

3363

### Prognostic Value of Immune-Related Biomarkers in Resected Non-Small Cell Lung Cancer

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**OBJECTIVES/SPECIFIC AIMS:** Immune cells within the tumor microenvironment (TME) play an important role in the development and progression of non-small cell lung cancer (NSCLC). However, data evaluating the impact of individual immune cell types on NSCLC outcomes is limited and often conflicting. We performed a meta-analysis of existing data and used The Cancer Genome Atlas (TCGA) to evaluate the effect of several immune cells on surgical outcomes of stage I-III NSCLC. **METHODS/STUDY POPULATION:** PubMed was searched to identify eligible studies evaluating survival of surgically resected stage I-III NSCLC patients according to immune cell infiltration. Meta-analysis was performed using a linear mixed-effects model to determine overall, disease specific and progression free survival. We then used a similar patient subset found in the TCGA to validate the meta-analysis findings. For the TCGA analysis, sample-specific scores for different immune cells were computed via xCell using level three RNAseq data. After stratifying the cohort by histologic subtype, the association between each cell type and survival was assessed via Cox Regression, while adjusting for stage, gender and smoking status. **RESULTS/ANTICIPATED RESULTS:** From the meta-analysis (37 articles eligible; N = 8,162 patients), high levels of CD20+ B cells (hazard ratio [HR]: 0.36, 95% confidence interval [CI]: 0.15-0.85), natural killer (NK) cells (HR: 0.64, 95% CI: 0.41-1.0), and dendritic cells (0.34, 95% CI: 0.13-0.84) were significantly associated with better overall survival (OS); T regulatory cells (HR: 1.85, 95% CI: 1.35-2.54) were associated with worst OS. High CD8+ T cell infiltrates were associated with improved disease-free survival (DFS; HR: 0.85, 95% CI 0.73-0.99), while CD68+ macrophages (HR> 2.83, 95% CI: 1.28-6.24) were associated with worst DFS. In the TCGA cohort, lung adenocarcinomas rich in CD4 T cells, CD8 T cells, B cells, and NK cells were associated with improved OS in unadjusted analysis. In adjusted analysis, only NK cells were associated with improved OS (HR: 0.82, 95% CI: 0.69-0.98). There was no significant association of any immune cell type for DFS in lung adenocarcinomas and with both OS and DFS in Squamous Cell Lung Cancers (p>0.05 for all comparisons). **DISCUSSION/SIGNIFICANCE OF IMPACT:** The presence of tumor infiltration by specific immune cell subsets may potentially predict survival outcomes in resected stage I-III NSCLC patients. However, the impact of immune cells may not be similar in all histologic types and after adjusting for important clinical confounders.

3251

### Psoas muscle caliber as a predictor of negative outcomes in elderly trauma patients

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**OBJECTIVES/SPECIFIC AIMS:** Aim 1: To evaluate whether psoas muscle size on CT imaging can be used as univariate predictor for increased risk of morbidity and mortality in trauma patients 65 years or older with rib fractures. Primary outcomes will be 30 day mortality. Secondary outcomes will include length of stay, 30 day readmission rate, need for operative/procedural intervention, ICU days, ventilator days,

discharge to rehabilitation. Aim 2: An eventual goal of the project will be to use the results of the single variable psoas size study to inform the development of a predictive model for readmission rate in this population based on clinical variables present at admission. **METHODS/STUDY POPULATION:** This retrospective cohort study will utilize the Maine Trauma Registry to conduct a database review for all persons 65 years of age and older admitted to Maine Medical Center between January 1, 2015 and December 31, 2017 with rib fracture as diagnosed by CT imaging. Psoas caliber will be measured on admission CT. Patient outcomes will be assessed via EMR review. **RESULTS/ANTICIPATED RESULTS:** Anticipate finding a relationship between decreased psoas caliber and increase in 30 day mortality and post trauma complications. **DISCUSSION/SIGNIFICANCE OF IMPACT:** If a relationship is demonstrated between decreased psoas caliber and poor outcomes in elderly patients with rib fractures, this early indicator could be used to identify those patients at most risk, for whom targeted interventions may make the greatest difference. Knowing a measure of frailty could also help guide goals of care discussions, because it would allow clinicians to have a more detailed understanding of a patient's baseline. Those patients identified as frail could be admitted to an ICU level of care and more closely monitored and treated. Alternatively, some frail patients and their families may choose to focus more on comfort and quality of life after achieving a better understanding of a patient's frailty and risk, changing the direction of care provided. Being able to identify the higher risk patients with an objective measure would allow clinicians to provide more personalized medicine.

3427

### Racial and Gender Differences in Trends, Prevalence, and Outcomes for Non-alcoholic Fatty Liver Disease Hospitalizations in the US

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**OBJECTIVES/SPECIFIC AIMS:** Projected to soon become the most prevalent cause of End-Stage Liver Disease, the frequency of Non-Alcoholic Fatty Liver Disease (NAFLD) has been rising in the US community. However, studies on NAFLD among inpatients are lacking. **Aims:** To report the 1) prevalence and trends, 2) outcomes of NAFLD associated hospitalizations in the US. **METHODS/STUDY POPULATION:** NAFLD cases were identified in the National Inpatient Sample (2007-2014) with ICD-9-CM codes, and the prevalence and trends over the 8-year period were calculated among different demographic groups. After excluding secondary causes of hepatic fat accumulation from the NAFLD cohorts (n = 210,660), the impact of sex, race, and region on outcomes (mortality, discharge disposition, length of stay [LOS] and cost) of NAFLD was computed with generalized estimating equations (SAS 9.4). **RESULTS/ANTICIPATED RESULTS:** Admissions with NAFLD tripled from 2007-2014 at an average rate of 79/100,000 hospitalizations/year (p-value < 0.0001), with a larger rate of increase among males vs. females (83/100,000 vs. 75/100,000), Hispanics vs. Whites vs. Blacks (107/100,000 vs. 80/100,000 vs. 48/100,000), and governmental-/un-insured patients vs. privately-insured (94/100,000 vs. 74/100,000). Males had higher mortality, LOS and cost than females. Blacks had longer LOS and poorer discharge destination than Whites; while Hispanics and Asians incurred higher cost than Whites. Uninsured patients had higher mortality, longer LOS and poorer discharge disposition than the privately-insured. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Hospitalizations with NAFLD is rapidly increasing in the US, with a disproportionately