



RESEARCH UPDATES JANUARY 2014

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IN THIS ISSUE: In their meta-analysis, Chi and colleagues determined that soy food intake was associated with increased survival in breast cancer patients. Forsythe et al. found that long after treatment, overweight and sedentary breast cancer survivors experienced higher levels of pain in daily life than lighter and more active survivors. Lonbro and associates observed that 12 weeks of progressive resistance training improved body composition, functional performance, and quality of life in head and neck cancer patients. Stamatakis and colleagues found that sitting occupations and low levels of leisure time physical activity were associated with increased all-cause and cancer mortality. Gnagnarella and associates found that red meat consumption was associated with increased risk of lung cancer. Sempos et al.'s research suggests a reverse J-shaped association between all-cause mortality and circulating vitamin D levels with the sweet spot around 80 nmol/L. Takata's research group administered a food frequency questionnaire to over 130,000 people and found that fish intake was associated with reduced mortality from all causes. Siddons and colleagues recorded increased sexual confidence, intimacy, and masculine self-esteem in prostate cancer survivors following a cognitive-behavioural therapy intervention. Lamers et al. found that younger multiple myeloma patients and those with symptoms of depression were more likely to desire psychosocial interventions. In our study of the month, Watanabe et al. demonstrated both the significant financial and time related benefits of online medical appointments to rural-living cancer patients.

BREAST CANCER

Chi, F. R. Wu, Y. C. Zeng, et al.

Post-Diagnosis Soy Food Intake and Breast Cancer Survival: A Meta-Analysis of Cohort Studies.

Asian Pac J Cancer Prev. 2013 144: 2407-2412.

BACKGROUND AND OBJECTIVES: Data on associations between soy food intake after cancer diagnosis with breast cancer survival are conflicting, so we conducted this meta-analysis for more accurate evaluation. **METHODS:** Comprehensive searches were conducted to find cohort studies of the relationship between soy food intake after cancer diagnosis and breast cancer survival. Data were analyzed with comprehensive meta-analysis software. **RESULTS:** Five cohort studies (11,206 patients) were included. Pooling all comparisons, soy food intake after diagnosis was associated with reduced mortality (HR 0.85, 95%CI 0.77 0.93) and recurrence (HR 0.79, 95%CI 0.72 0.87). Pooling the comparisons of highest vs. lowest dose, soy food intake after diagnosis was again associated with reduced mortality (HR 0.84, 95%CI 0.71 0.99) and recurrence (HR 0.74, 95%CI 0.64 0.85). Subgroup analysis of ER status showed that soy food intake was associated with reduced mortality in both ER negative (highest vs. lowest: HR 0.75, 95%CI 0.64 0.88) and ER positive patients (highest vs. lowest: HR 0.72, 95%CI 0.61 0.84), and both premenopausal (highest vs. lowest: HR 0.78, 95%CI 0.69 0.88) and postmenopausal patients (highest vs. lowest: HR 0.81, 95%CI 0.73 0.91). In addition, soy food intake was associated with reduced recurrence in ER negative (highest vs. lowest: HR 0.64, 95%CI 0.44 0.94) and ER+/PR+ (highest vs. lowest: HR 0.65, 95%CI 0.49 0.86), and postmenopausal patients (highest vs. lowest: HR 0.67, 95%CI 0.56 0.80). **CONCLUSION:** Our meta- analysis showed that soy food intake might be associated with better survival, especially for ER negative, ER+/ PR+, and postmenopausal patients.

INSPIREHEALTH'S INTERPRETATION: This study combined the results of 5 cohort studies to include over 11,000 women with breast cancer. The analysis showed that soy food intake after diagnosis was associated with an overall 15% reduction in mortality and a 21% reduction in disease recurrence. These findings support the concept that soy food intake after breast cancer is safe and perhaps even protective.

Forsythe, LP, C. M. Alfano, S. M. George, et al.

Pain in Long-Term Breast Cancer Survivors: The Role of Body Mass Index, Physical Activity, and Sedentary Behavior.

Breast Cancer Res Treat. January 2013; 1372: 617-630.

BACKGROUND: Although pain is common among post-treatment breast cancer survivors, studies that are longitudinal, identify a case definition of clinically meaningful pain, or examine factors contributing to pain in survivors are limited. This study describes longitudinal patterns of pain in long-term breast cancer survivors, evaluating associations of body mass index (BMI), physical activity, sedentary behavior with mean pain severity and above-average pain. **METHODS:** Women newly diagnosed with stages 0-IIIa breast cancer (N = 1183) were assessed, on average, 6 months (demographic/clinical characteristics), 30 months (demographics), 40 months (demographics, pain), 5 years (BMI, physical activity, and sedentary behavior), and 10 years (demographics, pain, BMI, physical activity, and sedentary behavior) post-diagnosis. This analysis includes survivors who completed pain assessments 40 months post-diagnosis (N = 801), 10 years post-diagnosis (N = 563), or both (N = 522). Above-average pain was defined by SF-36 bodily pain scores $\geq 1/2$ standard deviation worse than age-specific population norms. We used multiple regression models to test unique associations of BMI, physical activity, and sedentary behavior with pain adjusting for demographic and clinical factors. **RESULTS:** The proportion of survivors reporting above-average pain was higher at 10 years than at 40 months (32.3 vs. 27.8 %, $p < 0.05$). Approximately one-quarter of survivors reported improved pain, while 9.0 % maintained above-average pain and 33.1 % reported worsened pain. Cross-sectionally at 10 years, overweight and obese survivors reported higher pain than normal-weight survivors and women meeting physical activity guidelines were less likely to report above-average pain than survivors not meeting these guidelines ($p < 0.05$). Longitudinally, weight gain (>5 %) was positively associated, while meeting physical activity guidelines was inversely associated, with above-average pain (OR, 95 % CI = 1.76, 1.03-3.01 and 0.40, 0.20-0.84, respectively) ($p < 0.05$). **CONCLUSION:** Weight gain and lack of physical activity place breast cancer survivors at risk for pain long after treatment ends. Weight control and exercise interventions should be tested for effects on long-term pain in these women.

INSPIREHEALTH'S INTERPRETATION: This 10 year longitudinal study examined the relationship between body mass index (kg/m²), physical activity and pain in long-term breast cancer patients. Findings showed that women who were overweight, obese or had weight gain of $>5\%$ reported more pain and those who maintained a healthy weight and met physical activity standards reported less pain. The ability to maintain regular physical activity and a healthy weight may protect against long term pain.

EXERCISE AND PHYSICAL ACTIVITY

Lonbro, S, U. Dalgas, H. Primdahl, et al.

Progressive Resistance Training Rebuilds Lean Body Mass in Head and Neck Cancer Patients After Radiotherapy - Results from the Randomized DAHANCA 25B Trial.

Radiother Oncol. August 2013; 1082: 314-319.

PURPOSE: The critical weight loss observed in head and neck squamous cell carcinoma (HNSCC) patients following radiotherapy is mainly due to loss of lean body mass. This is associated with decreases in muscle strength, functional performance and Quality of Life (QoL). The present study investigated the effect of progressive resistance training (PRT) on lean body mass, muscle strength and functional performance in HNSCC patients following radiotherapy. **PATIENTS AND METHODS:** Following radiotherapy, HNSCC patients were randomized into two groups: Early Exercise (EE, n=20) initiated 12 weeks of PRT followed by 12 weeks of self-chosen physical activity. Delayed Exercise (DE, n=21) initiated 12 weeks of self-chosen physical activity followed by 12 weeks of PRT. Lean body mass, muscle strength, functional performance and QoL were evaluated at baseline and after week 12 and 24. **RESULTS:** In the first 12 weeks lean body mass increased by 4.3% in EE after PRT and in the last 12 weeks by 4.2% in DE after PRT. These increases were significantly larger than the changes after self-chosen physical activity ($p \leq 0.005$). Regardless of PRT start-up time, the odds ratio of increasing lean body mass by more than 4% after PRT was 6.26 ($p < 0.05$). PRT significantly increased muscle strength, whereas functional performance increased significantly more than after self-chosen physical activity only after delayed onset of PRT. Overall QoL improved significantly more in EE than DE from baseline to week 12. **CONCLUSION:** PRT effectively increased lean body mass and muscle strength in HNSCC patients following radiotherapy, irrespectively of early or delayed start-up.

INSPIREHEALTH'S INTERPRETATION: The Danish Head and Neck Cancer Group designed this study to examine if progressive resistance training (PRT) could improve lean body mass, muscle strength and activities of daily living (functional capacity) in patients with head and neck squamous cell cancer treated with radiation therapy. Overall, 12 weeks of PRT significantly improved lean body mass, functional performance, and quality of life.

Stamatakis, E, J. Y. Chau, Z. Pedisic, et al.

Are Sitting Occupations Associated with Increased all-Cause, Cancer, and Cardiovascular Disease Mortality Risk? A Pooled Analysis of Seven British Population Cohorts.

PLoS One. September 2013; 8(9): e73753.

BACKGROUND: There is mounting evidence for associations between sedentary behaviours and adverse health outcomes, although the data on occupational sitting and mortality risk remain equivocal. The aim of this study was to determine the association between occupational sitting and cardiovascular, cancer and all-cause mortality in a pooled sample of seven British general population cohorts. **METHODS:** The sample comprised 5380 women and 5788 men in employment who were drawn from five Health Survey for England and two Scottish Health Survey cohorts. Participants were classified as reporting standing, walking or sitting in their work time and followed up over 12.9 years for mortality. Data were modelled using Cox proportional hazard regression adjusted for age, waist circumference, self-reported general health, frequency of alcohol intake, cigarette smoking, non-occupational physical activity, prevalent cardiovascular disease and cancer at baseline, psychological health, social class, and education. **RESULTS:** In total there were 754 all-cause deaths. In women, a standing/walking occupation was associated with lower risk of all-cause (fully adjusted hazard ratio [HR]=0.68, 95% CI 0.52-0.89) and cancer (HR=0.60, 95% CI 0.43-0.85) mortality, compared to sitting occupations. There were no associations in men. In analyses with combined occupational type and leisure-time physical activity, the risk of all-cause mortality was lowest in participants with non-sitting occupations and high leisure-time activity. **CONCLUSIONS:** Sitting occupations are linked to increased risk for all-cause and cancer mortality in women only, but no such associations exist for cardiovascular mortality in men or women.

INSPIREHEALTH'S INTERPRETATION: Spending too much time in a chair at work, and low levels of leisure-time physical activity are associated with increased risk of all-cause death. This study observed that women with sitting occupations had a higher risk of cancer-related death than men, however, increasing physical activity and reducing inactivity is the takeaway message for both genders.

NUTRITION

Gnagnarella, P, P. Maisonneuve, M. Bellomi, et al.

Red Meat, Mediterranean Diet and Lung Cancer Risk among Heavy Smokers in the Cosmos Screening Study.

Ann Oncol. October 2013; 24(10): 2606-2611.

BACKGROUND: To assess whether intake of selected foods and food groups and adherence to a Mediterranean diet are associated with lung cancer risk in heavy smokers. **PATIENTS AND METHODS:** In the context of a lung cancer screening programme, we invited asymptomatic volunteers, aged 50 years or more, current smokers or recent quitters, who had smoked at least 20 pack-years, to undergo annual low-dose computed tomography. We assessed participants' diet at baseline using a self-administered food frequency questionnaire and calculated their average daily food intake using an ad hoc computer program and determined their alternate Mediterranean diet (aMED) score. We used Cox proportional hazards regression to assess the association between selected food items, beverages and the aMED score and lung cancer risk. **RESULTS:** During a mean screening period of 5.7 years, 178 of 4336 participants were diagnosed with lung cancer. At multivariable analysis, red meat consumption was associated with an increased risk of lung cancer [hazard ratio (HR) Q4 versus Q1, 1.73; 95% confidence interval (CI) 1.15-2.61; P-value for trend 0.002], while tea consumption (HR for one or more cup/day versus none, 0.56; 95% CI 0.31-0.99; P-value for trend 0.04) and adherence to a Mediterranean diet (HR for aMED \geq 8 versus \leq 1, 0.10; 95% CI 0.01-0.77) were significantly associated with reduced lung cancer risk. **CONCLUSIONS:** Among heavy smokers, high red meat consumption and low adherence to a Mediterranean diet are associated with increased risk of lung cancer.

INSPIREHEALTH'S INTERPRETATION: Heavy smokers were screened for lung cancer over a 5 year period. Those who ate a diet richer in red meat and who were less adherent to the Mediterranean diet (eg. olive oil, legumes, unrefined grains, fruits, vegetables, fish, moderate wine and low meat) were more likely to develop lung cancer.

Sempos, CT, R. A. Durazo-Arvizu, B. Dawson-Hughes, et al.

Is there a Reverse J-Shaped Association between 25-Hydroxyvitamin D and all-Cause Mortality? Results from the U.S. Nationally Representative NHANES.

J Clin Endocrinol Metab. July 2013; 98(7): 3001-3009.

CONTEXT: A reverse J-shaped association between serum 25-hydroxyvitamin D (25[OH]D) concentration and all-cause mortality was suggested in a 9-year follow-up (1991-2000) analysis of the Third National Health and Nutrition Examination Survey (NHANES III, 1988-1994). **OBJECTIVE:** Our objective was to repeat the analyses with 6 years additional follow-up to evaluate whether the association persists through 15 years of follow-up. **PARTICIPANTS:** The study included 15 099 participants aged \geq 20 years with 3784 deaths. **MAIN OUTCOME MEASURE:** Relative risk (RR) of death from all causes was adjusted for age, sex, race/ethnicity, and season using 2 Poisson regression approaches: traditional categorical and cubic splines. Results were given for 9 25(OH)D levels: <20, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 74, 75 to 99 (reference), 100 to 119, and \geq 120 nmol/L. **RESULTS:** The reverse J-shaped association became stronger with longer follow-up and was not

affected by excluding deaths within the first 3 years of follow-up. Similar results were found from both statistical approaches for levels <20 through 119 nmol/L. Adjusted RR (95% confidence interval [CI]) estimates for all levels <60 nmol/L were significantly >1 compared with the reference group. The nadir of risk was 81 nmol/L (95% CI, 73-90 nmol/L). For 25(OH)D \geq 120 nmol/L, results (RR, 95% CI) were slightly different using traditional categorical (1.5, 1.02-2.3) and cubic splines approaches (1.2, 0.9-1.4). The association appeared in men, women, adults ages 20 to 64 years, and non-Hispanic whites but was weaker in older adults. The study was too small to evaluate the association in non-Hispanic black and Mexican-American adults. **CONCLUSIONS:** A reverse J-shaped association between serum 25(OH)D and all-cause mortality appears to be real. It is uncertain whether the association is causal.

INSPIREHEALTH'S INTERPRETATION: A reverse J-shaped association between all-cause mortality and circulating vitamin D levels suggests a "sweet spot" for vitamin D levels where risk is the lowest (around 81 nmol/L). Though this data does not imply cause and effect, it suggests that circulating vitamin D levels that are either too low or too high are associated with increased all-cause mortality.

Takata, Y, X. Zhang, H. Li, et al.

Fish Intake and Risks of Total and Cause-Specific Mortality in 2 Population-Based Cohort Studies of 134,296 Men and Women.

Am J Epidemiol. Jul 2013; 1781: 46-57.

BACKGROUND: Despite a proposed protective effect of fish intake on the risk of cardiovascular disease, epidemiologic evidence on fish intake and mortality is inconsistent. **METHODS:** We investigated associations of fish intake, assessed through a validated food frequency questionnaire, with risks of total and cause-specific mortality in 2 prospective cohort studies of 134,296 Chinese men and women (1997-2009). Vital status and date and cause of death were ascertained through annual linkage to the Shanghai Vital Statistics Registry database and biennial home visits. Cox regression was used to calculate hazard ratios and corresponding 95% confidence intervals. After excluding the first year of observation, the analysis included 3,666 deaths among women and 2,170 deaths among men. **RESULTS:** Fish intake was inversely associated with risks of total, ischemic stroke, and diabetes mortality; the corresponding hazard ratios for the highest quintiles of intake compared with the lowest were 0.84 (95% confidence interval [CI]: 0.76, 0.92), 0.63 (95% CI: 0.41, 0.94), and 0.61 (95% CI: 0.39, 0.95), respectively. No associations with cancer or ischemic heart disease mortality were observed. Further analyses suggested that the inverse associations with total, ischemic stroke, and diabetes mortality were primarily related to consumption of saltwater fish and intake of long-chain n-3 fatty acids. **CONCLUSION:** Overall, our findings support the postulated health benefits of fish consumption.

INSPIREHEALTH'S INTERPRETATION: In a large cohort study of over 130,000 men and women, fish intake was significantly associated with reduced risk of death from all causes, and specifically, from ischemic (blood clot related) stroke and diabetes. Add this study to the growing body of evidence that suggests significant health benefits from fish consumption.

PSYCHOSOCIAL SUPPORT

Siddons, HM, A. C. Wootten and A. J. Costello.

A Randomised, Wait-List Controlled Trial: Evaluation of a Cognitive-Behavioural Group Intervention on Psycho-Sexual Adjustment for Men with Localised Prostate Cancer.

Psychooncology. October 2013; 2210: 2186-2192.

OBJECTIVE: To examine the effectiveness of a cognitive-behavioural therapy (CBT) group intervention to facilitate improved psycho-sexual adjustment to treatment side effects in prostate cancer survivors post-radical prostatectomy. **METHODS:** A randomised, wait-list controlled trial was conducted with a total of 60 men who participated in a manualised 8-week cognitive-behavioural group intervention 6 months to 5 years post-radical prostatectomy for localised prostate cancer. Participants completed standardised questionnaires pre-intervention and post-intervention, which assessed mood state, stress, general and prostate cancer anxiety, quality of life and areas of sexual functioning. **RESULTS:** Paired samples t-tests identified a significant improvement in sexual confidence, masculine self-esteem, sexual drive/relationship and a significant decline in sexual behaviour from pre-intervention to post-intervention. Hierarchical regression analyses revealed that after controlling for covariates, participation in the group intervention significantly improved sexual confidence, sexual intimacy, masculine self-esteem and satisfaction with orgasm. **CONCLUSIONS:** This group-based CBT intervention for men post-radical prostatectomy for localised prostate cancer shows promising results in terms of improving quality of life.

INSPIREHEALTH'S INTERPRETATION: In this Australian study, an 8-week, group-based, cognitive-behavioural therapy intervention for prostate cancer survivors effectively increased sexual confidence, intimacy, masculine self-esteem, satisfaction with orgasm, and overall quality of life. Further research needs to be done to determine if the post-intervention decline in sexual behaviour was of any consequence to participants, given the otherwise positive outcomes for other measures of psycho-sexual adjustment.

Lamers, J, M. Hartmann, H. Goldschmidt, et al.

Psychosocial Support in Patients with Multiple Myeloma at Time of Diagnosis: Who Wants What?

Psychooncology. October 2013; 2210: 2313-2320.

OBJECTIVE: The aim of this study was to examine interest in psychosocial interventions among patients with multiple myeloma at time of diagnosis as well as associated factors. **METHODS:** Patients with newly diagnosed multiple myeloma were recruited from our outpatient myeloma unit at the Heidelberg University Hospital. Patients completed questionnaires that included a checklist on desired psychosocial interventions and the Patient Health Questionnaire 9-item (PHQ-9) depression and Generalized Anxiety Disorder 7-item scale (GAD-7) anxiety scales. Medical data were extracted from the patients' electronic records. **RESULTS:** The survey was completed by 114 out of the 130 myeloma patients. Half of the patients (51%) desired psychosocial interventions. The most common preferences were relaxation techniques (21%), psychological counseling (20%), and peer support groups (18%). Approximately 24% of the patients reported symptoms of depression, and 8% reported symptoms of anxiety. Patients with symptoms of depression had twice as many preferences for psychosocial interventions as nondepressed patients. They more frequently desired individual psychotherapy ($p=0.035$) and peer support groups ($p=0.015$). In general, lower age was associated with greater interest in psychosocial interventions. Medical status was not strongly associated with interest in psychosocial interventions. **CONCLUSIONS:** A high percentage (51%) of patients with multiple myeloma has psychosocial intervention desires at the time of diagnosis. The greatest interest was found in depressed and younger patients. However, depressed patients do not prefer a single intervention form but rather show a broad variability of wishes, so 'one size does not fit all'. Therefore, to reach all patients in need, a choice of psychosocial interventions should be offered.

INSPIREHEALTH'S INTERPRETATION: Half of those newly diagnosed with multiple myeloma desire psychosocial interventions such as relaxation techniques, counseling and peer support groups as part of their treatment approach. Younger patients and those with symptoms of depression were more likely to want psychosocial interventions.

E-VERSION EXTRA

Soares, A, I. Biasoli, A. Scheliga, et al.

Association of Social Network and Social Support with Health-Related Quality of Life and Fatigue in Long-Term Survivors of Hodgkin Lymphoma.

Support Care Cancer. August 2013; 218: 2153-2159.

PURPOSE: As the number of survivors of Hodgkin's lymphoma (HL) increases, there has been a growing interest in long-term treatment-related side effects and their impact on the quality of life (QoL). The aim of this study was to assess the association of social network and social support with the QoL and fatigue among long-term HL survivors. **METHODS:** A total of 200 HL survivors were included. The generic Short Form-12 (SF-12) questionnaire, the QoL cancer survivor's questionnaire (QOL-CS), and the Multidimensional Fatigue Inventory were used to assess QoL and fatigue. Social network and social support were evaluated with the Social Support Survey. **RESULTS:** Social network and all social support measures were favorably associated with two or more SF-12 scales, mainly with physical functioning and the mental health scales. Social network and social support dimensions were also associated with better QOL-CS scores. Affective support, informational support, positive interaction, and emotional support were associated with less fatigue. **CONCLUSIONS:** Both social network and social support are associated with better QoL and lower levels of fatigue in HL survivors. This information may be useful to health professionals and community organizations in implementing effective interventions to improve these patients' quality of life.

INSPIREHEALTH'S INTERPRETATION: In survivors of Hodgkin's lymphoma, larger social networks and more social support were associated with better quality of life and lower levels of fatigue as measured by a number of different questionnaires.

E-VERSION EXTRA

MEDITATION

Milbury, K, A. Chaoul, K. Biegler, et al.

Tibetan Sound Meditation for Cognitive Dysfunction: Results of a Randomized Controlled Pilot Trial.

Psychooncology. October 2013; 2210: 2354-2363.

OBJECTIVE: Although chemotherapy-induced cognitive impairment is common among breast cancer patients, evidence for effective interventions addressing cognitive deficits is limited. This randomized controlled trial examined the feasibility and preliminary efficacy of a Tibetan Sound Meditation (TSM) program to improve cognitive function and quality of life in breast cancer patients. **METHODS:** Forty-seven breast cancer patients (mean age 56.3 years), who were staged I-III at diagnosis, 6-60 months post-chemotherapy, and reported cognitive impairment at study entry were recruited. Participants were randomized to either two weekly TSM sessions for 6 weeks or a wait list control group. Neuropsychological assessments were completed at baseline and 1 month post-treatment. Self-report measures of cognitive function (Functional Assessment of Cancer Therapy (FACT)-Cog), quality of life (SF-36), depressive symptoms (Center for Epidemiologic Studies Depression Scale), sleep disturbance (Pittsburgh Sleep Quality Index), fatigue (Brief Fatigue Inventory), and spirituality (FACT-Sp) were completed at baseline, the end of treatment, and 1 month later. **RESULTS:** Relative to the control group, women in the TSM group performed better on

the verbal memory test (Rey Auditory Verbal Learning Test trial 1) ($p=0.06$) and the short-term memory and processing speed task (Digit Symbol) ($p=0.09$) and reported improved cognitive function ($p=0.06$), cognitive abilities ($p=0.08$), mental health ($p=0.04$), and spirituality ($p=0.05$) at the end of treatment but not 1 month later. **CONCLUSIONS:** This randomized controlled trial revealed that TSM program appears to be a feasible and acceptable intervention and may be associated with short-term improvements in objective and subjective cognitive function as well as mental health and spirituality in breast cancer patients.

INSPIREHEALTH'S INTERPRETATION: Tibetan Sound Meditation as an intervention to address self-reported post-chemotherapy cognitive impairment in breast cancer patients was examined in this six week trial. Several measures of cognitive function were obtained at baseline and, 1 week and 1 month post-intervention. Although cognitive improvements were noted at 1 week post-intervention, they were not sustained by 1 month. Further research could clarify if sustained cognitive impairments could be obtained with ongoing intervention.

STUDY OF THE MONTH

Watanabe, SM, A. Fairchild, E. Pituskin, et al.

Improving Access to Specialist Multidisciplinary Palliative Care Consultation for Rural Cancer Patients by Videoconferencing: Report of a Pilot Project.

Support Care Cancer. April 2013; 214: 1201-1207.

PURPOSE: Palliative care (PC) and palliative radiotherapy (RT) consultation are integral to the care of patients with advanced cancer. These services are not universally available in rural areas, and travel to urban centers to access them can be burdensome for patients and families. The objectives of our study were to assess the feasibility of using videoconferencing to provide specialist multidisciplinary PC and palliative RT consultation to cancer patients in rural areas and to explore symptom, cost, and satisfaction outcomes. **METHODS:** The Virtual Pain and Symptom Control and Palliative Radiotherapy Clinic was piloted from January 2008 to March 2011. Cancer patients in rural northern Alberta attended local telehealth facilities, accompanied by nurses trained in symptom assessment. The multidisciplinary team at the Cross Cancer Institute in Edmonton was linked by videoconference. Team recommendations were sent to the patients' family physicians. Data were collected on referral, clinical, and consultation characteristics and symptom, cost, and satisfaction outcomes. **RESULTS:** Forty-four initial consultation and 28 follow-up visits took place. Mean Edmonton Symptom Assessment Scale scores for anxiety and appetite were statistically significantly improved at the first follow-up visit ($p<0.01$ and $p=0.03$, respectively). Average per visit savings for patients seen by telehealth versus attending the CCI were 471.13 km, 7.96 hours, and Cdn \$192.71, respectively. Patients and referring physicians indicated a high degree of satisfaction with the clinic. **CONCLUSION:** Delivery of specialist multidisciplinary PC consultation by videoconferencing is feasible, may improve symptoms, results in cost savings to patients and families, and is satisfactory to users.

INSPIREHEALTH'S INTERPRETATION: This study demonstrated some of the many benefits of "Online" medical appointments to patients living in rural areas. Instead of travelling long distances for medical appointments, these palliative care cancer patients were able to visit doctors from local telehealth facilities. Per visit, these patients saved an average of \$192.71, and 7.96 hours, the time equivalent of a full workday.

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