

优化的预包装式多探针荧光原位杂交技术可提高白血病细胞遗传学异常的检测率

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《南方医科大学学报》 [ISSN:/CN:] 期数: 2012年10期 页码: 1457 栏目: 出版日期: 2012-10-01

Title: -

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Author(s): Optimization of pre-coated multi-probe fluorescence in situ hybridization for cytogenetic detection of acute leukemia

关键词: 多探针FISH; 优化; 细胞遗传学异常

Keywords: multiple-probe fluorescence in situ hybridization; optimization; cytogenetic abnormalities; leukemia

分类号: -

DOI: -

文献标识码: -

摘要: 目的探讨对预包装式多探针荧光原位杂交 (FISH) 技术进行优化在检测白血病细胞遗传学异常的意义。方法141例初诊为ALL或AML/MDS的患者骨髓标本, 行预优化的预包装式多探针FISH流程检测 (在原始流程的基础上增加了调整细胞密度、蛋白酶消化步骤), 其中35例行常规流程检测, 对比优化前后对白血病细胞遗传学异常的检测成功率与阳性位点检出率。结果对多探针FISH实验流程进行优化后, ALL的检测成功率由85.3%提高到100%, 阳性位点检出率由5.1%提高到8.6%, AML/MDS的检测成功率由67.4%提高到99.8%, 阳性位点检出率由3.5%提高到6.0%, 差异均具有统计学意义 ($P < 0.01$)。结论通过对常规预包装式多探针FISH系统检测流程进行优化, 显著提高了白血病细胞遗传学异常的检测效率, 增强了该技术的临床实用性。

Abstract: Objective To optimize pre-coated multiple-probe fluorescence in situ hybridization (FISH) to improve its efficiency in cytogenetic diagnosis of acute leukemia. Methods The original multiple-probe FISH techniques were optimized by adjusting the cell density and adding a process of protease digestion. Cytogenetic anomalies were detected in 141 patients with acute lymphocytic leukemia (ALL) or acute myeloid leukemia/ myelodysplastic syndromes (AML/MDS) using the modified technique, and 35 of the patients were also examined using the original technique. The successful detection rate and positive site detection rate were compared between the modified and original techniques. Results Modification of the pre-coated multiple-probe FISH technique resulted in a significant increase of the successful detection rate (from 85.3% to 100%) and the positive site detection rate (from 5.1% to 8.6%) in ALL patients; in AML/MDS patients, the successful detection rate was significantly improved from 67.4% to 99.8% and the positive site detection rate from 3.5% to 6.0% ($P < 0.01$). Conclusion The modified pre-coated multiple-probe FISH technique can significantly increase the diagnostic efficiency of cytogenetic abnormalities in leukemic patients.

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