

LETTER TO THE EDITOR

Gold nanoparticle solution: an alternative tool for discriminating between pleural transudate and exudates

Beuy Joob¹, Viroj Wiwanitkit²

¹Sanitation I Medical Academic Center, Bangkok, Thailand; ²Wiwanitkit House, Bangkhuae, Bangkok, Thailand

J Thorac Dis 2013;5(3):E120. doi: 10.3978/j.issn.2072-1439.2012.03.19

Sir, the present advent in nanomedicine leads to the new development and introduction of many new nanodiagnostic tools. The naked eye system nanodiagnosis is the new hope for serving as point of care analysis. The application in body fluid analysis in laboratory medicine is very interesting. The good example is the application of gold nanoparticle solution for rapid detection of cerebrospinal cryptococcosis (1). The basic principle of the underlying biochemical reaction is the increasing of size after complex formation between gold nanoparticle and protein within the body fluid and this result in color change (from no color to red color). Based on this principle, the authors hereby test the application in pleural fluid analysis. The test is aiming at discriminating between pleural transudate and exudates. Based on the fact that the pleural exudate must have high protein content, the primary hypothesis is the gold nanosolution can help discriminating the exudates from transudate, which has significantly lower protein content, by naked eye observation of color change. Here, the author tested the system on 20 transudate and 20 exudate pleural fluid specimens. According to this simple trial after mixing a pleural fluid sample with gold nanoparticle solution, red color can be observed in all exudates and grey color

can be observed in case of transudate. This system is the same as the observations in other body fluids in previous reports (2,3). Hence, gold nanoparticle solution can be another alternative diagnostic solution for rough discriminating between exudates and transudate pleural fluid samples. This is also the first world report on this specific naked eye nanodiagnostic system for pleural fluid examination.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

References

1. Sereemanpun A, Wiwanitkit V, Rojanathanes R. Interaction between gold nanoparticles and *Cryptococcus* spp. *Arch Hellenic Med* 2009;26:520-2.
2. Wiwanitkit V, Sereemasun A, Rojanathanes R. Gold nanoparticle as an alternative tool for urine microalbumin test: the first world report. *Ren Fail* 2007;29:1047-8.
3. Wiwanitkit V. Gold Nanoparticle as an Alternative Diagnostic Solution For Detection Protein in Cerebrospinal Fluid. *J Neurosci* 2010;27:383.



Cite this article as: Joob B, Wiwanitkit V. Gold nanoparticle solution: an alternative tool for discriminating between pleural transudate and exudates. *J Thorac Dis* 2013;5(3):E120. doi: 10.3978/j.issn.2072-1439.2012.03.19

Corresponding to: Beuy Joob. Sanitation I Medical Academic Center, Bangkok, Thailand. Email: beuyjoob@hotmail.com.

Submitted Feb 23, 2012. Accepted for publication Mar 27, 2012.
Available at www.jthoracdis.com

ISSN: 2072-1439

© Pioneer Bioscience Publishing Company. All rights reserved.