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**Is endomyocardial biopsy a reliable tool for diagnosing viral myocarditis in patients with heart failure? Our experience**

*Fidalgo-García A., Berrocal-Acevedo E., Martínez-Villar M., Cardona-Leyda V., Gran-Ipiña F., Roses-Noguer F., Albert-Brotos D.C.  
Hospital Universitari Vall d'Hebron, Barcelona, Spain.*

**Introduction**

Acute myocarditis (AM) is an inflammatory disease of the myocardium that can debut as acute heart failure. The differential diagnosis with other entities such as dilated cardiomyopathy (DCM) can be complex. Endomyocardial biopsy (EMB) is considered the confirmatory diagnostic test. Our objective is to review the EMBs of patients affected by AM and compare them with patients with DCM of genetic origin.

**Material and methods.**

We present a descriptive study of the histological and immunohistochemical findings of the EMBs of paediatric patients (0-16 years) diagnosed with AM from July 2007 to August 2018. We compare them with the results observed in 4 paediatric patients with DCM with positive genetic test for pathogenic mutations. 6 samples were obtained from the right side of the interventricular septum in all cases. The diagnosis of AM was based on immunohistochemical criteria: 14 or more mononuclear cells and 7 or more CD3 + per mm<sup>2</sup>.

**Results:**

We detected 42 AM diagnosed patients, 11 by EMB. They presented infiltrate with a median of 25 CD3+/mm<sup>2</sup> (13- 80 CD3+/mm<sup>2</sup>). 6/11 (55%) presented necrosis, 8/11 (72%) fibrosis and 6/11 (55%) edema.

We identified 4 patients with heart failure who underwent EMB with a final diagnosis of DCM of genetic origin. They presented less inflammatory infiltrate (2-24 CD3+/mm<sup>2</sup>) and 3/4 fulfilled the diagnostic criteria for AM. 1/4(25%) presented necrosis, 2/4(50%), fibrosis and 2/4 (50%) edema.

Hypertrophy of myocardial fibers was more frequent in patients with DCM (75% vs 18%). The viral PCR was positive in 50% of the AM, with good correlation with the plasma PCR. A patient with DCM presented a positive B19V PCR being negative in blood and with suggestive serologies of a past infection.

**Conclusions**

Although the group of DCM of genetic origin could be affected by AM is improbable and it is more logical to consider that the current criteria are not specific enough. AM is a diagnosis of suspicion based on clinical findings and results of complementary examinations such as echocardiography, magnetic resonance, biochemical and microbiological markers. The immunohistochemical study of the myocardium strengthens the diagnostic suspicion in uncertain cases.