

abnormalities will be exacerbated as the disease state progresses, but at least partially ameliorated with the restoration of dystrophin function. **DISCUSSION/SIGNIFICANCE:** DMD is a fatal disease with no known cure. Patients develop heart failure in their teens and die in their 20s, so any new insight that may prolong life and improve quality of life for patients is drastically needed. This would be the most accurate preclinical model of DMD cardiomyopathy to date and would investigate yet-untapped aspects of the disease state.

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### **Analysis of Clinical, Histologic, and Molecular Characteristics of Proliferative Verrucous Leukoplakia**

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**OBJECTIVES/GOALS:** This study aims to develop objectively scored histological characteristics of early oral leukoplakia, which may be correlated with molecular pathways predictive of progression into proliferative verrucous leukoplakia (PVL). The secondary aim is to develop a biomarker profile to be used in diagnosis, staging, and management of PVL. **METHODS/STUDY POPULATION:** Clinical and pathology records of 120 patients with oral leukoplakia and/or PVL were reviewed. Eight patients were selected—all had serial biopsies over time leading to PVL suspicion. Specimens were deidentified and subjected to blinded examination by a board certified oral pathologist, then scored relative to the extent of each of the commonly accepted histologic characteristics of PVL: hyperkeratosis, acanthosis, blunt rete ridges, hyperchromatic nuclei, increased nuclear-cytoplasmic ratio, dyskeratosis, and surface corrugation. Given these results, a larger subset of patient samples will be labeled and assayed for expression of epidermal growth factor receptor tyrosine kinases and downstream pro-oncogenic signaling mediators. Expression of these factors will be tested against progression to PVL. **RESULTS/ANTICIPATED RESULTS:** Histologically, in scoring the specimens from eight subjects, the characteristics of acanthosis, dyskeratosis, and blunted rete ridges had the strongest correlation with eventual progression to PVL. These criteria will therefore be recommended as an objective histopathologic method of identification of patients with high risk of development of PVL, and therefore malignant potential. We expect the results of the biomarker assay to provide a molecular basis for predicting PVL pathogenesis. Particularly, we anticipate pro-oncogenic targets such as EGFR, PI3K, Akt, and mTOR pathways will show increased expression as leukoplakic lesions progress. These results would then provide the basis for testing patient samples for expression of these markers in a longitudinal study of PVL emergence and progression. **DISCUSSION/SIGNIFICANCE:** The aggressive nature of PVL, with a rate of malignant transformation of 61% and mortality rate of 40%, requires close clinical monitoring in order to improve patient outcomes. Therefore, well defined objective clinical, histologic, and molecular criteria are critical for early detection of sites likely to progress to PVL and subsequent malignancy.

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### **Assessment of Mental Health Needs of Transgender Adults Seen at a Midwest Transgender Center**

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**OBJECTIVES/GOALS:** Prior studies suggest that transgender individuals are at greater risk of mental health problems. This study aims to determine the mental health care needs of the adult transgender population seen at a tertiary referral hospital in the Midwest region of the United States and assess necessary resources to provide optimal care. **METHODS/STUDY POPULATION:** This descriptive, retrospective, cross-sectional study included all new transgender patients > 18 years old, seen at the Washington University Transgender Center since December 2019 through May 2022. Electronic medical record data obtained from their initial and subsequent follow-up visits include 1) Demographics: date of birth, age, race, ethnicity, sex assigned at birth, gender identity, zip code of residency 2) Mental health diagnosis: Previous mental health diagnosis, mental health history 3) Mental health care access: mental health providers, mental health treatment, previous mental health admission, resources provided in clinic. **RESULTS/ANTICIPATED RESULTS:** 487 patient records were reviewed. Median age at initial visit was 24 years (18 - 75 yr), with 46% identify as woman, 37% as man. Predominantly white (84%), 11% were black. 93% had primary health insurance At the first visit, 81% reported having some mental health diagnosis: depression (88%), anxiety (71%), attention deficit disorder (21%). Prior suicide attempt reported on 12% and 5% with self-harm behavior. Only 48% had a therapist and 22% had an established psychiatrist First follow up occurred with a median of 4 months (1-22 months). 4 patients reported new suicide attempt, 3 reported new self-harm behavior. 9 patients required a hospital admission due to a psychiatric condition. 4% reported a new mental health diagnosis (most common: depression and anxiety). No changes noted on access to therapist or psychiatrist **DISCUSSION/SIGNIFICANCE:** Our study shows that adult transgender individuals have high rates of depression, anxiety, and overall psychological distress which is exacerbated by poor access to mental healthcare. This indicates a critical need to include mental healthcare professionals during the evaluation of adult transgender individuals

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### **Caspase-1 mediated inflammatory response - a critical player in concussive mild traumatic brain injury (mTBI) associated long term pain**

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**OBJECTIVES/GOALS:** Patients who have experienced conjunctive mild traumatic brain injuries (mTBIs) suffer from a number of comorbidities, including chronic pain. Despite extensive studies investigating the underlying mechanisms of mTBI-associated chronic pain, the role of inflammation after mTBI and its contribution to long-