while individuals were engaging in activities (82%). The experience was characterized as an abrupt exhaustion/weakness; when it occurred, individuals stopped activities and sought immediate rest or sleep. Levels of fatigue before, during, and after a specific episode of sudden onset were 4.9, 8.4, and 5.2, respectively, on 0-10 (highest) scale. Of those who experienced sudden fatigue, 97% reported poor sleep (global PSQI scores >5). The majority had inadequate sleep efficiency of <85% (74%), prolonged sleep latency ≥30 minutes (74%), and were depressed (72%). Those who reported sudden fatigue had significantly higher levels of fatigue and distress ($p<0.01$). Sudden onset needs to be recognized in CRF management when patients undergo chemotherapy to enhance patients' sense of control and reduce uncertainty.

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SYMPTOM TRAJECTORIES IN UNDERSERVED, MINORITY CANCER PATIENTS AND THEIR CAREGIVERS. G. Palos, Cancer Survivorship, UT M D Anderson Cancer Center, Houston, TX; K.O. Anderson, Symptom Research, UT M D Anderson Cancer Center, Houston, TX; K. Liao, Symptom Research, UT M D Anderson Cancer Center, Houston, TX; and C. Reyes-Gibby, Department of Epidemiology, UT M D Anderson Cancer Center, Houston, TX

The 2009-2013 Oncology Nursing Society Research Agenda stresses that it is crucial to examine the impact of cancer and its symptoms in adults across cultures and ethnicities. The report also highlights the need to conduct longitudinal studies in these populations.

The role of cancer caregivers will differ depending on where the patient is on the cancer care continuum. There may be periods when the caregiver experiences minimal stress while at other times, the stress may suddenly increase and trigger physical, physiological, and psychologic reactions. The negative effects on the caregiver's health may be exacerbated when the patient is medically and economically underserved. In this study, we investigated the severity of symptoms in patients treated at public hospitals and the effects of their symptoms on their family caregivers.

The theoretical framework used in this study was the Pittsburgh Mind Body Center Model.

One hundred twenty Black, Latino, and Caucasian patients undergoing 20-weeks of chemotherapy for an advanced solid tumor cancer and their caregivers rated physical and psychologic symptoms. Data were collected at 3 different time points during the patient's treatment cycle (pre/during/post). Longitudinal analyses were conducted to examine the trajectories of pain, fatigue, and disturbed sleep in patients and fatigue, sleep disturbance, depression, and stress in caregivers.

Caregivers who were family members or lived with the patient reported high levels of fatigue, disturbed sleep, depression, and stress. Patient's greater pain severity predicted higher levels of disturbed sleep and depression in caregivers. Blacks and Latinos were less vulnerable to depression. This longitudinal study may be the first to focus on the symptoms of underserved minority and non-minority patients and their caregivers. Further studies are warranted to better understand the positive and negative factors affecting the symptom trajectories in underserved patients and caregivers.

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UNDERSTANDING DEPRESSION AND PREDICTING DEPRESSIVE SYMPTOMATOLOGY AMONG LATINA-AMERICAN BREAST CANCER SURVIVORS.

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The incidence and prevalence of breast cancer among Latina-Americans are increasing. However, their representation in survivorship research, although increasing, is still lacking.

Recent studies document poorer survivorship and health related quality of life outcomes among Latina-American breast cancer survivors (BCS). The study details the contributions of cancer-related medical factors, physical functioning, demographic variables, socio-ecological burden, and socio-cultural displacement on depressive symptoms.

This study examined predictors of depressive symtomatology from a socio-ecological and patient-centered paradigm based on the Contextual Model of Health-Related Quality of Life.

This study included 232 Latina-American BCS: 95 were English language proficient and 137 were limited English language proficient. Survivors were recruited via mixed methods sampling that included cases ascertained from the California Cancer Registry, City of Hope and other hospital registries. Chi square and t-test analyses were used to compare differences on predictor and outcomes variables by English language proficiency and depression scores as measured by the Center of Epidemiologic Studies Depression Scale (CES-D). Hierarchical multiple regression analyses assessed the effects of demographic variables, cancer-related medical factors, physical functioning, socio-ecological burden, and socio-cultural displacement on depressive symptoms as measured by the CES-D.

53% of the sample exhibited elevated depression (CES-D ≥ 16). Limited English proficient BCS had lower education level, lower household income, less likely to receive breast conserving surgery, and elevated depression. Depressive symptoms were predicted by education, physical functioning, social support, family stress, functional stress, social functioning, and English language proficiency. The final predictive model explained 66% of the variance. Findings suggest that Latina-American BCS experience unfavorable psychological outcomes, ethnic variability in depressive symptoms based on language differences exist, and that broader ecological and social components influence depressive symptomatology. Given the unequal burden of cancer and the need to better address cancer care for the whole person, psychological and nursing research and practices should consider both clinical and socio-ecological contexts to equalize and improve cancer outcomes.

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CHEMOTHERAPY-RELATED COGNITIVE IMPAIRMENT: THE BREAST CANCER EXPERIENCE.

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Chemotherapy-related cognitive impairment (CRCI) is recognized as a commonly reported sequela of the treatment of breast cancer. Women complain of being uninformed about CRCI and express frustration at lack of validation of the experience. Changes in cognitive function have the potential for a significant impact on survivors' quality of life.

Little has been published about the experience of CRCI and oncology nurses have acknowledged lack of access to pertinent educational materials. The purpose of this qualitative descriptive study was to describe the experience of CRCI for women with breast cancer who received chemotherapy, and identify information about CRCI that women would find useful prior to chemotherapy and the onset of cognitive changes.

The Revised Conceptual Model of Chemotherapy-Related Changes in Cognitive Function Based on the Theory of Unpleasant Symptoms was used as the theoretical framework for the study.

In-depth interviews were conducted with 18 women who reported changes in cognitive function and were within 6-12 months of completing chemotherapy. Qualitative content analysis was used to analyze the data. A focus group was conducted to validate and refine the data analysis. Expert and peer review enhanced the credibility and trustworthiness of the study results.

The themes for the study results were Life With Chemobrain, How I Changed, How I Cope, and How to Teach Me. Participants described difficulty with short term memory, focusing, word finding, reading, and driving. Issues with fatigue, balance and/or coordination also were of concern. Coping strategies included writing things down, depending on others, focusing on one task at a time, and giving oneself permission to make mistakes. Participants wanted to receive information about CRCI prior to initiating chemotherapy and desired an individualized approach to education. Specific educational content, reinforcement of education, and on-going assessment for CRCI were recommended. The study results provide support for the impact of CRCI on functional ability and suggest that fatigue may require further evaluation as a potential moderating factor of CRCI. Application of the study results will serve to validate the experience of CRCI for women with breast cancer and contribute to patient satisfaction with the delivery of care.

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SLEEP DISORDERED BREATHING IN PATIENTS WITH NON-SMALL CELL LUNG CANCER.

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Although disturbed sleep is common in patients with lung cancer, little is known of the underlying etiology. The purpose of this study was to evaluate characteristics of nocturnal sleep and breathing in non-small cell lung cancer(NSCLC) patients as measured by polysomnography (PSG).

We hypothesized that disease/treatment effects on lung function superimposed on normal sleep-wake state-dependent alterations in respiratory control would place patients with NSCLC at risk for sleep disordered breathing (SDB).

Forty-three subjects (46.5% female; mean age 60.12±10.1) with Stage I-IV NSCLC underwent overnight PSG using a standard montage. Subjects were excluded for any sleep, psychiatric, or neurological disorder; pneumonectomy; severe renal failure; or alcohol/substance abuse. Sleep recordings were scored by a single registered PSG technologist according to standard criteria. Measures included: sleep parameters, apnea/hypopnea index (AHI), oxygen desaturation index (ODI), and hypoxic burden (percentage of TST with an SaO2 <90). Descriptive statistics and non-parametric statistical methods were used to characterize the sample and describe study findings.

Mean sleep parameters indicated that the sample had a short sleep latency, high percentage of Stage 1 and 2 NREM sleep, and a low percentage Stage 3-4 and REM sleep. Sleep efficiency was low (81.87±11.64%) and sleep was characterized by frequent awakenings (mean/hour of sleep = 5.27±3.59) and arousals (mean/hour

of sleep = 53.80±15.24). The mean AHI was 23.95±19.91(norm<5). Moderate (AHI 15-30) to severe (AHI >30) SDB was present in 65.12% of the sample. Subjects experienced frequent oxygen desaturations (mean/hour 17.73±15.64, norm <5) and mean percent sleep time with SaO2<90% was 5.45±10.96 (range 0 - 53.10). Kruskal-Wallis tests were used to evaluate differences among sleep parameters among subjects with low, moderate, and severe SDB. Severe SDB was associated with more awakenings (p = .034), arousals (p = .009), and Stage 1 NREM sleep and a less Stage 3-4 NREM sleep (p = .05).

Our sample demonstrated a four-fold increase in the prevalence of SDB over that of the general population. SDB was associated with lighter, fragmented sleep. As we continue analysis of data, we will characterize factors associated with SDB in this population. Nurses should screen for potential SDB in lung cancer patients and make appropriate referrals for treatment.

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THE RELATIONSHIP BETWEEN SYMPTOMS AND FEELINGS IN YOUNG BREAST CANCER SURVIVORS. A.C. Broxson, Nursing, Texas Woman's University, Houston, TX; A. Malecha, Nursing, Texas Woman's University, Houston, TX; S. Cesario, Nursing, Texas Woman's University, Houston, TX; T. Ho, Nursing, Texas Woman's University, Houston, TX; M. Munsell, Biostatistics, The University of Texas M. D. Anderson Cancer Center, Houston, TX; G.N. Hortobagyi, Breast Medical Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX; and P.K. Morrow, Breast Medical Oncology, The University of Texas M. D. Anderson Cancer Center, Houston, TX

Research has shown that young breast cancer survivors experience greater untoward effects and symptoms years beyond diagnosis than their older counterparts.

It is unknown how symptoms affect the degree of negative feelings. The research questions posed were: 1) What are the mean scores of the symptoms of cognitive problems, pain, fatigue, and sexual problems in young breast cancer survivors? 2) Is there a relationship between the mean scores of cognitive problems, pain, fatigue, and sexual problems and negative feelings?

The Theory of Unpleasant Symptoms guiding the research includes influential factors, symptoms, and performance or outcome. Influential factors can affect symptoms or one another, with both potentially affecting an outcome.

This quantitative retrospective analysis included postal survey responses from 905 female participants. All were diagnosed between age 18 and 45 years with breast cancer more than one year prior to study participation. Participants were diagnosed or treated at a comprehensive cancer center in the southern US. Symptom measures were derived from the Quality of Life in Adult Cancer Survivors scale (QLACS). Descriptive statistics and Pearson's correlation were used in the data analysis.

The majority were white (77.2%), married (74.9%), well educated, and an average of 7 years post diagnosis. Sexual problems had the highest mean score (13.2), thus indicating a worse symptom experience than the lowest score calculated for pain (9.0). All four symptoms were significantly ($p < 0.001$) related to negative feelings as follows: fatigue (r = .606), cognitive problems (r = .557), pain (r = .540), and sexual problems (r = .443). Young breast cancer survivors continue to experience symptoms many years into the post treatment phase of cancer survivorship. Symptoms were significantly related to negative feelings, which may impact quality of life and long-term adjustment as cancer survivors. Further study of methods for early assessment and interventions to minimize symptom effects is warranted.

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ASSOCIATION BETWEEN ANTI-INFLAMMATORY GENE POLYMORPHISMS OF INTERLEUKIN 4 (IL4) AND THE PAIN-FATIGUE-SLEEP DISTURBANCE-DEPRESSION SYMPTOM CLUSTER. B.E. Aouizerat, Physiological Nursing, Institute for Human Genetics, UCSF, San Francisco, CA; D. Langford, Physiological Nursing, UCSF, San Francisco, CA; B.A. Cooper, Physiological Nursing, UCSF, San Francisco, CA; M. Dodd, Physiological Nursing, UCSF, San Francisco, CA; C. West, Physiological Nursing, UCSF, San Francisco, CA; S.M. Paul, Physiological Nursing, UCSF, San Francisco, CA; C.A. Miaskowski, Physiological Nursing, UCSF, San Francisco, CA; L.B. Dunn, Medicine, UCSF, San Francisco, CA; W. Wara, Medicine, UCSF, San Francisco, CA; P. Swift, Comprehensive Cancer Center, Alta Bates Hospital, Berkeley, CA; and K. Lee, Family Health Care Nursing, UCSF, San Francisco, CA

Pain, fatigue, sleep disturbance, and depressive symptoms (PFSD) constitute a symptom cluster in cancer that impacts quality of life. Strikingly similar estimates of this symptom cluster in different populations suggest a role for host genetic factors.

The purpose of this study was to evaluate for a genetic association in polymorphism of interleukin 4 (IL4), a key anti-inflammatory cytokine with subgroups of patients who differed in their experience with the PFSD symptom cluster.

The Symptom Management Theory provided the theoretical framework for this study, with genotype conceptualized as part of the "Person" domain.

Prior to radiation therapy, 253 cancer patients and their family caregivers completed standardized measures of pain, fatigue, sleep disturbance, and depressive symptoms. Latent Profile Analysis (LPA) was used to identify latent classes of the PFSD cluster. A chi-square test was used to assess examine differences in IL4 genotype frequency between the latent classes.

Three latent classes of participants who differed in their experience with the PFSD cluster were identified: the Low PFSD group (83.0%), the High Fatigue-Low Pain group (4.7%) and the High PFSD group (12.3%). Participants who were younger, female, cancer patients, or reported higher baseline levels of trait or state anxiety were more likely to be classified in the High PFSD group. The frequency of the rs2243248 minor allele was 10.1%; the distribution of rare allele carriers differed among the latent classes with individuals in the High PFSD Cluster Group being more likely to be rare allele carriers than the Low PFSD Group (p=0.003). This study provides preliminary evidence of groups of individuals who differ in their experience with the PFSD symptom cluster. In addition, the findings provide preliminary evidence of a genetic association between a pivotal anti-inflammatory cytokine (IL4) and the PFSD cluster, which has not been reported previously. Use of latent class methods to identify patients at higher risk for this common symptom cluster and to identify genetic risk factors for this cluster may lead to the design and evaluation of more targeted clinical interventions.

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PSYCHOLOGICAL AND FAMILY INFLUENCES ON DECISIONS TO PURSUE GENETIC TESTING. M.C. Katapodi, Division of Acute, Critical, and Long Term Care Nursing, University of Michigan School of Nursing, Ann Arbor, MI; L.L. Northouse, Division of Acute, Critical, and Long Term Care Nursing, University of Michigan School of Nursing, Ann Arbor, MI; P.F. Pierce, Division of Acute, Critical, and Long Term Care Nursing, University of Michigan School of Nursing, Ann Arbor, MI; K.J. Milliron, Breast and Ovarian Cancer Risk Evaluation Program, University of Michigan, Ann Arbor, MI; S.D. Merajver, Breast and Ovarian Cancer Risk Evaluation Program, University of Michigan, Ann Arbor, MI; G. Liu, Internal Medicine, University of Michigan, Ann Arbor, MI; and S.D. Merajver, Center for Global Health, University of Michigan, Ann Arbor, MI

Hereditary Breast and Ovarian Cancer (HBOC) is a collective term used to describe genetic susceptibility to breast and/or

ovarian cancer. Most of the HBOC cases are caused by mutations in the BRCA1 and BRCA2 genes (BRCA1/2). The availability of genetic testing for the detection of mutation carriers are significant millestones for effective cancer control. Once a case of HBOC is identified, the effects extend to family members of both genders. However, it is not known whether family members make interrelated decisions to pursue genetic testing for HBOC.

The purpose of the study was to examine whether individual appraisals and familial factors influence women's decisions to pursue genetic testing for HBOC, and to explore whether there is a synergistic effect between these individual and familial factors.

The integration of Stress and Coping theory, with Decision-Making theory, and the Family Systems in Genetic Illness model allowed the examination of the individual and familial context of HBOC, and its influence on decision-making for genetic testing.

This descriptive, cross sectional, cohort study recruited participants from two clinics that provide risk assessment and genetic testing for HBOC. The sample was comprised by 168 matched dyads (N=336) of women who pursued genetic testing for HBOC (Probands) and one of their female family members (Relative) who did NOT pursue genetic testing. All participants were English-speaking and ≥18 y.o.; pedigree analysis indicated that all participants had ≥10% prior probability of carrying an HBOC-predisposing mutation. Most participants were Caucasian (95%), middle-aged (49±14), well-educated (61% ≥ Bachelor's degree), with an annual income ≥$61,000 (62%). After providing informed consent, probands and relatives were mailed self-administered questionnaires with validated instruments. The computer program SAS v.9 was used to perform conditional logistic regression analyses.

Univariate analyses showed that education, personal history of cancer, individual appraisals of HBOC (i.e., subjective perceptions of risk, cause, severity, and controllability), psychological distress, family coping, and perceived cost/benefit of genetic testing were predictors of the decision to pursue testing. These variables were entered in a multivariate conditional logistic regression model, which explained 62% in the variance of decisions to pursue genetic testing. The final significant predictors of genetic testing were personal history of cancer, perceived severity of HBOC, family coping, and perceived cost/benefit of genetic testing. A synergistic effect (interaction) between family communication and perceived cause was detected. Besides individual appraisals of HBOC, the family environment influences an individual's adjustment to the threat of the disease and decisions around genetic testing. Enhancing the family communication process around HBOC is an area for future intervention; it may enhance supportive family relationships and family coping, while it may promote decision-making for genetic testing.

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OUTCOMES OF CHECKLIST USE DURING TREATMENTS AT A CANCER CENTER: THE TRSC.

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The innovative study tested use of a calibrated checklist within a health care delivery system of a cancer center in a medium-sized Midwestern community, and its effects on patient-reported quality of life and on symptom management. The calibrated checklist has good measurement properties and used in published research. No similar study currently is available.

The purpose of this study was to assess whether use of a calibrated 25-item Therapy-Related Symptom Checklist (TRSC) with oncology adult outpatients increases the number of symptoms documented and managed, and whether this improves health-related quality of life (HRQOL-LASA) of patients.

The study examined whether systematic use of checklists influences the quality and safety of patient treatments and outcomes.

A sequential cohort trial was conducted: 55 oncology outpatients in treatment received standard of care (Group 1, G1). Afterwards, another 58 patients (Group 2, G2) received standard of care at the same clinic; however, these patients additionally answered the TRSC immediately prior to each consultation-- the TRSC results were shared with the clinician. Repeated measures (3-11 visits) were obtained of the number of patient treatment symptoms documented (medical records, G1; TRSC, G2); HRQOL; and Karnofsky scores, N=696 observations (328, G1; 368, G2.) The number of symptoms reported and HRQOL were covariate-adjusted using population averaged generalized estimating equations (GEE).

G2 patients had a 7.2% higher population averaged covariate adjusted HRQOL than G1 patients (3.3 more points on the HRQOL, P = .012). 116% more covariate and non-covariate adjusted symptoms were documented and managed in G2 than G1 (6.14 symptoms versus 2.84, P < .0001). Despite low sensitivity to change, a 2.0 point mean difference improvement was found in Karnofsky scores in G2 versus G1 (P < .01). HRQOL, TRSC, and Karnofsky scores correlated r > .40.

Use of the patient-friendly TRSC by patients and clinicians improves symptom documentation and management and patient HRQOL. Implications. Study findings suggest, that during cancer treatment, improved patient outcomes arise from better symptom management and symptom reduction as a consequence of checklist use by clinicians. Also, the checklist presents potential "IT" applications/uses in medical records, including tracking symptoms over time.

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PAIN, FATIGUE, SLEEP, DEPRESSION, AND QUALITY OF LIFE IN CHILDREN (AGE 7 TO 18 YEARS) DURING THE FIRST 18 MONTHS OF CHEMOTHERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL).

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Little is known about the pattern of symptoms and quality of life (QoL) in children receiving chemotherapy for acute lymphoblastic leukemia (ALL). This information will serve as the basis for future intervention studies.

The purpose of this study was to describe the pattern of selected symptoms and child outcomes over the first 18 months of treatment.

The study framework was the UCSF Model of Symptom Management.

This prospective, longitudinal study included six time points (T1-T6) (Induction, Consolidation, Interim Maintenance, Delayed Intensification, twice in Maintenance). Children completed ratings of intensity of pain and fatigue each evening and morning for three days beginning the evening of treatment. Total sleep time (TST) and wake time after sleep onset (WASO) were computed from 3-day Actiwatch© monitoring; data on depression symptoms (CDI-S) and quality-of-life (PedsQL-core) were obtained for the week prior to chemotherapy; and clinical data were extracted from medical records. The 45 children had a mean age of 11.6(±3.8), were treated as high-risk (57.7%), primarily White (78.6%) and male (64.4%). Within-subjects ANOVAs were based

on children with complete data. Results for the full sample were similar. Symptom 3-day means were used; grand means (GM) and standard deviations computed across T1-T6 were reported on non-significant time effect findings.

Evening pain (T1 MaximumM=1.09±78; T5 MinimumM=.36±.57) and morning pain (T1 MaximumM=.60±.72; T5 MinimumM=.15±.42), decreased over time (p<.05; N=27). WASO decreased (T3 MaximumM=79.80±25.78, T6 MinimumM=56.06±23.58) as well (F(5,100)=2.48, p=.04; N=21). PedQL-core improved over time (T1 MinimumM=51.94±12.97; T6 MaximumM=79.95±14.88; N=23). There were no changes over time in evening fatigue (N=21; GM=2.56±.88), morning fatigue (N=27; GM=2.09±.75), TST (N=21; GM=483.03±70.29), or CDI-S scores (N=19; GM=45.40±5.88). Similar to prior work, pain and fatigue were evident during chemotherapy but the overall level of pain varied. Fragmented sleep emerged as an important variable that has received little attention in this population. Children averaged 8 hours of sleep, but their average wake time after falling asleep was 4-5 times the value (15 minutes) reported for healthy children with normal sleep. These findings suggest that research is needed on strategies for improving sleep in children receiving chemotherapy for ALL.

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RELATIONSHIP BETWEEN SLEEP AND LATE EFFECTS IN ADULTS TREATED FOR PEDIATRIC HODGKIN LYMPHOMA.

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Survivors of pediatric Hodgkin Lymphoma (HL) are known to have significant morbidity related to late effects, including cardiac, pulmonary dysfunction and fatigue. However, the relationship between cardiac, pulmonary function, fatigue, neurocognitive function, and sleep has not been explored.

Pediatric HL survivors have frequent complaints of sleep and found to have higher Epworth Sleepiness Scale (EES) and Pittsburg Sleep Quality Index (PSQI) scores when compared to a sibling cohort. Objective sleep and associated late effects have not been explored in this population. This study explored the relationship between cardiac, pulmonary function, neurocognitive performance, and fatigue with subjective and objective sleep data.

The study framework is the Human Response Model which integrates four types of human responses: physiological, pathophysiological, experiential and behavioral.

Thirty-five survivors, ages 37 to 55, completed the EES, PSQI, wrist actigraphy over 5 days within the home environment, the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT) and underwent echocardiogram, pulmonary function, and neuro-cognitive testing.

Twenty-nine of the 35 survivors had significant EES and/or PSQI scores, warranting sleep referral. The descriptive actigraph data was consistent with insomnia, with an overall mean sleep efficiency of 83%, mean sleep latency of 41.98 minutes, a mean of 10 nocturnal awakenings and a mean wake after sleep onset of 40.38 minutes. Overall mean sleep was 6.1 hours and mean wake was 1.5 hours. Significant relationships were found between sleep variables, cardiac valve disease, pulmonary dysfunction, neurocognitive dysfunction and fatigue. Future study will further classify the sleep disorder for development of an interventional sleep study.

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CORRELATION BETWEEN THE UNMET NEEDS OF FAMILY CAREGIVERS AND THEIR PSYCHOLOGICAL OUTCOMES OF DEPRESSIVE SYMPTOMS, ANXIETY AND BURDEN.

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Despite reported interventions to improve psychological outcomes in family caregivers, effect sizes remain small and inconsistent.

Most interventions utilize predetermined content based on common problems in care situations, assuming these problems lead to distress. Strategies are aimed at addressing problems, rather than unmet needs. The purpose of this analysis was to determine the relationship between caregiver unmet needs and depressive symptoms, anxiety, and burden.

The Adapted Pittsburgh Mind Body Center Model was used.

From a descriptive, longitudinal study (R01-117811), caregivers ≥21years old were recruited within a month of the adult care recipient's (CR) diagnosis with a primary malignant brain tumor. Data were collected via telephone/face-to-face interviews (CES-D, POMS, and Caregiver Reaction Assessment [burden]). Caregivers were queried regarding 52 needs identified through content analysis of previously conducted open-ended interviews. Group-based trajectory analysis was used to identify caregivers with high and low depressive symptoms, anxiety, and burden. Fisher's exact tests examined associations between need presence/absence and outcome group. Independent samples t-tests and Mann-Whitney U tests compared total needs across groups. Logistic regression models examined associations between total needs and each outcome adjusting for covariates.

Analyses demonstrated significant associations between depressive symptoms and: insurance issues (p=0.03), recognizing disease progression (p=0.03), managing medication (p=0.03), CR safety (p<.01), support groups (p<.01), caregivers' uncertainty/worry (p=0.03), and CR symptoms-difficulty understanding (p=0.04), difficulty remembering (p<.01), irritability (p=0.03) and nausea (p=0.04). Anxiety was associated with unmet needs: employment benefits (p=0.04), recognizing disease progression (p<.01), emotional-physical demands (p=0.03), and CR irritability (p=0.04). Caregiver burden was associated with unmet needs: employment benefits (p=0.04), treatment options (p<0.01), managing medications (p<0.01), spirituality (p=0.02), CR services (p=0.02), CRs' difficulty concentrating (p=0.03) and nausea (p=0.02). Caregivers with high levels of depressive symptoms (p=0.01), anxiety (p<.01) and burden (p=0.01) had higher average total number of needs than those in the low groups. Data underscore the importance of querying caregivers regarding specific needs prior to implementing interventions to decrease distress. Future interventions should be trialed integrating methods for identifying individual needs that are incorporated into the caregiver's careplan.

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NATURAL HISTORY OF LYMPHOCYTE RECOVERY AFTER BREAST CANCER TREATMENT FOR WOMEN ENROLLED IN AN MBSR PROGRAM.

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Radiation therapy (RT) or chemotherapy with RT is reported to have cumulative effects on immune recovery and may influence patients' response and recovery after treatment. Understanding the natural history and effects of treatment on lymphocyte recovery following breast cancer (BC) treatment and the effects of interventions such as Mindfulness Based Stress Reduction (MBSR) may have beneficial clinical significance.

Research is limited on the natural history and effects of treatment on lymphocyte recovery following BC treatment. MBSR(BC), a standardized form of meditation and yoga, may be effective in influencing treatment recovery sooner; however, little is known on mechanisms by which MBSR may be effective in increasing immune recovery in cancer survivors.

The Bio-behavioral Logic Model, a heuristic device for research, was used. We postulated that MBSR would improve immune recovery through T cell activation, increase Th1 and decrease Th2 cytokines.

A two-armed RCT randomized 84 female early-stage BC survivors to either a 6-week MBSR(BC) program (n=41) or a wait-listed usual care (UC) regimen (n=43). Immune cell measures (number and percentages of lymphocyte subsets, activated T cells, and Th1 and Th2 cells in peripheral blood samples) were assessed by intracellular immunostaining and flow cytometry at baseline and after the 6-week intervention. Mixed Linear Models and Spearman Correlations were used for data analysis.

Eighty-two women, mean age of 58 years, completed the study; 75% were Caucasian, 70% were treated for Stage 0/I cancer and 61% were treated with lumpectomy and radiation only. At baseline, the natural history showed significant differences in total lymphocyte counts ($p<0.01$), NK cells ($p=0.008$) and B lymphocytes ($p<0.0001$) between < 12 weeks compared to > 12 weeks removed from treatment. Lymphocyte recovery was similar irrespective of type of treatment. B and NK cells were more susceptible to suppression by cancer treatment. MBSR compared to the UC had significant t-cell activation ($p=0.003$) and an increase in the Th1/Th2 ratio ($p=0.03$) if entered into the study beyond 12 weeks after their cancer treatment.

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CHANGE OF SUPPORTIVE CARE NEEDS AND ITS ASSOCIATED FACTORS IN PATIENTS WITH LIVER CANCER AFTER RECEIVING MEDICAL TREATMENTS IN TAIWAN.

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The study results help clinical nurses to identify the high risk population with requaring higher level of supportive care needs in liver cancer patients.

Around 40% of those newly diagnosed liver cancer patients receive non-surgical treatment including transcathether hepatic chemoembolization, percutaneous ethanol injection, and radiofrequency ablation.However, during the average of 3 to 4 days' hospitalization for receiving treatments, the health care providers mainly focus on control of physical distress and not on the needs for self care and aftercare following discharge. Therefore, the aims of this study were to explore the care needs and its associated factors (symptom distress, anxiety, depression, and uncertainty) for liver cancer patients after receiving treatments.

A longitudinal case-control study was conducted and data were collected three times including the day before discharge (T1), and during the fourth (T2) and eighth (T3) weeks after discharge. Patients with liver cancer (N = 111) were recruited from medical wards in a teaching hospital in Northern Taiwan. The Supportive Care Needs Survey, Symptom Distress Scale, Hospital Anxiety and Depression, and Mishel Uncertainty Scale were used to assess patients' care needs, symptom distress, anxiety, depression, and level of uncertainty. The change of care needs and its associated factors were examined by descriptive analysis and the significant factors associated with overall supportive care needs were identified by generalized estimating equations.

The health system and information domain had the greatest amount of unmet need before discharge; however, physical and daily living (e.g., pain and fatigue) and psychological (e.g., fears about the cancer spreading) domains had the greatest amount of unmet need at home. After controlling associated demographic and clinical factors, the change of overall supportive care needs were significantly associated with time since been diagnosed (β =-.034, p =.039), symptom distress (β =.665, p <.000), level of anxiety (β =1.722, p <.000), and uncertainty (β =.534, p <.000).

The supportive care needs was dynamic and changed after treatment. Those patients with newly diagnosed as liver cancer, higher level of symptom distress,anxiety and uncertainty were the population that might require more supportive care needs.

Continuously providing sufficient supportive care needs after treatment is important for liver cancer patients even after discharge. The results provided information for clinicians to tailor interventions for those recognized as high risk population for unmet care needs.

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CASE STUDY OF ACQUIRED EPIGENETIC MODIFICATIONS (DNA METHYLATION), PROINFLAMMATORY CYTOKINES, AND PSYCHONEUROLOGIC SYMPTOMS (DEPRESSION, FATIGUE AND PAIN) IN TWO WOMEN TREATED WITH CHEMOTHERAPY FOR BREAST CA COMPARED TO AGE-MATCHED CONTROLS.

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Breast cancer(BC) treatments, and perhaps the cancer itself, contribute to the development of a number of distressing PNS, including depression, fatigue, and pain. Psychoneurologic symptoms (PNS) are prevalent in women during chemotherapy, and, for some, persist into survivorship. A better understanding of the biological mechanisms of PNS could lead to the development of targeted interventions to ameliorate, and ultimately, to prevent these symptoms.

The purposes of this study were (1) to quantify changes in DNA methylation, proinflammatory cytokines, and PNS (depression, fatigue and pain) in two women treated for BC; and (2) to compare levels of DNA methylation of two women treated for breast CA with untreated, age-matched controls.

To date, research to understand the biological mechanisms of PNS has focused on the relationship of circulating markers of inflammation, such as proinflammatory cytokines, with symptoms. However, inflammation may also lead to epigenetic changes, such as DNA hypermethylation, which could provide a biological basis for the development and/or persistence of PNS.

Epigenetic changes acquired in post-chemotherapy compared to pre-chemotherapy specimens were quantified, following bisulfite treatment, using an array technology (Illumina). Cytokine levels were measured via the Bioplex platform. Symptom measures

included the Center for Epidemiologic Studies Depression Scale, the Brief Pain Inventory, and Brief Fatigue Inventory. Descriptive statistics were used to compare levels of symptoms, cytokine levels, and epigenetic patterns of the breast cancer patients to age-matched healthy controls.

Both pre-chemotherapy specimens had significantly higher levels of hypermethylation when compared to controls. The cells from Participant 1, who developed and retained depressive symptoms, fatigue, pain and higher levels of proinflammatory cytokines, retained these altered hypermethylation patterns in the post-chemotherapy specimen. In contrast, the cells from Participant 2, who did not have elevated symptoms at baseline, reverted back to a pattern comparable to the controls. Significant differences were noted in methylation in pre-chemotherapy compared to post-chemotherapy specimens for more than 300 genes. While preliminary, these data support our hypothesis that epigenetic changes may be associated with PNS development and/or persistence. The recognition of epigenetic changes could provide a basis for the development of therapeutic interventions to alleviate distressing symptoms in BC patients.

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FATIGUE, INSOMNIA SYMPTOMS AND CONFUSION IN OLDER WOMEN WITH BREAST CANCER.

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Fatigue is the most common complaint of cancer patients, and insomnia symptoms are another frequent concern.

There is limited research regarding the relationship of fatigue and insomnia symptoms with confusion in older persons with cancer.

This study was based on the Model of Impaired Sleep by Kathy Lee. However, this analysis of the relationship between fatigue, insomnia symptoms and confusion is further based on the Winningham Psychobiological-Entropy Model of Functioning.

The target sample size based on power analysis was 70 and our convenience sample consisted of 67 older women (mean age 65 years; SD=9.38) with and without breast cancer (BC). The women completed the Profile of Mood States (POMS) and Insomnia Severity Index (ISI) two times (approximately one month apart) and data analysis used the average of the two scores.

Older women with breast cancer reported greater fatigue than comparisons (mean t-scores 56.38 vs 52.69; normal less than 65), greater insomnia symptom severity (8.89 vs 6.4; normal < 8), and greater confusion (58.94 vs 51.44; normal less than 65). The per cent of women reporting fatigue t-scores over 65 was slightly higher in the comparison than the breast cancer group (17.14% vs 15.63%).

The per cent of women reporting insomnia scores over 7 (subclinical insomnia symptoms and higher) was higher in the breast cancer than comparison group (53.13% vs 41%), and the per cent reporting confusion was three times higher in the breast cancer than comparison group (34.38% vs 11.43%).

Fatigue was strongly correlated with confusion in the breast cancer group (R=.67), moderately with insomnia severity (R=.52), and weakly with comorbidities (R=.214). Insomnia was also moderately correlated with confusion (R=.57). When combined in a regression model with age and number of comorbidities, fatigue and insomnia symptom severity contributed significantly to confusion [Adj R2=0.505, F(4,27) =8.918, p<0.0005].

These findings suggests that nursing interventions designed to address fatigue and insomnia symptoms, as well as existing comorbidities, may diminish confusion and enhance function in older women with breast cancer.

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SYMPTOMS, SELF-EFFICACY AND QUALITY OF LIFE IN NEWLY DIAGNOSED INOPERABLE LUNG CANCER PATIENTS: A PROSPECTIVE STUDY.

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Lung cancer is a leading cause of cancer deaths worldwide with majority of them were of inoperable non-small cell lung cancer (NSCLC). Despite the recent innovation of anti-tumor therapy, the prognosis of lung cancer remains relatively poor with 13%-16% of 5-year survival rate across stages. Quality of life (QOL) has been identified as one of the important outcome indicators for lung cancer treatment. However, less has been known about the factors related change of QOL in patients with newly inoperative lung cancer during the first three-month of treatment. Self-efficacy has been widely applied in cance care model, little has been know about the effect of self-efficacy on inoperable NSCLC pateints.

The purposes of the study were (1) to examine the changes of QOL, symptoms, and self-efficacy on coping with cancer; and (2) to identify those factors related to the changes of QOL in a three-month period in newly-diagnosed inoperable NSCLC patients.

The Lazarus and Folkman (1984) Stress and Coping theory was used.

A prospective panel study was conducted to recruite 101 newly diagnosed inoperable NSCLC patients from a medical center in Northern Taiwan. EORTC-QLQ C30 and LC 13 and Coping Behavior Inventory were usde to accessed the patients changes of symptoms, QOL and self-efficacy on coping with cancer at three time points (pretreatment, 1 month and 3 months from receiving treatments, T1- T3, respectively). Generalized Estimating Equations (GEE) was used to examine the factors related to the changes of QOL.

Patients had a moderate level of global QOL across the follow-up period, with relatively lower scores in both role function and social function subscales. Emotional and social functions had lowest QOL scores at baseline and increased at the third month after treatment. Physical function and cognitive function gradually declined with the lowest scores at T3. Fatigue, pain and sleep difficulties were the most distress symptom affecting the patients' QOL. Patients had higher self-efficacy on coping with cancer, higher performance status and lower symptom severity had better QOL during the first three month of cancer treatment. Implication: To enhance lung cancer patients' QOL and evidence-based care, future studies should further examine the effects of interventions integrating these important factors on improving lung cancer patients' QOL.

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QUALITY OF LIFE IN NEWLY DIAGNOSED ORAL CAVITY CANCER PATIENTS IN TAIWAN—FIRST YEAR LONGITUDINAL APPROACH.

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The impacts of the diagnosis of oral cavity cancer and potential treatments/disease related dysfunction from the oral-facial area may cause potential impacts on patients' quality of life (QOL).

The purpose of the study was to examine the changes in QOL within the first year of cancer diagnosis and to identify factors related to the QOL changes.

A 12-month prospective panel study was conducted to assess the changes of QOL, psychological distress, symptom severity, and patients' performance status in newly diagnosed oral cavity cancer patients. Patients were recruited from two medical center in Taiwan and were assessed in 6 time points, include (3 days before operation, and 10 days, 1, 3, 6 12 months post-operation/ T1-T6, respectively). The psychometric tested Chinese version

instruments were used to assess patients, including (1) University of Washington Quality of Life (UW-QOL), (2) Hospital Anxiety and Depression Scale (HADS), (3) Symptom Severity Scale (SSS) and (4) Background Information Form. Except the mean and frequency, we used the Generalized estimating equations (GEE) to analyze the changes of QOL and its related factors. Data were collected by two trained research assistants after IRB approval.

A total of 137 subjects completed the one-year assessments. The results showed that these patients generally had moderate level of QOL with the worst QOL during the first three months (T2-T4). However, some problems have lasted for longer time, such as dry mouth, swallowing, chewing and employment. Patients received reconstruction surgery, having more advanced cancer stage, having higher levels of depression and symptom severity, without job, and having lower education level had lower levels of QOL across the 12 months. The results strongly suggest that health care professional should systematically assess and care for oral cavity cancer patients' QOL from the acute treatment phase to survival phase. The results can help clinicians to better understand the potential problems and factors relate to QOL in oral cancer patients in the first 12 months of diagnosis. Further intervention studies should be developed and tested to enhance the evidence based cancer provided to oral cancer patients.

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FROM BEDSIDE TO BENCH AND BACK: NURSING'S ROLE IN THE DEVELOPMENT OF A PATIENT-SPECIFIC ANTI-CANCER VACCINE. T.K. Dancsak, Clinical Research Unit, UTHSC Houston, Houston, TX; V.E. Hawkins, Clinical Research Unit, UTHSC Houston, Houston, TX; G. Sonpavde, Clinical Research Unit, UTHSC Houston, Houston, TX; A. Creeks, Department of Hemapheresis, Memorial Hermann Healthcare System, Houston, TX; and J.M. Zulovich, Cell Therapy Laboratory, MD Anderson Cancer Center, Houston, TX

Recent trials have demonstrated the efficacy of monocyte-derived dendritic cells (moDCs) against certain cancers. Vaccine production and administration require complex interdisciplinary collaboration made possible by the vigilance and guidance of the nurse.

Men with progressive metastatic castrate-resistant prostate cancer (mCRPC) were enrolled in a Phase I dose-finding trial of BPX-101 vaccine made from each patient's own monocyte-derived dendritic cells (moDC), followed by CD40 activating agent AP 1903.

MoDCs identify invaders, differentiate into dendritic cells and activate B and T cells. Monocytes can be harvested from the patient through leukapheresis and cultured in the laboratory. In the laboratory monocytes can be transformed into MODC's with the addition of cytokines, lipopolysacharride, CD 40 activator AP1903, and prostate-specific membrane antigen (PSMA). These cells can be injected into the patient to initiate an immune response against cancer.

During the leukapheresis process, the nurse anticipated and intervened to prevent potential pheresis-related risks, i.e. electrolyte imbalance, cardiac abnormalities, hypotension, and bleeding. Every step in collection, handling, identification, transfer, and administration of the product was reviewed and documented by two registered nurses to ensure quality and patient safety. After leukapheresis, Cell Therapy Laboratory (CTL) personnel received the labeled product, transferred it to the CTL, and documented the chain of custody. After activation, MoDC's were washed and cryo-preserved as vaccine BPX-101. On treatment day, the patient's vaccine was identified, verified, and thawed in a sterile water bath at 37°C by CTL personnel and the nurse. Vaccines were injected intra-dermally bi-weekly followed by AP1903 infusion. Patient responses and side effects were documented.

Planned enrollment of 12 subjects has been completed, with three patients each in dose levels one and two and six patients in dose level three. Treatment related side effects have been mild and have been managed symptomatically. BPX-101 can be reliably manufactured and safely administered followed by AP1903. Some subjects have experienced measurable disease responses, including near elimination of poor-risk visceral disease.

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