

Investigating the Impact of Tumor Biology and Social Determinants on Time to Diagnosis and Stage at Presentation of Wilms Tumor

Delays in diagnosis and time to diagnosis have been used interchangeably in scientific literature, but few have studied whether it is appropriate to do so. While these terms are related, we hypothesize they are distinct terms with time to diagnosis defined as the aggressiveness of the tumor and affected by tumor biology while delays in diagnosis lead to a higher stage at presentation and are caused by socioeconomic barriers. We conducted a retrospective study on 306 patients diagnosed with Wilms Tumor at Children's Hospital Colorado between 1971 and 2016 identifying patient barriers as extrinsic markers and using histology and loss of heterozygosity at time of diagnosis for tumor biology. Multivariable logistic regression was performed. Patients with Medicaid were more likely to present greater than four days after initial symptom compared to private insurance. Those with housing concerns were more likely to be diagnosed greater than 9 days from initial symptom. Tumor biology was noted to be associated with higher stage at diagnosis, but patient barriers were not. These findings suggest the interplay between tumor biology, patient barriers, and diagnosis are more complex than our hypothesis, but each plays an important role in when a patient seeks medical care and prognosis.