ABSTRACTS FOR ORAL PRESENTATIONS

Comparison of validated prognostic factors in patients with advanced cancer: A prospective cohort study

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Background Although various clinicopathological factors, alone and in combination, are reported to be prognostic in patients with advanced cancer, prospective comparison is lacking. This study examined prospectively the relationship between 15 key prognostic **factors** and survival in this patient group.
Methods Eligible adult patients with advanced cancer participated in a multicentre, prospective observational study. The following were assessed at a single time-point: Age, sex, clinician predicted survival (CPS), Eastern Cooperative Oncology Group Performance Status (ECOG-PS), modified Glasgow Prognostic Score (mGPS) based on C-reactive protein (CRP) and albumin, patient reported outcome measures (anorexia, cognitive impairment, dyspnoea, global health), presence of metastatic disease, weight loss in the last 3 months, lactate dehydrogenase (LDH), and white (WCC), neutrophil (NCC) and lymphocyte (LCC) cell counts. Univariate and multivariate logistic regression examined the relationship between these factors and death at one and three months.
Results Data were available on 478 patients. On follow-up 284 (59%) patients had died. The median (IQR) survival was 4.27 (1.86-7.03) months. The most common cancer type was lung present in 177 (37%) patients and metastases were present in 377 (85%) patients. On univariate analysis, the following factors predicted death at one and three months: CPS, ECOG PS, mGPS, WCC, NC (all $p<0.001$), dyspnoea, global health (both $p<0.001$), cognitive impairment, anorexia, LDH (all $p<0.01$) and weight loss ($p<0.05$). On multivariate analysis ECOG-PS, mGPS and NC were independent predictors of survival at one and three months (all $p<0.01$).
Conclusion In a prospective comparison of validated prognostic factors, the combination of ECOG-PS and mGPS provides a simple, reliable model on which to base the assessment of likely survival at one and three months in patients with advanced cancer.

The effects of early and systematic integration of palliative care in patients with advanced cancer: a randomized controlled trial in the context of multidisciplinary oncology care.

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Background Some studies show the benefit of early palliative care (PC) on quality of life (QOL) in advanced cancer. This is the first randomized controlled trial to examine whether early and systematic integration of PC alongside to standard psychosocial oncological care provides added benefit.
Method We randomly assigned advanced cancer patients with a life-expectancy of one year to either early and systematic integration of PC into oncological care (intervention) or standard oncological care alone (control). QOL was assessed at baseline and at 12 and 18 weeks with the EORTC QLQ C30 and McGill Quality of Life (MQOL).
Results Of the 186 randomized patients, 133 completed assessments at 12 weeks and 109 at 18 weeks. At 12 weeks, QOL was significantly higher in the intervention group than in the control group (mean score: QOL scale of the EORTC QLQ C30 (primary outcome) (range 0-100), 62.0 vs. 54.4; P = 0.03; mean score: McQOL Single Item (range 0-10), 7.1 vs 5.9; P <0.001). Similar effects were found at 18 weeks (EORTC QLQ C30; 68.2 vs 54.7; P = 0.01 and MQOL; 7.0 vs. 5.5; P <0.001). The number of consultations with a psychologist was also significantly higher in the intervention group. We found four more significant effects in the secondary outcomes favouring the intervention group and one outcome (diarrhoea) favouring the control group.
Discussion Advanced cancer patients already receiving standard psychosocial support benefit greatly from early and systematic integration of PC into oncological care.

Neuropathic pain in patients with cancer: performance of screening tools and analysis of symptom profiles

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Background Neuropathic pain (NP) affects up to 40% of cancer patients and is associated with increased pain intensity and analgesic consumption and decreased quality of life. The use of screening tools is recommended to identify NP; however, some reports indicate poorer performance in cancer populations. The objective of this study was to determine the performance of screening tools for identifying NP in patients with cancer.
Methods Systematic literature search identified studies reporting use of LANSS, DN4 or painDETECT in cancer patients with a clinical diagnosis of neuropathic or not neuropathic pain. Data on sensitivity, specificity and overall classification rate were extracted from full reports. Individual datasets were requested from study authors for secondary analysis of descriptor item profiles.
Results Six studies recruited 2301 cancer patients of which 1564 (68%) reported pain. Overall accuracy of screening tools ranged from 73%-94%. Sensitivity values varied widely (17-87%). Specificity values were high (77-100%). Individual data from 1351 patients showed large variation in the selection of NP descriptor items by cancer patients with NP. LANSS and DN4 items characterised a significantly different NP symptom profile from non-NP in both tumour- and treatment-related cancer pain aetiologies.
Conclusion We identified concordance between the clinician diagnosis and screening tool outcomes for LANSS, DN4 and PDQ in patients with cancer pain. Shortcomings in relation to standardised clinician assessment are likely to account for variation in screening tool sensitivity. Further research is needed to standardise and improve clinical assessment in patients with cancer pain, which should include the use of the NP grading system. Until the standardisation of clinical diagnosis for neuropathic cancer pain has been validated, screening tools offer practical approach to identify potential cases of neuropathic cancer pain.

Integration of oncology and palliative care - findings from the PALLiON pre-study survey

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Background The Norwegian cluster randomized PALLiON-study promotes early integration of palliative care (PC) and oncology. The intervention (6 hospitals) consists of structured education of oncologists and PC doctors, standardized care pathways (SCPs) and systematic symptom assessment, compared to PC practice as usual in the control arm (6 hospitals). Primary outcome is chemotherapy use last 3 months of life, and patients' and caregivers'

subjective health and satisfaction with care. This abstract presents the level of oncology and PC integration at participating hospitals.
Methods A Questback pre-study survey was distributed to map baseline status on collaboration, organizational and care issues on published integration indicators1 and the Norwegian organization of oncology and PC.
Results Data from to 11 hospitals were analyzed. 8 hospitals had PC in-patient units (3-12 beds), all had PC teams with nurses and certified PC doctors (1-4), also serving other hospital departments. Most frequent medical specialties among PC doctors were oncology and general practice. Common PC/oncology rounds were rated as rare (36%) or quite common (64%). PC doctors rarely participated at MDT meetings. Physician rotation from PC to oncology was confirmed by 4 hospitals, the other way around in 6. Common PC/oncology education was reported, but seldom occurred (n=10). Communication training took place in 5 hospitals, PC education in 6. Decisions about PC chemotherapy were based on clinical parameters and patient preferences combined, with written information present in 7 hospitals. Complex symptomatology was the major cause for PC referrals (100%), followed by terminal care and psychosocial issues. PC out-patient units used ESAS more often than oncology out-patient units; rarely (9%), quite (27%) or very often (64%), vs. never (9%), rarely (27%), quite (36%) or very often (9%). SCPs for PC patients were in place at 4 hospitals.
Conclusion Better integration between PC and oncology is warranted. A post-study survey will examine if the level of integration has improved 1:Hui D. et al, Ann Oncol. 2015

Quality of end of life care in patients with pancreatic cancer receiving early systematic versus on-demand palliative care at diagnosis: a secondary outcome analysis from a randomized controlled trial.

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Background The aim of this study is to compare caregiver perceived quality of care in the last week of life (Quality of End of Life care-QEOL) between patients with pancreatic cancer randomly allocated to receive early systematic versus on-demand palliative care (SPC vs ODPC).
Methods Informal caregivers of patients enrolled in the main study (NCT01996540) and died within the period 31.10.2013 to 31.12.2016, were eligible for this mortality follow-back survey. Six to twelve months after patients' death, bereaved caregivers were interviewed over the telephone by a trained psychologist. The summary scales of the Toolkit of Instruments to Measure End-of-Life Care (patient and family information, respect for patient treatment preferences, symptom control, death with dignity, family emotional support and global QEOL) were assessmed. Scale scores range from 0 (worst) to 100 (best endof-life care). Student t-tests for independent samples were used to compare SPC vs ODPC pts.

Results 118 patients were eligible for the survey. For 71 of them (58%) it was possible to contact the main caregiver, who accepted to be interviewed in 65 cases (54%). Interviewed caregivers were most often females (65%), with a mean age of 57 years and often partner (51%) or son/daughther (33%) of the decedent. Percentages of patients dying with EOL palliative care were the majority in both SPC and ODPC groups (72% and 60%). Global QEOL care was fairly good in both groups (84.6 vs 85.6, group difference -0.9 p=0.8). Other scale scores were also high (all average scores above 80, but family emotional support which scored 74). The comparison of the two groups did not show any difference in treatment effect (all differences ranged -1 to 3.4 and none was statistically significant).
Conclusion While the main study results show a benefit of SPC vs ODPC during the first 3 months from diagnosis, the fairly high QoEOL scores found for both treatment groups suggest that the management of EOL care is relatively uniform and good in this patient population.

Dietary counseling to attenuate weight loss in patients with advanced pancreatic cancer

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Background ESPEN guidelines on nutrition in cancer recommend the following interventions in patients with advanced disease; increased meal frequency, between-meal snacks, meal fortification and/or oral nutritional supplements (ONS).
Objective To evaluate the efficacy of these interventions to improve energy-(EI) and protein intake (PI) and how they affect food choices in patients with advanced pancreatic cancer.
Results Fifty-nine patients (M 36/W 23) with newly diagnosed pancreatic cancer were consecutively recruited when admitted for chemotherapy and followed monthly. At inclusion, patients with weight loss and/or inadequate EI received dietary counselling according to the guidelines. Height, pre-illness stable body weight, actual weight, arm muscle area and dietary intake were measured at each assessment. Cachexia was diagnosed according to one or more of the following criteria: (i) weight loss >5% past six months, (ii) BMI <20 kg/m2, (iii) weight loss > 2% and sarcopenia (mid upper-arm muscle area: female <18 cm2, men <32 cm2).
Results Median age was 62 (range 48-88) years and 36 (61%) patients were classified as cachectic upon inclusion. One month after inclusion the weight remained stable (mean 65.1 kg vs. 64.5 kg). Mean EI per kg body weight was 25 (4-80) kcal/kg at inclusion and 30 (1-67) kcal/kg after one month (p=0.037). Mean PI was 1.0 g/kg and 1.2 g/kg, respectively (p=0.13). The energy contribution from high energy dense foods such as nuts, ice cream, fortified food

and ONS rose from 8 to 19%. Energy from cereals decreased from 25 % to 15 % of the energy.
Conclusion Dietary intervention in accordance with ESPEN guidelines led to increased EI and stable weight in patients with advanced pancreatic cancer during the first month of chemotherapy. Foods high in energy density were well accepted and tolerated in this group of patients with low appetite and high risk of cachexia.

Neuropathic cancer pain prevalence and characteristics in a palliative care population, and proposal of a project for the validation of the EAPC diagnostic algorithm

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Background Neuropathic cancer pain (NcP) is a common and difficult-to-manage complication of cancer. Many clinicians conveys that diagnostic and therapeutic criteria of non-cancer neuropathic pain could differ from NCP. Recently, EAPC has proposed a NcP-specific diagnostic algorithm. The aim of this study is to estimate NcP prevalence and to investigate peculiar characteristics of NcP
Methods Clinical records of 117 consecutive patients with pain due to cancer and enrolled in a hospice program were retrospectively screened for the presence of neuropathic pain criteria: 1) history of neurological disease or lesion; 2) pain distribution into neuroanatomical boundaries; 3) clinical signs of sensory disorders; 4) confirm of sensory system damage to diagnostic tests. Patients which satisfied the NeuPSIG diagnostic algorithm for neuropathic pain (1 + 2 + 3 or 4 criteria) were further analyzed about pain localization and supposed pathogenetic mechanism
Results We founded a prevalence of 11 % (11 pts) of probable or definite NcP according to NeuPSIG algorithm. Five of them didn't show sensory abnormalities inside painful regions, thus a probable NcP diagnosis was supported by radiological exams. In all patients pain originates from chest or abdominal tumors direct compression or infiltration of nerve roots or peripheral nerves, and, as expected, was mainly localized on deeper tissues and on the torso, and rarely projected to the limbs
Conclusion: this study shows evidence of a lower than expected NcP prevalence into an hospice population, raising questions about the heterogeneity of the population described in literature and the reliability of diagnostic criteria. Worth of note, 5 out 11 patients didn't satisfy the 3rd criterion, and would be considered non-neuropathic pain according with EAPC/IASP criteria. Thus, subtle differences into diagnostic algorithms could define different pain populations. Pain characteristics evaluation, largely omitted by literature, supports experts consensus that NcP could be considered a stand-alone painful syndrome, different from non-oncological neuropathic pain. Finally, we propose a research protocol to validate the EAPC/IASP algorithm for NcP, inclusive of neurosensorial profile defined by quantitative sensory tests and inferences of the mechanisms provoking pain

Subjective and Objective Assessment of Taste and Smell Abnormalities in Advanced Cancer

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Background Taste and smell abnormalities (TSA) occur throughout the cancer trajectory and impact food intake, nutritional status and quality of life. Previous studies focused on TSA post-treatment. Subjective and objective measures are used to study TSA prevalence, severity and characteristics. Subjective assessment captures individual chemosensory perception while objective measures identify distinct TSA. This study in advanced cancer examined a) the prevalence, severity and characteristics of TSA; b) the relationship between TSA and malnutrition using objective and subjective measures.

Methods Consecutive advanced cancer in-patients were recruited at a hospice. A modified version of the 'Taste and Smell Survey' evaluated subjective chemosensory changes. Validated Burghart Taste Strips® and "Sniffin' Sticks®" tested taste and smell objectively. The Abridged Patient-Generated Subjective Global Assessment measured nutritional status.

Results Thirty patients (21 females) were recruited. Median age: 68 (range 40-92). Median ECOG: 3 (range 2-3).

93% (n=28/30) reported subjective taste changes and 54% (n=16/30) had objective taste abnormalities. Salty and sweet tastes were perceived to have changed in 50%. Bitter and sour tastes were the most poorly identified tastes in objective tests. 60% had dysgeusia; half "often" or "always". Subjective smell changes were reported by 67% (n=21/30) and 54% (n=16/30) had objective smell abnormalities. Smell was "*not as strong"* compared to pre-diagnosis for 50%. The impact of taste changes was considered "moderate", "severe" or "incapacitating" while smell changes were "mild" to "moderate".

The mean number of co-occurring nutritional impact symptoms was 7 (SD 3). Fatigue, dry mouth, early satiety and anorexia were most common. Most (97%) with a TSA were at malnutrition risk. No statistically significant relationship ($P > 0.05$) was found between TSAs and malnutrition scores.

Conclusions TSAs were highly prevalent. Subjective and objective assessment concordance was 57% for taste and 76% for smell. This suggests that both types of assessment are needed. Taste abnormalities were more distressing. TSA characteristics were varied. TSA are common, high-impact problems in advanced cancer.

POSTER PRESENTATIONS

P1 Predictors of analgesic response to radiotherapy in patients with cancer induced bone pain – a systematic review

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Background Cancer induced bone pain (CIBP) is the most common cause of cancer pain. Radiotherapy (XRT) is the gold standard treatment but only 25% of patients get complete pain relief. The remaining patients only get partial (50%) or no pain relief (25%) but may still experience side effects, in addition to the effort it involves to travel to an XRT centre. Predicting who is likely to benefit from XRT has implications for patients and health care resources. The aim of this systematic review was to identify predictors of analgesic response to XRT for CIBP.
Methods MEDLINE (1946-2017), Embase Classic + Embase (1947-2017), and Cochrane Central Register of Controlled Trials (up to 2017) were searched. Eligible studies included: adult patients with CIBP receiving XRT; and outcome related to prediction of analgesic response. Case reports and studies not in English were excluded. Studies were appraised using the Grading of Recommendations Assessment, Development and Evaluations (GRADE) system.
Results Of eight studies (n=456) included, urinary markers of bone turnover (pyridinoline, deoxypyridinoline, N-telopeptide, C-telopeptide, calcium and phosphate) had been evaluated as predictors in three studies; however the findings were conflicting. Another two studies evaluated the use of different imaging techniques as predictors of response. The first study showed that a low fluorine 18 fluorodeoxyglucose (FDG) positron emission tomography (PET) uptake predict a good response to XRT. The second study incorporated magnetic resonance imaging (MRI) using diffusion weighted imaging (DWI) sequences into a "predictive index", useful in monitoring patients post-XRT. One study examined the value of patient demographics and disease related parameters to predict response to XRT. Two studies evaluated assessment of thermal sensation or physical activity and gait to predict response. **Conclusion** There is still no established predictor of response to XRT for CIBP in clinical practice. The studies identified herein were small, varied in how pain response after XRT was defined, and were of limited methodological quality. There is a need for potential predictors to be evaluated in appropriate high quality studies.

P2 Absorption of sublingually delivered fentanyl (Abstral®) in head and neck cancer patients treated with curatively aimed chemo-or bioradiotherapy

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Background Curatively aimed chemo- or bioradiotherapy for head & neck cancer is frequently complicated by painful mucositis for which strong-acting opioids are needed. Because of swallowing problems, these agents are given by nasal tube or transdermally. It seems attractive to treat this pain with rapid onset opioids, like sublingually delivered fentanyl. However, it is unknown if the absorption of sublingually delivered fentanyl is affected in case of therapy-induced mucositis. Therefore, we investigated the effects of mucositis occurring during chemo- or bioradiotherapy on the exposure of sublingually delivered fentanyl.
Methods In this prospective pharmacokinetic (PK) study (www.trialregister.nl; NTR4995), patients with head & neck cancer who were treated curatively with radiotherapy (RT) + cisplatin or cetuximab were eligible. Patients received a single dose of 200 µg Abstral® before start of RT, and at 3 + 6 weeks after start. Around each dose, plasma PK samples were taken, i.e. before administration and 9 within the first 6 hours. Primary study endpoint was the relative difference (RD) between area under the curve (AUC) at baseline and at the first moment a mucositis CTC grade ≥2 was diagnosed (AUCm). Assuming an intra-individual variability in AUC of 20%, 13 patients were needed (80% power, $\alpha = 0.05$, 25% difference). A paired t-test was performed on log-transformed AUCs.
Results Of the 14 included, patients, 13 were evaluable. They were treated for cancer of the oropharynx (OP) (n=4), hypopharynx (n=4), larynx (L) (n=4) or combined OP/L cancer; T2-3N1-2b. In 9 patients a CTC grade ≥2 mucositis was diagnosed at 3 weeks after the start of RT, in 4 patients after 6 weeks. The mean AUC at baseline was 1.04 ng/mL*h and the mean AUCm was 1.13 ng/mL*h (difference of 8.3%, p=0.52, 95% CI: -16.8% to + 41.1%).
Conclusions Patients with head & neck cancer, who are curatively treated with RT in combination with cisplatin or cetuximab develop a painful mucositis. As we found no clinically relevant effects on the exposure of sublingual fentanyl during treatment, we conclude that sublingual fentanyl can be safely administrated during chemo- or bioradiotherapy for head & neck cancer.

P3 Does previous opioid exposure modify the relative efficacy and tolerability of sublingual fentanyl and subcutaneous morphine for the treatment of severe cancer pain episodes? Results from a double-blind, randomized, non-inferiority trial.

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Background Few studies have addressed the impact of previous opioid exposure on the effect of opioids for severe cancer pain episodes. We aimed to investigate the heterogeneity in the relative efficacy and tolerability of fentanyl sublingual tablets and subcutaneous morphine by prior opioid exposure level.
Methods In a double blind randomized controlled trial patients received either 5 mg subcutaneous morphine or 100 mg fentanyl sublingual tablet. Endpoints were: average of "pain right now" scores in the first 30 minutes, proportion of patients needing a second dose of opioid, "pain right now" at 60 min, and average of intensity of adverse events at 30 and 60 minutes. Multivariable linear and logistic regression models and statistical tests for interaction were used to assess heterogeneity of treatment effect across different opioid dosages.
Results 114 patients were enrolled. Tests for interaction failed to show any heterogeneity of treatment effect at different doses for all the outcomes examined (p=0.65, p=0.41 and p=0.75 respectively for pain intensity in the first 30 minutes, proportion of patients needing a second dose, pain intensity at 60 min). Similar lack of heterogeneity emerged for adverse events intensity scores but difficulty breathing. However the size of this effect was quite small (<0.3 on a 0-3 rating scale).
Conclusions No heterogeneity in the relative treatment effects between fentanyl and morphine was shown. Patients in treatment with low doses of opioid can safely use either subcutaneous morphine 5 mg or transmucosal sublingual fentanyl 100 µg for severe pain episodes. Dose titration is however needed.

P4 Effect of duration and intensity of palliative care on end of life quality markers for cancer patients: a retrospective cohort study

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Background Integration of palliative care alongside oncology care is hindered by lack of evidence about the optimum duration and intensity of palliative care (PC). We aimed to determine a minimum effective dose of PC for each of the following quality indicators; reduction in hospital use as assessed by place of death in hospital, chemotherapy or emergency admissions in last 4 weeks of life, and access to strong opioids.
Methods Retrospective cohort study linking cancer registry, primary care, and secondary care data on cancer patients who died between 2010 and 2012. Classification trees were constructed to identify the most important palliative care provision characteristic (duration or intensity) alongside optimum cut-off points for each end of life care outcome. Multivariable regression models (logistic and multinomial) were used to investigate the impact of these cut-off points on end of life care outcomes.
Results Linkage yielded data on 2479 cancer patients who died between January 2010 and March 2012, with 64·5% who received at least one PC event. Patients who received PC were significantly more likely to die in a hospice (39·4% versus 14·5%) and less likely to die in hospital (23·3% versus 40·1%), and were more likely to receive an opioid (53·9% versus 25·2%). Number of PC events was more important than duration of PC in terms of access to an opioid (≥2 events) and avoiding death in hospital (≥2 events). Duration of PC was more

important than number of events in relation to avoiding emergency hospital admissions (≥4 weeks) and late chemotherapy (≥8 weeks).
Conclusion Four weeks of PC was associated with a reduction in emergency hospital admissions and eight weeks a reduction in late chemotherapy. Receiving two or more palliative care events increased the likelihood of receiving an opioid analgesic and avoiding a hospital death.

P5 Correlation between increase in albumin level and fulfilment of therapeutic goal in parenteral nutrition support

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Introduction Malnutrition among cancer patients can worsen prognosis, quality of life and cause significant complications (Hauser 2012, Norman 2008). Cancer cachexia patophysiology mimics protein-caloric malnutrition in the course of an acute or chronic inflammatory state (Longo 2012). Indication of parenteral nutrition (PN) among patients with advanced cancer is a controversial issue. PN can be administered to patients who are in anabolic state of metabolism in clinical situation with gastrointestinal tract dysfunction. It is the utilization of substrates we know that could increase the level of albumin (the binding protein easily measured in blood serum) in the anabolic state despite of gastrointestinal tract dysfunction. We can perform a test with parenteral nutrition and if the patient has an anabolic reserve for syntesis of building or binding proteins, we can anticipate the clinical effect of increased patient function.
Methods We performed an analysis of 57 patients who were given parenteral nutrition at the Palliative care department of the National Cancer Institute in Bratislava. The analysis covered a period from 1 January 2012 until 31 December 2014. There were 57 patients with gastrointestinal dysfunction and advanced cancer that were given parenteral nutrition support. During the first phase of parenteral nutrition we defined a treatment goal and performed a biochemical analysis for determination of level of albumin. A second valuo of albumin level was obtained during the first week of parenteral nutrition. On day 30 we registered if the therapeutic goal of the patient was reached and obtained a final value of albumin level. Then we categorized the patients into two groups. The first group of patients who achieved the treatment goal was labeled as Th1. The second group who did not fulfill the treatment goal was labeled Th2. We performed an analysis to correlate the baseline level of albumin with the levels during the first week and the level of the fulfilled treatment goal. We also linked fulfillment of the treatment goal with the survival rate. We used a regression analysis linear model to correlate between figures in the group, which is expressed as p-value.
Results We analyzed 57 patients with advanced cancer. In the Th1 group there were 28 patients who had the treatment goal fulfilled. The Th2 group had 29 patients who did not fulfill the treatment goal. In the Th1 group 17 (60.7%) showed an increase albumin level while 11(39.3%) patients showed a decrease. In the Th2 group, 7 patients (24.1%) showed an increase and 22 patients (75,9%) showed a decrease in levels. The difference between groups was statistically significant (p=0.005) and had a direct link with fulfillment of the treatment goal. The level of albumin on day 30 did not draw a parallel with the fulfillment of

the treatment goal, but did (using regression analysis) correlate with survival (p=0.011). When it comes to BMI, GPS, cholinesterase levels and levels of albumin, there were no differences between Th1 and Th2. Statistically, there are significant differences of survival in groups Th1 and Th2. Mean survival in the Th1 group was 122.46 days (median 90 days) and mean survival in the Th2 group was 30.72 days (median 26.5 days) (p=0.002).
Conclusion Considering the results of our analysis, we can now change our view of patients with advanced cancer and the contribution of parenteral nutrition. We can use the outcome of PN during first week to differentiate the patients whose catabolism is in the refractory stage. Statistically, there is an important correlation between fulfilment of the treatment goal and survival. Based on this assosiation we can use the fulfillment of treatment goal as a relevant endpoint in palliative medicine research. It is essential that these results be further defined by a prospective study.

P6 Implementation of Eir, an electronical symptom management tool for cancer patients, at a surgical department – is it feasible?

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Background Eir is a web-based communication platform for symptom assessment and clinical decision support in cancer care. Although Eir has been demonstrated to be a reasonable and feasible part of the symptom management for advanced cancer patients, the knowledge of how to implement this tool into clinical practice is lacking. The overall aim of this study is to increase the knowledge of success criteria and barriers of implementation of the electronic symptom management tool Eir at a surgical department.
Methods This project used a descriptive, qualitative study design, based on semi-structured interviews and observations. 11 patients and 26 health care professionals were included from a surgical department in a local hospital in Norway.
Results Overall, the patients and health care professionals were satisfied with Eir. They found it easy to use, understandable and relevant. The health care professionals considered Eir to improve consultations and to increase the quality of the health care. However, it was emphasized that Eir should be integrated with already existing compute programs in clinical use. It was also a wish from the physicians that decision support should be available for all symptoms addressed in Eir. The health care professionals in this study identified three main categories of success criteria for implementation of Eir: 1) Anchoring in the management, 2) the process manager and nurses' participation in the implementation process, and 3) perceived high value for clinical work. Also three main categories for barriers for implementation were identified: 1) Inaccessibility of tool, 2) health care professionals' experience of unfavourable resource allocation in the clinic, and 3) the amount of part-time employees among the nurses. **Conclusions** According to this study, it is feasible to implement Eir at a surgical department since the tool is found easy to use and of clinical value for the users. However, in order to achieve a successful implementation, Eir must be integrated into electronical patient record systems, and dedicated personnel in the clinic,

preferably nurses, must constantly monitor the implementation process. For the latter part to succeed, it is unfavourable that nurses work part-time.

P7 Review of the impact of corticosteroids on cancer-related anorexia-cachexia

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Background Cancer-related anorexia-cachexia (CAC) is a multifactorial syndrome of anorexia, involuntary loss of body weight, muscle mass and fat tissue, and is associated with reduced quality of life and poor performance status. Up to 80% of cancer patients develop cachexia before death. The mechanism of action of corticosteroids in CAC is not well understood but is possibly related to inhibition of cytokines such as IL-1 and TNF-alpha.
Methods A comprehensive literature search was performed using electronic databases to identify studies that assessed the use of corticosteroids in cancer-related anorexia and cachexia. Reference lists of included studies were also reviewed.
Results 12 studies met inclusion criteria, with a total of 1442 patients analysed. 6 of these studies were included in a meta-analysis. None of the studies had primary outcomes investigating the effect of corticosteroids on cancer-related cachexia. 11 studies showed a statistically significant improvement in appetite in the corticosteroid treatment group ($p<0.05$). Meta-analysis showed a significant improvement in the number of patients reporting increased appetite ($p=0.03$) and mean improvement in appetite scores ($p=0.003$) in patients treated with corticosteroids versus placebo. There were no significant increases in non-fluid weight gain reported in any of the studies. 4 studies reported no significant difference in side effects between the corticosteroid and placebo groups.
Conclusion There have been multiple good quality randomised controlled trials demonstrating the efficacy of short-term corticosteroid use in cancer-related anorexia. However, there is a lack of evidence for the use of corticosteroids in attenuating the systemic inflammatory response in cancer-related cachexia. Use of an objective prognostic score such as the Modified Glasgow Prognostic Score may be beneficial in future studies to better measure the role of corticosteroids in patients with cancer-related cachexia.

P8 Which factors determine the duration of specialist palliative care for patients with cancer in the UK? A national retrospective cohort study

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Background Multiple studies indicate early integration of palliative care in the trajectory of cancer care can result in numerous benefits to patients and their caregivers. Wide variation in timing and duration of palliative care has been reported internationally across studies with limited sample sizes. This study sought to determine a national picture of timing of referral to specialist palliative care before death for patients with cancer in the United

Kingdom (UK). **Methods** We did a retrospective cohort study to identify factors that influence timing of referral to hospice care prior to death across the UK. Hospices from England, Wales and Scotland extracted routine data (i.e. age at death, sex, ethnicity, diagnosis at referral and days from initial referral to death) for all adult patients with cancer that died during 2015. Each site also provided data on their bed capacity, staff capacity (whole time equivalent figures for palliative care doctors and community nursing teams) and total unique patient referrals for 2015.
Results There were 31,167 patients with cancer included in the cohort, from 64 hospice sites across the UK. Across the study population, referral to palliative care occurred a median of 54 days (7-8 weeks) prior to death for all patients with cancer. Age, cancer diagnosis and presence of a community-based nursing team were significant predictors of duration of palliative care before death.
Conclusion The current timing of referral to specialist palliative care may limit benefits that patients can gain in end of life care, particularly for older patients and those with certain cancer diagnoses. Identification of factors that influence patterns of referral can inform efforts to maximise patient access to palliative care, informing timely integration of palliative care into the trajectory of cancer care.

P9 A parallel-group randomized clinical trial of individually tailored, multidisciplinary, palliative rehabilitation for patients with newly diagnosed advanced cancer: The Pal-Rehab study protocol.

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Background The effect of early palliative care and rehabilitation on the quality of life of patients with advanced cancer has been only sparsely described and needs further investigation. In the present trial we combine elements of early, specialized palliative care with cancer rehabilitation in a 12-week individually tailored, palliative rehabilitation program initiated shortly after a diagnosis of advanced cancer.
Methods This single center, randomized, controlled trial will include 300 patients with newly diagnosed advanced cancer recruited from the Department of Oncology, Vejle Hospital. The patients are randomized to a specialized palliative rehabilitation intervention integrated in standard oncology care or to standard oncology care alone. The intervention consists of a multidisciplinary group program, individual consultations, or a combination of both. At

baseline and after six and 12 weeks the patients will be asked to fill out questionnaires on symptoms, quality of life, and symptoms of depression and anxiety (EORTC QLQ-C30 and HADS). Among the symptoms and problems assessed, patients are asked to indicate the problem they need help with to the largest extent. The effect of the intervention on this problem is the primary outcome measure of the study. Secondary outcome measures include survival and economic consequences.
Results Recruitment of study participants is 85% complete, and results are expected in 2018.
Discussion To our knowledge the Pal-Rehab study is the first randomized, controlled, phase III trial to evaluate individually tailored, palliative rehabilitation in standard oncology care initiated shortly after an advanced cancer diagnosis. The study will contribute with evidence on the effectiveness of implementing early palliative care in standard oncology treatment and hopefully offer new knowledge and future directions as to the content of palliative rehabilitation programs. Trial registration: Clinicaltrials.gov Identifier: NCT02332317, registered December 30, 2014

P10 Nutritional Status and Interventions in Hospice: Physicians' Assessment

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Background Cancer cachexia is a multifactorial syndrome characterised by progressive loss of skeletal muscle mass (1). It adversely influences quality of life, treatment response, and survival (1). Early identification and multimodal interventions can potentially treat cancer cachexia. However, healthcare professionals demonstrate a lack of understanding and ability to identify cancer cachexia early (2). This study aimed to evaluate physicians' assessment of nutritional status in cancer patients admitted to hospice. It assessed a) common terminology used; b) nutritional impact symptoms (NIS); c) interventions prescribed.
Methods A retrospective medical record review was conducted for cancer admissions to Our Lady's Hospice & Care Services between October 2016 and end of January 2017. Physician assessment of nutritional status was derived from referral letter, admission notes, and discharge letter.
Results One hundred and forty admissions were evaluated. Nutritional terminology and NIS were most commonly documented on the admission notes. Loss of appetite (26%) was the most common terminology recorded. Fatigue was the most frequent NIS, recorded in 50% of documents. Nine per cent had nutritional advice documented. The most commonly prescribed nutritional interventions were anti-emetics and oral nutritional supplements.
Conclusion We identify a lack of comprehensive and routine nutritional assessment of cancer patients admitted to hospice. Implementation of nutrition screening tools, use of a standardized NIS checklist, and multidisciplinary education could improve identification and treatment of cancer cachexia in the palliative care setting. References: 1. Fearon K, Strasser F, Anker SD, Bosaeus I, Bruera E, Fainsinger RL, et al. Definition and classification of cancer cachexia: an international consensus. Lancet Oncology. 2011;12:489-95. 2. Muscaritoli M,

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P12 Big data in health research: is palliative care underrepresented?

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Background Big Data is a trend in health research. Advances in information technology allow us to record, store and analyse vast amounts of patient data. This is then mined by machine learning to develop predictive algorithms and determine trends or patterns within the data which may be useful for screening, diagnosis and prognostication. We investigated the amount of Big Data research undertaken within palliative care (PC) to determine if PC is underrepresented in this type of research.
Methods We compared two health research themes (Big Data and Assessment) for 3 health topics (Cancer, Dementia and Palliative Care). The number of articles returned by Google scholar for each combination of research theme and health topic was taken to indicate the amount of research undertaken. Google Scholar terms were searched by Boolean logic: ("big data" OR "machine learning" OR "predictive analytics") AND (cancer OR dementia OR palliative); assessment AND (cancer OR dementia OR palliative). The terms "machine learning" and "predictive analysis" are synonymous with "Big Data" The search was restricted to articles published since January 2015 and only article titles were searched. The total amount of big data research for Cancer, Dementia and PC was determined and the proportion of this due to PC was calculated. A similar calculation was done for Assessment research. If the Big Data proportion was significantly less than the Assessment proportion, it is likely that PC is underrepresented in Big Data research.
Results Number of articles since 2015 relating to: Big Data and Cancer: 260 Big Data and Dementia: 32 Big Data and Palliative Care: 1 Assessment and Cancer: 3640 Assessment and Dementia: 379 Assessment and Palliative Care: 243 Proportion of the Big Data articles that relate to Palliative Care: (0.003%, 95% CI 0-2) Proportion of the Assessment articles that relate to Palliative Care: (6%, 95% CI 5-6)
Conclusions The proportion of PC research associated with Big Data was significantly less than that associated with Assessment indicating that PC research in Big Data is indeed underrepresented. To ensure that the benefits and challenges of Big Data are adequately applied and addressed within PC, the PC research community needs to become more aware of and skilled in this important area.

P13 Cardiac Function in Cancer-Related Fatigue

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Background Cancer-related fatigue (CRF) is a common, high-impact symptom but pathophysiology is unclear. One possible mechanism is dysfunction of cardiac muscle. Cancer-related changes to cardiac muscle may precede any treatment-related cardiotoxicity. Study objective was to investigate fatigue and cardiac function in people with solid tumour malignancies.
Methods Treatment naïve participants were recruited from medical oncology outpatient clinics. Fatigue was measured subjectively (brief fatigue inventory [BFI]) and objectively (grip strength, timed-up-and-go [TUG] and sit-to-stand [STS]). BFI ≥3 was indicative of fatigue. A 2D transthoracic echocardiogram assessed cardiac function (systolic: ejection fraction [EF]; diastolic: isovolumic relaxation time [IVRT, left ventricular (LV) relaxation] and mitral valve E/A ratio [E/A, LV filling velocities]. Myocardial strain was analysed using EchoPAC software (GE Healthcare™). A cardiac biomarker, NT-pro brain natriuretic peptide (NT-BNP), was measured on a subset of participants.
Results • 26 participants (20F) • Age: Median 54 (range 39-79) • Cancer diagnoses: Breast 20, Oesophageal 6; Loco-regional disease: 14 • BFI: Median 2.4 (range 0-7.7) • BFI ≥3: 10/26 (38%) Fatigued Non-Fatigued Median (Range) Median (Range) N=10 N=16 Grip strength, kg force 19 (7-33) 25 (15-48) TUG, sec 8 (7-12) 7 (5-10) STS, number in 30sec 13 (6-16) 14 (8-25) EF, % 69 (59-80) 66 (56-80) IVRT, millisec 110 (88-133) 100 (70-121) E/A, ratio 0.96 (0.3-1.8) 1.2 (0.7-1.7) N=7 N=14 Global longitudinal strain, % 20 (16-24) 20 (15-25) N=3 N=17 NT-BNP, ng/L 23 (22-66) 28 (6-75 Interim results are presented; recruitment is ongoing.
Conclusions 1. High proportion of participants fatigued pre-treatment. 2. Indicators of diastolic dysfunction in fatigued participants i.e. prolonged IVRT, reduced E/A ratio 3. No difference in systolic function, myocardial strain, or NT-BNP levels between groups. 4. Feasible study, tests well tolerated.

P 14 E-learning as a means of raising awareness of communication skills: Participants' evaluation

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Background The educational program of PALLiON (Palliative Care Integrated in Oncology) consists of three elements; lectures, an e-learning course and communication skills training. We asked: How do oncologists and palliative care doctors evaluate an e-learning course that aims to promote patient centered communication skills?
Methods The e-learning course, made up of ten 30-minute sessions, was based on 4 films on consultations between doctors and a cancer patient from start of last chemotherapy cycle until end of life. For each film questions to be used in small group discussions were formulated. The groups were led by communication trained doctors and psychologists. 18 communication skills were focused on throughout the course. After course completion a structured, anonymous web-based evaluation survey was distributed, focusing on: a)a general evaluation of the course content and practicalities (range:1(quite good)-5(very

poor)), b)to what degree the course raised their awareness of communication skills (1(a very high degree)-5(not at all), and c)the contributions (1(a very high degree)-5(not at all)) and participation (1(too active)-5(too passive)) of the teacher.
Results 50 of 79 (63.3%) doctors responded (Mean age:42;F:65%). 67.2% reported their general evaluation of the course content as fairly or quite good, 30.6% as neither or good or poor, 2% as fairly or very poor. The practicalities were rated by 55.1% as fairly or quite good, by 34.7% as neither or, by 10.2% as fairly or very poor. Between 63% and 86% reported that the course raised their awareness of the communication skills in some, fairly or very high degree, while 27% to 14% answered to a small degree or not at all. 98% reported that the teacher provided useful contributions to the discussion and 92% teacher's participation as appropriate.
Conclusion Overall, the participants rated the e-learning course as fairly good. The practicalities of the course have the greatest potential for improvement.

P15 The advanced cancer trajectory: oncology health professionals' perspectives on transitioning between services. A qualitative interview study

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Background: Advanced cancer trajectories vary depending on cancer type, the availability of treatments, and patients' assessment of balance between life quality and extending life. As the number of options for life-prolonging treatments continues to increase, patients are living longer with advanced disease, with changing needs over time. This has implications for service systems to provide appropriate support. However, there is little information on how and by whom this is provided, and how transitions between services are secured. **Methods:** Qualitative study employing face-to-face interviews with 16 purposively selected oncology health professionals, across a range of cancer specialities, from a tertiary cancer centre. Data were analysed using grounded theory strategies. **Results:** Negotiating involvement with, and transitions to, palliative care varied depending on cancer type. For oncology professionals, increasing advanced cancer trajectory length and frequency of contact with patients through treatment, meant that relationships of trust were developed and enhanced over time. This length of involvement with patients resulted in difficulties in managing the transition between oncology and palliative care, as patients perceived them to be the primary health care provider. Clinical nurse specialists were proactive in mobilising supportive care alongside treatment. However, their location in the advanced cancer trajectory was inconsistent across cancer types. For some, they were located only at earlier trajectory stages and absent during the advanced stage. **Conclusion:** By maintaining an 'open door' policy whilst simultaneously referring patients to palliative care, clear transitions between services are not being secured. Without the availability of specialist nurses, the bridge to effect a smooth transition between treatment and palliative care was inconsistent across advanced cancer types.

P 16 Subjective and objective measures in cancer-related fatigue v chronic fatigue syndrome

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Background Cancer-Related Fatigue (CRF) is a prevalent, debilitating symptom, as is Chronic Fatigue Syndrome (CFS). Their aetiologies are poorly understood. Current fatigue assessment is by subjective questionnaires (e.g. Brief Fatigue Inventory (BFI)), as no effective objective measures exist. In this study, overall fatigue score was assessed by the Brief Fatigue Inventory (BFI), and then compared to objective measures of muscle fatigue; maximum voluntary contraction (MVC) & endurance time (ET) during a motor task. CRF and CFS data was compared. AIMS: 1) To determine the utility of MVC and ET as objective measures in CRF and CFS? 2) To determine the correlation of the subjective BFI to MVC & ET
Methods 10 pre-chemotherapy patients with NSCLC (mean age 64 ± 12) + 11 CFS volunteers (mean age 51 ± 11) completed the BFI. They then performed sustained right forearm contraction at 30% maximum until subjective exhaustion. MVC and ET were recorded.
Results Mean CRF CFS Significance Brief Fatigue Inventory 3 ± 2 7 ± 1 P=0.005*a Maximum Voluntary Contraction (N) 278 ± 115 224 ± 60 P=0.44b Endurance Time (s) 134 ± 55 144 ± 83 P= 0.8b (Table 1:P-Values for mean BFI, ET, and MVC for both cohorts. (*Determined with ANCOVAa, Kruskal-Wallisb)) CRF CFS Pearson's Correlation Significance Pearson's Correlation Significance BFI - MVC -.74 P= 0.01* -.07 P= 0.8 BFI - ET -.39 P= 0.3 .25 P= 0.45 BFI - AGE -.45 P= 0.2 -.60 P= 0.05* AGE – MVC .19 P= 0.6 -.12 P=0.7 AGE - ET .15 P= 0.7 -.12 P= 0.7 MVC - ET .01 P= 0.8 -.27 P= 0.4 (Table 2: Pearson's Correlation and P-Values of measures of each group.) Controlled for age, CFS reported greater BFI mean fatigue than CRF (7 vs 3) (p=0.005). High correlation of MVC & ET as predictors of log BFI in CRF (R2 = 0.8) but not CFS (R2 = 0.06) (Figure 1). BFI was strongly correlated with MVC for CRF (Pearson's Correlation r= -0.743, P=0.01) unlike CFS (r= -0.06, P=0.8).
Conclusions 1) Subjective fatigue in CFS > CRF. 2) Maximum Voluntary Contraction & Endurance Time can be used as objective measures of cancer-related fatigue (but not chronic fatigue syndrome). 3) The strong correlation between MVC & BFI for CRF but not CFS suggests different pathophysiology. 4) CRF is more likely of central origin than CFS.

P 18 Developing an interdisciplinary postgraduate programme in palliative and end of life care

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Background Interdisciplinary learning is recognised as playing a pivotal role in preparing health and social care professionals in today's complex healthcare environment. Efforts to develop and implement interdisciplinary palliative care education programmes have been scarce and fragmented. Moreover, the World Health Assembly (2014) has adopted a resolution urging all its members to implement palliative care education at specialist and generalist level. In the UK, End of life care Strategy (2008) and subsequent related reports have identified the need for workforce development to improve access and provision of palliative and end of life care. Aim: To design and implement an innovative interdisciplinary curriculum for postgraduate education in palliative care that is person-centred, efficient, accepted, and sustainable.
Methods An interdisciplinary Project Steering Group was established to provide leadership and support, and to oversee the development of the programme. An initial draft of the programme was devised in consultation with the Steering Group. Three stakeholder events were held in November 2015 which indicated general appreciation and support for an interdisciplinary palliative care education programme at postgraduate level. These events provided feedback on the proposed programme learning outcomes, structure, content, and delivery. A service-user focus group was conducted in early 2016, seeking feedback on draft course content and learning outcomes.
Results Curricular components were redesigned based on feedback from all stakeholders. Openness towards interdisciplinary feedback and external engagement, coupled with flexibility and compromise enabled the development of a person-centred, efficient, accepted and sustainable interdisciplinary programme.
Conclusion The development of an interdisciplinary palliative care education programme can encounter multiple barriers; however, openness and acceptance of feedback on multiple levels while focusing on learners' needs, to enhance care, can create a successful and feasible programme.

P 19 Attitudes and Opinions of Elderly Patients and Family Caregivers on End-of-Life Care Discussion

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Background End-of-life (EOL) care decisions have become an urgent issue in Korea in response to recent legislation called the Life-Sustaining Treatment Decision Act of 2016. The present study attempted to explore attitudes and opinions on EOL discussion among elderly patients and their family caregivers since communication regarding EOL care has been argued to be a major premise leading to the best decision making.
Methods The attitudes and opinions of elderly patients and their family caregivers were solicited through focus group interviews. The final sample consisted of 12 patients and 16 family members.

Results Guided by content analysis, 5 themes were revealed. The identified themes were individual approach for delivering bad news and stakeholders involved in the discussion, contradictory attitudes toward advance care planning, mutual understanding, hope for the EOL care discussion process, and resistance to discussion of hospice-palliative care.
Conclusion Study findings suggested that an approach focusing on the individualized needs of patients and family members is required in EOL care discussion for elderly patients.

P20 Experiences and Opinions Related to End-of-Life Discussion: From Oncologists' and Residents' Perspectives

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Background The aims of this study were to explore how oncologists and resident physicians practice EOL discussions and to solicit their opinions on EOL discussions as means to improve the quality of EOL care.
Methods A survey questionnaire was developed to explore the experiences and opinions about EOL discussions among oncologists and residents. Descriptive statistics, the t-test, and the Chi-square test were performed for analyses.
Results A total of 147 oncologists and 229 residents participated in this study. Study respondents reported definition of terminal state diversely and most respondents tried to disclose patient’s condition to patient and/or family members. Both groups were involved in EOL care discussions with rather low satisfaction level (57.82/100). The best timing to initiate discussion was considered when metastasis or disease recurrence occurred or when withdrawal of chemotherapy was anticipated. Further, the study respondents suggested that patients and their family members should be included in the EOL discussion. Medical, legal, and ethical knowledge and communication difficulties along with practical issues were revealed as barriers and facilitators for EOL discussion.
Conclusion This study explored various perspectives of oncologists’ and resident physicians’ for EOL discussion. And now is the time for oncologists and residents to prepare themselves with knowledge and communication within the legal extent since LST decision Act will be implemented shortly. To achieve this, education, training, and clinical tools for healthcare professionals are required.