

· 论著 ·

MCV、MCH、RDW及SF应用在地中海贫血及与缺铁性贫血鉴别中的灵敏度分析

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【摘要】目的 探讨红细胞平均体积(Mean Corpuscular Volume, MCV)、平均红细胞血红蛋白量(Mean Corpuscular Hemoglobin, MCH)、红细胞分布宽度(Red blood cell Distribution Width, RDW)及血清铁蛋白(Serum Ferritin, SF)应用在地中海贫血及与缺铁性贫血鉴别中的灵敏度分析。**方法** 选取2018年3月至2020年8月在本研究就诊的地中海贫血和缺铁性贫血患者, 各46例。比较两组MCV、MCH、RDW及SF水平及联合诊断结果(敏感度、特异度及准确度)。**结果** 地中海贫血组MCV、RDW显著低于缺铁性贫血组, 地中海贫血组MCH、SF显著高于缺铁性贫血组, $P<0.05$ 。MCV、MCH、RDW、SF联合检测后, 两组灵敏度、特异度及准确度比较, $P>0.05$ 。**结论** 地中海贫血及与缺铁性贫血鉴别中, MCV、MCH、RDW及SF联合检测诊断价值高, 值得推广。

【关键词】 地中海贫血; 缺铁性贫血; 红细胞平均体积; 平均红细胞血红蛋白量; 红细胞分布宽度; 血清铁蛋白; 灵敏度

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Sensitivity Analysis of MCV, MCH, RDW and SF in the Differentiation of Thalassemia and Iron Deficiency Anemia

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Abstract: Objective To investigate Mean Corpuscular Volume (MCV) and Mean Corpuscular Hemoglobin (Mean Corpuscular Hemoglobin). Sensitivity analysis of the application of MCH, Red blood cell Distribution Width (RDW) and Serum Ferritin (SF) in the differentiation of thalassemia and iron deficiency anemia. **Methods** From March 2018 to August 2020, 46 patients with thalassemia and 46 patients with iron deficiency anemia who were treated in this study were selected. The levels of MCV, MCH, RDW and SF and the combined diagnosis results (sensitivity, specificity and accuracy) were compared between the two groups. **Results** MCV and RDW in the thalassemia group were significantly lower than those in the iron deficiency anemia group, while MCH and SF in the thalassemia group were significantly higher than those in the iron deficiency anemia group, $P<0.05$. After MCV, MCH, RDW and SF combined detection, the sensitivity, specificity and accuracy of the two groups were compared, $P>0.05$. **Conclusion** The combined detection of MCV, MCH, RDW and SF has high diagnostic value in the differentiation of thalassemia and iron deficiency anemia.

Keywords: Thalassemia; Iron Deficiency Anemia; MCV; MCH; RDW; SF; Sensitivity

地中海贫血属于临床上常见的一类遗传性疾病, 目前认为此类疾病产生的原因与珠蛋白基因缺陷存在关系, 即珠蛋白链合成量减少^[1-3]。缺铁性贫血是指由于体内铁储备不足, 导致体内铁供应不足, 从而影响红细胞的正常形成和功能, 进而导致出现贫血的一种疾病^[4]。缺铁性贫血可由多种原因引起, 例如饮食习惯不当、消化系统疾病、长期出血等^[5,6]。近年来, 缺铁性贫血发生率呈现上升趋势, 严重影响患者生活质量^[7-8]。但关于地中海贫血和缺铁性贫血两种疾病常出现误诊的情况^[9]。如果不及时进行鉴别, 可能导致其他疾病的产生, 易对患者生命安全产生不利影响。相关研究报道^[10-12], 对于贫血类疾病的诊断, 常需要联合血液指标进行诊断, 可有效提高诊断准确度。本次研究主要探讨红细胞平均体积(Mean Corpuscular Volume, MCV)、平均红细胞血红蛋白量(Mean Corpuscular Hemoglobin, MCH)、红细胞分布宽度(Red blood cell Distribution Width, RDW)及血清铁蛋白(Serum Ferritin, SF)应用在地中海贫血及与缺铁性贫血鉴别中的灵敏度分析, 以选取2018年3月至2020年8月在本研究就诊的地中海贫血和缺铁性贫血患者92例为研究对象, 为相关领域的研究和临床实践提供有价值的参考依据, 内容如下。

1 资料与方法

1.1 一般资料 选取2018年3月至2020年8月在本研究就诊的地中海贫血和缺铁性贫血患者, 各46例。地中海贫血组: 男6例, 女40例, 年龄16~67岁, 平均年龄 (38.8 ± 5.5) 岁。缺铁性贫血组:

男8例, 女38例, 年龄16~68岁, 平均年龄 (38.6 ± 5.3) 岁。两组一般资料对比, $P>0.05$ 。

1.2 研究方法 所有患者均进行血液检测, 清晨抽取静脉血液2mL, 再将其置于真空抗凝采血管内, 予以适量的抗凝剂, 混合, 再检测。采用全自动血细胞分析仪检测红细胞平均体积(Mean Corpuscular Volume, MCV)、平均红细胞血红蛋白量(Mean Corpuscular Hemoglobin, MCH)、红细胞分布宽度(Red blood cell Distribution Width, RDW)及血清铁蛋白(Serum Ferritin, SF)水平。

1.3 观察指标 比较两组MCV、MCH、RDW、SF水平及联合诊断结果(敏感度、特异度及准确度)。其中灵敏度=真阳性例数/(真阳性例数+假阴性例数) $\times 100\%$, 特异度=真阴性例数/(真阴性例数+假阳性例数) $\times 100\%$, 准确度=(真阳性例数+真阴性例数)/总例数 $\times 100\%$ 。

1.4 统计学分析 采用统计(Statistical Product and Service Solutions, SPSS)25.0软件统计, Excel表格对研究数据进行计算, 定性资料如灵敏度、特异度及准确度均以%表示, 组间 χ^2 检验, 采用Kolmogorov-Smirnov法进行正态分布的检验, 符合正态分布的定量资料如MCV、MCH、RDW、SF水平均以 $(\bar{x} \pm s)$ 形式表示, 组间t检验, $P<0.05$ 表示组间存在意义。

2 结果

2.1 两组MCV、MCH、RDW、SF比较 地中海贫血组MCV (65.37 ± 5.05) fL、RDW $(16.58\pm3.95)\%$ 显著低于缺铁性贫血

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组,地中海贫血组MCH(24.56 ± 3.81)pg、SF(29.36 ± 7.76)g/L显著高于缺铁性贫血组, $P < 0.05$ 。具体内容见表1。

2.2 两组诊断结果对比 MCV、MCH、RDW、SF联合检测后,两组灵敏度、特异度及准确度比较, $P > 0.05$ 。具体内容见表2。

3 讨论

地中海贫血是一组遗传性血液病,主要发生在地中海沿岸地区和相关族群中,也可见于全球各地,该疾病的发生和发展主要与珠蛋白基因数目异常存在关系^[13-15]。越来越多的研究发现^[16-18], MCV、MCH、RDW、SF联合诊断在血液检测中具有重要意义。MCV水平可反映平均红细胞体积,其水平上升说明红细胞体积增加,常被用于鉴别其他多种贫血类疾病^[19]。MCH水平主要反映红细胞中含有血红蛋白量,在多种贫血类疾病中, MCH水平均出现异常下降的现象^[20]。RDW水平主要反映红细胞体积异质性,其水平越高,表示患者存在贫血现象^[21]。SF主要功能为推动红细胞促成,机体内铁蛋白水平出现异常下降后引起缺铁性贫血的产生^[22]。本次研究结果显示,地中海贫血组MCV、RDW显著低于缺铁性贫血组,地中海贫血组MCH、SF显著高于缺铁性贫血组, $P < 0.05$,此项研究结果说明地中海贫血中MCV、RDW水平均较

低,而MCH、SF水平均较高,但缺铁性贫血MCV、RDW、MCH、SF与之相反。联合检测MCV、RDW、MCH、SF水平,差异不具有统计学意义,通过联合检测方式可有效鉴别地中海贫血和缺铁性贫血疾病。本次研究结果在多项研究中均得到证实^[23-24]。

综上所述,地中海贫血及与缺铁性贫血鉴别中, MCV、MCH、RDW及SF联合检测诊断价值高。本次研究也存在一些局限性,样本量少,样本中心单一,期待后续研究扩大样本量,进行多中心研究,进一步提高研究结果真实性。

表1 两组MCV、MCH、RDW、SF比较

组别	n	MCV(fL)	MCH(pg)	RDW(%)	SF(g/L)
地中海贫血组	46	65.37 ± 5.05	24.56 ± 3.81	16.58 ± 3.95	29.36 ± 7.76
缺铁性贫血组	46	72.15 ± 7.16	18.92 ± 3.05	20.16 ± 3.48	5.22 ± 3.61
t	-	5.248	7.838	4.612	19.130
P	-	<0.001	<0.001	<0.001	<0.001

注:红细胞平均体积(MCV)、平均红细胞血红蛋白量(MCH)、红细胞分布宽度(RDW)及血清铁蛋白(SF)。

表2 两组诊断结果对比[n(%)]

组别	n	真阳性	假阳性	真阴性	假阴性	灵敏度	特异度	准确度
地中海贫血组	46	20	8	17	1	95.24%(20/21)	68.00%(17/25)	80.43%(37/46)
缺铁性贫血组	46	19	11	14	2	90.48%(19/21)	56.00%(14/25)	71.74%(33/46)
t	-	-	-	-	-	0.359	0.764	1.449
P	-	-	-	-	-	0.549	0.382	0.229

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