

of side effects associated with pain control devices and early discontinuation due to side effects were analyzed. **Result:** The mean value of NPIS on the day of surgery was 6.04 ± 2.56 in the epidural PCA group, 4.75 ± 2.35 in the IV-PCA group, and 5.27 ± 1.87 in the On-Q group and there was no statistically significant difference. NPIS values were decreased in all three groups until 48 hours postoperatively, but there was no significant difference between groups. The incidence of side effects related to pain control devices up to 48 hours after operation was the highest in the IV-PCA group (36.1%, 13/36), in the epidural PCA group (35.7%, 10/28) and in the On-Q group (10.0%, 3/30) and there was statistical significance ($p=0.032$). The rate of early discontinuation of the pain control device due to side effects was 33.3% (12/36) in the IV-PCA group, 25.0% (7/28) in the epidural PCA group, and 6.7% (2/30) in the On-Q group ($p = 0.032$). **Conclusion:** The effects of pain control after VATs lobectomy in NSCLC patients were not significantly different in epidural-PCA, IV-PCA, and On-Q but On-Q was superior in terms of side effects and early discontinuation of pain control device. Continuous extrapleural infusion of local anesthetic via On-Q has less systemic side effects and higher procedural stability than PCA. Therefore, On-Q may be sufficient to replace PCA in pain control after VATs lobectomy in NSCLC patients. **Keywords:** NSCLC, Pain control, VATS

P3.15-19

Risk Factors for Osteoporosis in Lung Cancer Patients



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Background: Bone related disease is increasingly a problem as lung cancer patients are usually older and the survival rate is increasing. Also cancer patients with multiple chronic comorbidities are at risk of osteoporosis (T-score of ≤ -2.5). The purpose of the study is to investigate the risk factors that attribute to osteoporosis of patients with lung cancer. **Method:** We retrospectively investigated the incidence of osteoporosis of lung cancer patients from March, 2017 to April 2018. A total of 124 patients who were diagnosed with lung cancer at one tertiary academic hospital underwent bone mineral density test. **Result:** Among the 124 patients, 40 (32.3%) showed osteoporosis. Alcohol history, smoking history, lung cancer histology, lung cancer stage, bone metastasis, and comorbidity (hypertension, diabetes, coronary artery disease, cerebrovascular accident, and chronic obstructive pulmonary disease) did not differ significantly among the osteoporosis and normal group. In univariate analysis, age ($P = 0.025$), BMI ($P = 0.028$), and female ($P < 0.001$) were statistically significant. In multivariate logistic regression analysis, age (OR: 1.070, 95% CI:1.016-1.126, $p = 0.01$), BMI (OR: 0.840, 95% CI:0.738-0.956, $p = 0.008$), and female (OR: 0.142, 95% CI:0.055-0.366, $p < 0.001$) were also statistically significant. **Conclusion:** One-third of lung cancer patients were diagnosed with osteoporosis at a high rate. Old age, low BMI and female sex were the risk factors affecting osteoporosis of lung cancer patients. Physicians should be aware of screening bone marrow density of lung cancer patients with old age, low BMI and female group. Studies on the effect of calcium supply and bisphosphonate treatment on bone metastasis and fracture in these osteoporosis patients are underway. **Keywords:** osteoporosis, Female, lung cancer

P3.15-20

Palliative Sedation in Lung Cancer Patients Whom Needs Immediate or Elective Intractable Symptom Control



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Background: Advanced cancer patients frequently experience high-distressing symptoms which could not be relieved with standard

oncological treatment even can be refractory to intensive palliative care. For these cases, palliative sedation or decrease patient's consciousness below certain level (ramsay score 4 or more) is well defined but not well standardized procedure for intractable symptoms of cancer patients. **Method:** The patients included into this study in consecutive way without any exception from November 2014 to August 2017. There were 82 patients (90.0%) and 9 patients (10.0%) with NSCLC and SCLC, respectively. Palliative sedation protocol is consisted of midazolam /morphine (30 mg/24 hr). For the effectiveness of the palliative sedation, we accept target RSS score of 4 for the immediate and elective patients. **Result:** There were 62 and 29 patients electively or urgently sedated. Median age of patients in elective and immediate sedation were 61.5 and 63, respectively. Additionally, main etiologies for the refractory symptoms were dyspnea, delirium and intractable pain in 44 (71.0%) vs 3 (4.8%), 15 (24.2%) vs 16 (55.2%), and 6 (20.7%) vs 7 (24.1) patients for the elective and immediate sedation groups. There was no statistically significant difference between two groups with regard to sex, age and main reasons for the palliative sedation. Duration of palliative sedation were 0.59 days in immediate group whereas this time significantly longer in elective group with 4.7 days ($p<0.01$). Time between last chemotherapy and start of the palliative sedation were 82.3 vs 119.0 days in elective and immediate group, respectively. In elective sedation group, target score of R4 was achieved in 32 (51.6%) patients whereas in immediate sedation group score of R4 was significantly lower than elective group and achieved in only 3 (10.3%) patients, respectively ($p<0.01$). Dose of 30-30 mg/24-hour IV MaM infusion was perfectly enough for the immediate sedation group, 60-60 mg and 90-90 MaM infusions were required in 10 (16.1%) and 5 (8.1%) patients for target RS. Adverse events were seen in 18 (29%) and 7 (24.1%) patients in elective and immediate group, respectively. Hypotension was the most prominent adverse event in both groups. **Conclusion:** Palliative sedation is effective way of controlling intractable symptoms. Most common reason for palliative sedation was progressive dyspnea in lung cancer for both groups. 30-30 mg/24-hour IV MaM starting dose well tolerated and highly effective dose, 15/15 mg dose increment can be done if needed. **Keywords:** lung cancer, palliative sedation, immediate or elective, intractable symptom

P3.15-21

Real-World Experience of First-Line Afatinib Treatment in Patients with EGFR Mutant Advanced Non-Small Cell Lung Cancer



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Background: Published reports of first-line afatinib treatment efficacy, side-effects and resistance mechanism in the real-world setting are lacking. **Method:** A retrospective observational study of patients with EGFR mutant advanced non-small cell lung cancer (NSCLC) receiving first-line afatinib in University Malaya Medical Center from 1st December 2014 to 30th April 2018. **Result:** Twenty-two of 33 patients on first-line afatinib were eligible for analysis. The patients' demographic and clinical characteristics are as shown in Table 1. The mPFS was 14.3 months, overall response rate was 86.3% (19/22) and disease control rate was 95.5% (21/22). The median time-to-treatment failure was 16.2 months. The median overall survival has not been reached but 12-month survival rate was 81.8% (18/22). A patient with *exon 18 G719X* and *exon 20 S768I* mutation had received treatment for 23.3 months without disease progression (PD). The PFS of a patient with *exon 20 insertion* was 9 months and of another patient with *exon 18 G719X* and *exon 20 T790M* mutations was 4.4 months. Of patients with brain metastases, the PFS of 2 patients treated with stereotactic

radiosurgery (SRS) was 15.9 months and 9 months, respectively while that of a patient who had whole brain radiotherapy (WBRT) and a patient who underwent debulking surgery only was 16.5 months and 2.6 months, respectively. The incidence of side-effects was rash 90.1% (20/22), stomatitis 63.3% (14/22), paronychia 72.7% (16/22), and diarrhea 77.3% (17/22). One (4.5%) patient each had grade 3 diarrhea and cutaneous lesions. Of 17 patients with PD, 2 (11.8%) had PD in the brain. *T790M* mutation was detected in 62.2% (8/13) patients who underwent repeat biopsy. **Conclusion:** Afatinib is an effective treatment of EGFR-mutant advanced NSCLC. When combined with SRS or WBRT, afatinib conferred good PFS in patients with symptomatic brain metastases. Severe side effects are uncommon and *T790M* mutation was the commonest resistance mechanism. **Keywords:** Real-world data, afatinib, *T790M* mutation

Demographic and clinical characteristic		First-line Afatinib (n = 22)
Age, years	Mean \pm SD	59.3 \pm 10.8
Gender, No. (%)	Male	9 (40.1)
	Female	13 (59.9)
Smoking status, No (%)	Never smoker	19 (86.4)
	Ex/current smoker	3 (13.6)
ECOG performance status, No. (%)	0-1	17 (77.3)
	2-4	5 (22.7)
Stage, No. (%)	IIIb	1 (4.5)
	IV	21 (95.5)
Symptomatic brain metastases, No. (%)	No	16 (72.7)
	Yes	6 (27.3)
Abnormal organ function, No. (%)	No	21 (95.5)
	Yes	1 (4.5)
EGFR mutation subtype, No. (%)	Exon 19 del	17 (77.3)
	Exon 21 L858R	2 (9.1)
	Rare/complex mutation	3 (13.6)

P3.15-22

Validation of Eurolung Risk Models in a Japanese Population: A Retrospective Single-Center Analysis of 612 Cases



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Background: The analysis of risk-adjusted outcome is beneficial for quality assessment in surgery as well as preoperative risk stratification. Eurolung risk models are recently reported, large population-based prediction tools of cardiopulmonary morbidity and mortality in patients who underwent anatomic lung resection. This study is aimed to evaluate validity of the models in a Japanese population. **Method:** From 2007 to 2014, 637 anatomic lung resections were performed in our institution. Patients who had induction therapy (n=23) and with missing data (n=2) were excluded from the analysis, and requisite variables (age, sex, body mass index, predicted postoperative forced expiratory volume in 1 s, coronary artery disease, cerebrovascular disease, chronic kidney disease, thoracotomy approach, extended

resections, operation of pneumonectomy) were examined. Cardiopulmonary morbidity and 30-day mortality rates were estimated by Eurolung risk models according to the formula for computation (Brunelli A, et al. European risk models for morbidity (EuroLung1) and mortality (EuroLung2) to predict outcome following anatomic lung resections: an analysis from the European Society of Thoracic Surgeons database. *Eur J Cardiothorac Surg*, 2017; 51: 490-497). Aggregated Eurolung risk scores were also calculated, and patients with similar risk were classified into plural groups. These results were compared with observed outcomes. In addition, we analyzed long term outcomes of the groups using the Kaplan-Meier method. **Result:** Surgical procedures included 9 pneumonectomies, 15 bilobectomies, 483 lobectomies, and 105 segmentectomies. Cardiopulmonary complications of any grade were occurred in 137 cases; this rate was lower than predicted by Eurolung1 (22.4% vs. 28.4%). Within 30 days after operation, 4 fatal cases were experienced, which was significantly lower than expected by Eurolung2 (0.7% vs. 6.9%). Morbidity rate was clearly stratified by Eurolung1 aggregate score as 0% (n=0, score 0-1), 14.7% (n=11, score 2-4), 18.6% (n=30, score 5-7), 21.3% (n=46, score 8-11), 34.5% (n=49, score 12-16), and 33.3% (n=1, score 17-19). Stratification of mortality rate by Eurolung2 aggregate score also developed apparent trend, although the observed number of death was quite small: 0% (score 0-3), 0% (score 4-6), 1.2% (score 7-8), 1.5% (score 9-11), 4.8% (score 12-14), and 0% (score 15-17). The Higher (8-19) Eurolung1 aggregate score group showed poor 5-year overall survival compared with the lower (0-7) score group (72.3% vs. 90.4%, P<0.01). **Conclusion:** Eurolung risk models did not completely match with the morbidity and mortality in our institution. On the other hand, Eurolung1 aggregate score was useful to predict not only morbidity, but also long term outcomes. **Keywords:** risk model, lung cancer, Surgery

P3.15-23

Data Mining the Internet and Crowdsourcing in Guiding Patient Decision-Making.



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Background: The internet, through social media, blogs and forums, has enabled patients to share experiences and outcomes. Data mining and crowdsourcing is a methodological approach to gather the individual experiences within these platforms and convert them into Real World Evidence (RWE) that can help patients make decisions, especially in the case of new treatments or treatments in trial. This abstract is a case study of how this methodology was used to inform the decision between Whole Brain Radiation (WBR) vs. osimertinib in treating brain metastasis in EGFR+, t790M, NSCLC – at a time when the results to an open label trial were pending. **Method:** The methodology identified trusted sources and similar profiled patients. The steps: 1. Identify reputable on-line sources by referrals. 2. Crowdsourcing peers with same tumour group, staging, gene sequence and treatment path. 3. Analyze results and patient feedback of treatments A search identified 46 lung cancer blogs and 4 cancer forums. *Inspire.com* was then chosen as the crowdsourcing target as it had over 39,000 lung cancer patients registered. **Result:** The search found 470 posts on osimertinib in clinical trial; 66 discussions on brain lesions and osimertinib were accessible from the search. Conversations with patients of the same genetic profiles, metastasis and treatments were selected. The user profiles detailed clinical histories, which increased the trust factor of the data. Information was obtained from April to June 2016 with data points beginning in 2014. When reviewing the 66 self-reported cases, it was found that osimertinib was effective in patients with brain metastases in 36% of patients while 4% had no response. Quality of life and side effects were other fields that were explored. This evidence influenced the patient to choose osimertinib instead of WBR to treat her lung cancer. **Conclusion:** The Internet offers opportunities to