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论著

套式/多重PCR方法应用于疟疾诊断与监测的初步评价

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摘要

目的 与镜检法比较评价标签引物-套式/多重PCR（UT-PCR）在疟疾监测中的应用价值。 方法 在海南、云南省恶性疟和间日疟混合流行区和广西疟疾控制区的疟疾监测中，采集初诊为疟疾或疑似疟疾的发热患者的血片与滤纸血样400份，在双盲条件下比较镜检法与UT-PCR的初检结果，对结果不一致的血片再次镜检复查，同时对其滤纸血样重复PCR 2～3次；评估UT-PCR与镜检法的敏感性和特异性。 结果 400例发热患者血样中，镜检法初检检出疟原虫阳性234例，其中恶性疟125例，间日疟109例；UT-PCR检出疟原虫阳性235例，其中恶性疟124例，间日疟109例；恶性疟和间日疟混合感染2例。两法初检结果一致的血样占92.5%（370/400），其中阴性154例，阳性216例（间日疟117例，恶性疟99例）。复查25份初检结果不一致的血样，包括镜检阴性PCR阳性11例，镜检阳性PCR阴性10例，镜检为恶性疟PCR为间日疟3例，镜检为间日疟而PCR为混合感染1例，其中15份与UT-PCR的初检结果一致，7份“假阳性”原因不明，仅3份为PCR的假阴性。根据复查结果评估PCR的敏感性为99.6%，特异性为98.8%。 结论 采用更敏感的UT?鄄PCR疟疾诊断方法有助于解决疟疾诊断与鉴别诊断中的疑难问题，提高疟疾监测的质量和效率。

关键词 疟疾诊断 间日疟 恶性疟 套式/多重PCR

分类号

Primary Evaluation on the Application of Nested/Multiplex PCR in Malaria Diagnosis and Surveillance

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Abstract

Objective To compare the usefulness of Tag-primer nested/multiplex PCR （UT-PCR） method with microscopy in malaria diagnosis and surveillance. Methods 400 blood smears and blood samples on filter paper were taken from febrile patients which were initially diagnosed as malaria or suspected malaria during surveillance in mixed endemic areas of Plasmodium falciparum（Pf）and P. vivax（Pv）in Hainan and Yunnan provinces and a malaria controlled area in Guangxi Zhuang Autonomous Region. The initial test results of both UT-PCR and microscopy for the 400 samples were compared under double blind condition. Blood smears with discrepant results between the two methods were retested by an experienced microscopist，and also repeated by UT-PCR for 2-3 times. The sensitivity and specificity of the two methods were evaluated following the Tjitra’s method. Results Among the 400 blood samples，234 were found plasmodium-positive by microscopy with 125 Pf and 109 Pv；235 were positive by UT-PCR including 124 Pf，109 Pv and 2 mixed infection. Altogether，the coincidence between the two methods stood for 92.5 % （370/400），including 154 negatives and 216 positives （Pv 117，Pf 99）. 25 samples with discrepancy from the initial detections were retested，which covered 11 microscopy negative and PCR positive，10 microscopy positive and PCR negative，3 microscopy Pf positive and PCR Pv positive，1 microscopy Pv positive but PCR mixed infection. 15 of the 25 samples showed same UT-PCR results，7 “false positives” and 3 “false negatives”. Therefore，the sensitivity and specificity of UT-PCR was 99.6% and 98.8% respectively. Conclusion As a diagnosis method，UT-PCR is useful for confirmation of malaria diagnosis and differentiation of Plasmodium species，also for improving the effectiveness and quality of malaria surveillance.

Key words Malaria diagnosis *Plasmodium vivax* *Plasmodium falciparum* Nested/multiplex PCR

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