CADASIL is a monogenic small artery disease and represents an invaluable model to explore the pathophysiology of cerebral small vessel disease in general. During the past 10 years, the development of neuroimaging and of post-processing methods have provided key informations for better understanding the pathophysiology of this genetic disorder and a wide range of parameters have been found related to the disease clinical severity. In this presentation, a specific attention will be given to the structural changes that occurred at the cortical level and within the white-matter secondary to cerebral small vessel disease.