



Observation on Silver Nanoparticle Interference on Dichlorophenol Indophenol Precipitation Test

Dear Editor,

Nowadays, nanoparticle is widely used in daily life. The effect of nanoparticle interference on hematological examination is interesting, and the data on the interference are limitedly mentioned in the literature. The authors performed an experimental study to assess the effect of silver nanoparticle interference on dichlorophenol indophenol precipitation (DCIP) test, which is a standard reference test for the hemoglobin E disorder screening.¹ Thirty blood samples are used. Each sample is divided into two equal parts. Then, the first one was left naive and 1 µl of the silver nanoparticle solution was added into the left one. This evaluation protocol for the effect of the nanoparticle is the same as that published in the previous reports on the evaluation of the effect of nanoparticle on viral load test.² DCIP test was done in each sample in the same clinical laboratory at the same time under the same standard quality control process. Considering the results, all samples in the naive control group have negative DCIP test results, whereas three samples in the nanoparticle-added solution have positive results and classified as false-positive results (inaccuracy rate equal to 10%) [Table 1]. This report is the first world report on the effect of nanoparticle interference with DCIP test.

This study is a standard evaluation on interference effect in laboratory medicine. The main aim is the assessment of interference with DCIP test. It is not a study of a new diagnostic test that should show a new diagnostic test, which is cost-effective and reduce time-consuming. The high false-positive rate (10%) can show that there is an interference of nanoparticle on DCIP test. The main advantage of the present study is a new knowledge of nanoparticle interference with DCIP test. It is necessary to check for the contamination of nanoparticle in DCIP laboratory. The silver nanoparticle interference effect should be investigated in other hematological laboratory examinations.

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Conflicts of interest

There are no conflicts of interest.

Table 1: The original comparison data of negative control and nanoparticle-added groups

Hemoglobin E status	Positive result from DCIP	Positive result from DCIP with nanoparticle
With hemoglobin E (n=0)	0	3
Without hemoglobin E (n=30)	30	27

DCIP=Dichlorophenol indophenol precipitation

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