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Postmortem genetic analysis in paediatric patients. Familial implications.

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Introduction
Despite exhaustive autopsy analysis, sudden death in young population remains without explanation in 50% of the cases. Channelopathies and cardiomyopathies are a common cause of sudden death in the Young. This study tries to find cause of sudden death in children using molecular autopsy and to analyze familial implications of these findings.

Methods
We have performed 55 gene-panel DNA analysis from patients died of sudden death with negative autopsies. We have done familial segregation up to 3 generations and have analysed familial findings.

Results
We have analysed DNA from 75 unexplained sudden death individuals. In 30 patients (40%) we have identified 79 genetic variants (27 in ion cannel genes, 52 in structural genes). In 33,3% of the cases we could perform familial analysis. Genetic variant carriers were clinical studying using standard protocols.
In 7 cases we have detected early signs of potentially lethal disease and therapeutic and preventive measures have been taken accordingly.

Conclusions
Our study remarks the importance of molecular autopsy as part of the forensic protocol in case of negative autopsy in Young population. Around 40% of all sudden deaths in paediatric population present a genetic variant that could justify the cause of death. Molecular autopsy is a useful tool with a high impact in morbi-mortality of relatives that might be at risk.