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Myocarditis in Forensic Medicine

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Description:

Myocarditis constitutes a very important unsolved challenge in the practice of cardiovascular medicine and is a major cause of chronic heart failure and sudden unexpected death in infants and young adults. It can result from a wide spectrum of causes with viral infection reported as the most common. The clinical presentation is highly variable which makes the diagnosis difficult. Histopathological examination in combination with virological analyses is recommended in the latest guidelines for a definite diagnosis. Despite this, the diagnosis of myocarditis continues to prompt considerable debate.

In the present thesis we evaluated histological and virological findings as diagnostic markers for myocarditis in forensic medicine. We aimed to create reliable histopathological quantitative diagnostic criteria and to determine the presence and significance of selected viruses as causes of myocarditis.

A quantitative estimation of lymphocytes and macrophages in myocardial autopsy specimens from deceased with myocarditis and from non-inflamed control hearts was performed using a stereological cell profile counting method. Virological analyses were performed using polymerase chain reaction. The results in the two groups were analyzed and compared.

The results revealed that histopathological quantitative diagnostic criteria may be a valuable diagnostic tool at high lymphocyte counts, but at low lymphocyte counts it fails to generate reliable evidence of myocarditis as the risk of creating a false negative or a false positive result is high. The virological analyses showed that only a few of the myocarditis cases was caused by a viral infection. The forensic investigation of myocarditis demands that other diagnostic tests are undertaken ancillary to the ones proposed in the recent guidelines, and that special attention is paid to non-viral causes. This calls for a multidisciplinary approach and is mandatory in the evaluation of myocardial inflammation

Keywords: Human Parvovirus B19, Formalin Fixed Paraffin Embedded, Hematoxylin and Eosin, Polymerase Chain Reaction