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CHALLENGES IN STATISTICAL PRESENTATION OF PATERNITY TESTING RESULTS

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Over the last decades the analysis of autosomal STR (Short Tandem Repeats) loci has become almost ultimate tool for paternity testing as in trios, mother, child and putative father, also in duos, putative father and child. This presentation will provide an overview of current efficiency and statistical challenges of motherless paternity testing and specific paternity testing results. DNA analysis was performed four children, two sons and two daughters, also putative father. Buccal swabs were collected from all children and putative father. DNA extraction was done using commercial Qiagen protocol. Promega PowerPlex 16 kit was employed for simultaneous amplification of 15 STR loci and amelogenin. Electrophoresis of the amplification products was performed on ABI PRISM 310 genetic analyzer. Paternity was statistically positive for two children (PP>99,99%), but for the other two children PP was under that desired value, including even one mutation at D18S51 for one child (first female child PP was 99.85734%, and for second one was 99.98716%). Therefore it was recommended mother's sample to be processed. This is another proof that motherless paternity testing sometimes could vary in its statistically significance even between putative father and child in paternity testing cases.

Keywords: matherless paternity testing, buccal swabs, statistics, DNA analysis, results presentation