proliferation of algorithms for the same trait. We propose a framework for reusing computational phenotyping algorithms and describe the real-world deployment of this framework for the development of the Colorado Diabetes EHR Research Repository. METHODS/STUDY POPULATION: The novel phenotype reuse framework consists of 4 steps: select algorithms that are appropriate for reuse by assessing whether they are fit for purpose; extend the algorithm to account for changes in data and care practice standards; localize the algorithm to use local database standards and terminologies; optimize the algorithm by applying a data driven approach to achieve the desired local performance. To identify individuals with type 1 diabetes (T1D) or type 2 diabetes (T2D), we selected and implemented T2D algorithms in a cohort of adults with any diabetes or pre-diabetes related diagnosis code, medication, or abnormal glucose-related laboratory test in the clinical data warehouse for UCHealth and the University of Colorado. RESULTS/ANTICIPATED RESULTS: We included a total of 926,290 patients who were identified by initial filters. Patients were more likely to be female (53%), identify as non-Hispanic white (69%) and had a median age of 58 years (IQR: 41, 70). Implementation, extension, localization, & optimization through iterative chart review prioritized high sensitivity for all-cause diabetes and high specificity for T1D and T2D. Of the original cohort, 252,946 (27%) were identified by the all-cause diabetes algorithm. Of these 11,688 were identified as T1D and 135,588 as T2D. After optimization the all-cause diabetes algorithm had 88% sensitivity, 90% specificity, 74% positive predictive value (PPV), and 96% negative predictive value (NPV). Our algorithms for T1D and T2D had high specificity (100% and 99%, respectively) and PPV (100 and 96% respectively). DISCUSSION/SIGNIFICANCE: Developing computational phenotyping algorithms is expensive and time consuming, yet algorithm reuse is low due to a lack of practical approaches for reusing algorithms. We demonstrate application of a novel framework for algorithm reuse, yielding good alignment of algorithm performance with study goals for identifying individuals with diabetes.

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Role of Kynurenine/Tryptophan Ratio in Kidney-Lung crosstalk in two porcine trauma-induced multi-organ injury models

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OBJECTIVES/GOALS: Multiple Organ Failure, often precipitated by Acute Lung Injury, is a life-threatening condition that causes death in military and civilian life. Furthermore, Acute Kidney Injury is very common, increasing morbidity and mortality rates. Therefore, understanding the molecular difference between survivors and non-survivors is urgently needed. METHODS/STUDY POPULATION: A 24-hour unilateral pulmonary contusion porcine model (pneumonectomy) of trauma-induced Multiple Organ Failure (MOF) model (n=17) and separate 48-hour polytrauma injury of bilateral pulmonary contusion, traumatic brain injury, and hemorrhage (polytrauma) MOF model (n=26) was developed at Dr. Batchinsky's AREVA laboratory. Serum was assayed at baseline and 3h or 6h post-trauma for amino acid metabolites using the ZipChip platform for mass spectrometry. The IDO1 enzyme activity assay kit (ab235936) was used to measure IDO1 enzyme activity in the tissue. Mass Spectrometry Imaging (MSI) was employed to frozen kidney tissues. Tissues were sectioned to 10- micron thickness. For MSI, the DAN matrix was utilized, and MALDI-MSI images were processed and obtained from METASPACE and SCILS software. RESULTS/ANTICIPATED RESULTS: In the pneumonectomy model, 10 survived, 7 died, and in the polytrauma group, 13 survived, and 13 died. In the pneumonectomy model, there was a significant increase in the serum kynurenine/tryptophan (KYN/TRP) ratio in the non-survivors 3h post-injury. A similar pattern was found in the validation group, which showed a significant increase in the KYN/TRP ratio at 6h post-trauma in non-survivors from the polytrauma model. There was a significant increase in IDO1 enzyme activity in non-survivor kidney tissues and a downregulation of tryptophan (TRP) metabolite in the kidney section in the non-survivor group post-trauma. DISCUSSION/SIGNIFICANCE: An increase in the KYN/TRP ratio post-trauma identified the pigs that suffered early mortality. A decrease in TRP metabolite and an increase in IDO1 enzyme activity in the kidney could contribute to an increase in KYN in the non-survivors. As a result, focusing on therapeutics targeting the KYN/TRP to reduce the incidence and severity of MOF is warranted.

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Determinants of Health Affecting Self-Efficacy and Quality of Life in Patients with Prostate Cancer*

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OBJECTIVES/GOALS: Our long term goal is to identify the socioeconomic and cancer-specific determinants in patients with prostate cancer undergoing prostatectomy that impact their ability to maintain a healthy weight. This study explores the association between participants'health determinants and their indicated degree of self-efficacy and quality of life (QoL). METHODS/STUDY POPULATION: Study population includes participants of the WARRIOR trial (n=40), which included overweight men scheduled radical prostatectomy from the University of Kansas Medical Center. In addition to baseline demographics, the study team will administer a questionnaire based on a socioeconomic position and health-related QoL framework. This questionnaire will assess participants' socioeconomic, cancer-specific, and psychological circumstances at time of surgery and present day. Univariate analyses will be conducted on all variables with bivariate analyses between socioeconomic and clinical items to the outcome of composite self-efficacy scoring. RESULTS/ANTICIPATED RESULTS: We anticipate that participants in the intervention will report higher self-efficacy and emotional/social support than participants in the control group, participants with social vulnerability (lower income, marginalized race/ethnicity, etc) will report decreased self efficacy and poorer QoL compared with participants who are not socially vulnerable, and that participants who previously indicated social vulnerability will report more emotional barriers to weight loss, and lesser weight loss satisfaction, self-esteem, and QoL. DISCUSSION/SIGNIFICANCE: Lifestyle interventions have helped prostate cancer patients lose

https://doi.org/10.1017/cts.2023.379