parameters, and established high-grade molecular features. We will use supervised learning techniques to develop algorithms for predicting molecular features from imaging phenotypes. RESULTS/ANTICIPATED RESULTS: Anticipated results - advancements in understanding the molecular biomarkers of meningiomas has uncovered genetic alterations and epigenetic changes that more accurately determine tumor behavior. Currently, the imaging correlates of these molecular biomarkers are unknown, and utilizing radiographic data to predict prognosis and imaging-based classifications of meningiomas have not yet been investigated. Validated imaging correlates of molecular biomarkers not only provide an in-vivo assessment of tumor biology, but can also be integrated with histopathologic features (radiopathomics models') for more accurate disease prognostication. We anticipate that our results will identify surrogate imaging features for some of the recently emerged molecular biomarkers of meningioma. DISCUSSION/SIGNIFICANCE: There is a paucity of data on the importance of imaging phenotypes in determining tumor biology. This work has the potential of significant clinical impact by enabling a priori molecular characterization of meningiomas at the time of new diagnosis or recurrence, thereby allowing a personalized medicine approach to treatment planning.

328

Rapid Screening Tool for Identifying Acute Myocardial Injury: An Exploratory Study Evaluating the Ability of a Novel, Noninvasive Device to Detect Cardiac Troponin

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OBJECTIVES/GOALS: Tropsensor, a noninvasive portable device using infrared spectroscopy, delivers a troponin res ult within five minutes, significantly quicker than standard of care (SOC) assays. This pilot study assesses the correlation of the Tropsensor and high sensitivity cardiac troponin (hs-cTnI) assay results. METHODS/STUDY POPULATION: Patients undergoing cTnI testing with the Abbott Architect STAT (Abbott Laboratories) hs-cTnI assay were recruited at a quaternary-care emergency department (ED). The Tropsensor was applied to the underside of the patients' wrist within 5 minutes of the SOC blood draw for 5 minutes. The results of the hs-cTnI assays were compared with the raw output of the Tropsensor device to assess the relationship using both Spearman's and nonlinear logarithmic measures of correlation. Patient demographic data was extracted from the EHR to supplement the data collected for this study. RESULTS/ANTICIPATED RESULTS: 58 patients were recruited with a mean age of 60 years (60% male, 40% female). Due to connection error, 8 patients'data did not get captured by the device. Additionally, due to noise related to suboptimal device contact with the wrist, 24 patients'data (41%) were rejected. Of the 26 patients with usable data, 9 patients had a troponin above the 99th percentile threshold. A nonlinear correlation of 0.64 and Spearman's rho of 0.59 were observed between the SOC hs-cTnI assay and Tropsensor optical data. DISCUSSION/SIGNIFICANCE: The Tropsensor exhibits 64.4% correlation to the SOC hs-cTnI assay. While further evaluation is needed, this exploratory study provides insight into the potential of a transdermal optical device to be used as a screening tool for AMI in an ED triage situation.

330

Remote Monitoring of Pediatric Heart Failure: A Systematic Review

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OBJECTIVES/GOALS: Pediatric heart failure is a complex disease presenting as an end-stage condition due to various etiologies and symptoms, causing 14,000 hospitalizations per year in the United States. Currently, there is a lack of objective metrics that are monitored non-invasively. This study explores tools to adapt remote monitoring technologies for pediatrics. METHODS/STUDY POPULATION: The task was determining commercially available and upcoming technologies for remote heart failure monitoring in the pediatric population. Literature and patent reviews were done in various databases with defined eligibility and key terms. Our inclusion criteria were: English peer-reviewed research or review articles, patents filed by cardiac monitoring companies, and independent groups focusing on non-invasive monitoring solutions. Key terms used for the literature search and patent review included pediatric heart failure', at-home monitoring', cardiac monitoring', and non-invasive'. Based on a strong correlation between increased filling pressures and pediatric heart failure, the term filling pressures' was also included in the search. RESULTS/ANTICIPATED RESULTS: Preliminary searches demonstrate an abundance of adult-use commercially available devices and patents for monitoring heart failure. Yet, there are no FDA-approved devices for use in the pediatric population. Current devices include monitoring metrics such as lung congestion and multi-parametric monitoring to capture heart rate, thoracic impedance, and oxygen saturation levels. In monitoring filling pressures, Abbott CardioMEMs is a leader in measuring pulmonary arterial pressure invasively in adults. Thus, there is a gap for non-invasive monitoring of filling pressures in both pediatric and adult populations. For further review, a larger focus will be placed on non-invasive methods for direct monitoring or extrapolation of cardiac filling pressures. DISCUSSION/SIGNIFICANCE: Current methods of heart failure monitoring are ineffective in serving the pediatric population. Thus, an identified gap exists in non-invasive filling pressure monitoring for pediatric heart failure. This review informs that innovation within this area would address inefficacies within the current paradigm of heart failure monitoring.

331

Reusing EHR Phenotyping Algorithms in Practice: Developing the Colorado Diabetes EHR Research Repository (CODER)

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OBJECTIVES/GOALS: The rates of computational phenotyping algorithm reuse across health systems are low, leading to a

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