J Infect Dis Ther 2016, 4:5(Suppl)
http://dx.doi.org/10.4172/2332-0877.C1.012

Delivery of Mycobacterium tuberculosis lipids using chitosan nanoparticles induce potent cytokine and antibody response through activation of γδ T-cells in mice

Ishani Das and **Avinash Sonawane**
[1]National Institute of Cholera and Enteric Diseases, India
[2]Translational Health Science and Technology Institute, India

Activation of cell mediated and humoral immune responses to *Mycobacterium tuberculosis* (Mtb), the causative agent of tuberculosis (TB), are critical for protection. For decades, most studies regarding immunity to TB are focused mainly on proteins. In recent years, increasing evidences have shown that Mtb cell wall lipids act as potent adjuvants as well as antigens capable of activating specific T-cells through their presentation by CD1 molecules and also induce IgM, IgA and IgG antibody responses. However unlike proteins, delivery and presentation of lipid antigens is a major challenge. Herein, we have used chitosan nanoparticles (NPs) as Mtb lipid delivery system and showed that chitosan NP mediated delivery of Mtb lipids induce potent cytokine and antibody responses in immunized mice. Chitosan NP delivered Mtb lipids induced the release of most prominent cytokines associated with Th1 (TNF-α, IFN-γ, IL-2) and Th2-type (IL-4, IL-5, IL-6, IL-13) immune responses in mice lymphatic and spleen cells as compared to immunogenic Mtb purified protein derivative (PPD) and chitosan NPs alone. Moreover, mice immunized with Mtb lipid coated chitosan NPs showed significantly higher levels of IgG, IgG1 and IgM and a moderate increase in IgG2a antibodies as compared to Mtb lipid liposomes and chitosan NP immunized mice. In conclusion, this study represents a promising new strategy for efficient delivery of Mtb lipids to trigger enhanced cell mediated and antibody response against Mtb infection.

ishanidas2011@gmail.com

Questionnaire triaging model adopted in rapid screening patients who are suspected to have Ebola infection

Jin Li, Tao Yan, Jinsong Mu, Enqiang Qin, Ye Wang, Liying Liu and **Dan Wu**
302 Military Hospital, China

Introduction & Aim: Ebola disease (EVD) is a fetal viral infectious disease with case fatality as high as 90%. Early discriminating patients on admission into high risk or low risk are of extremely important, thus the patients can be delivered to corresponding isolation areas to avoid Ebola viral cross transmission. However, diagnostic lab results of patients are difficultly obtained at first, especially during the early period of outbreak. A questionnaire triaging model was designed and then applied in a holding center in Sierra Leone successfully during the outbreak 2014.

Methodology: Medical histories of the patients were collected on admission according to case investigation form made by 'WHO', including 21 symptoms. The patients were diagnosed to have or not to have EVD 2 to 3 days after admission based on results of RT-PCR. Symptoms between the EVD and non-EVD patients were analyzed and compared. A criterion of screening the patients was made based on the results of date analysis.

Results: The total symptoms of EVD patients were significantly higher than those of non-EVD patients (9 vs. 5.5; $p<0.001$). Cut-off value was 6, the sensitivity, specificity, positive predictive value and negative predictive value were 70.4, 76.1, 87.4 and 52.2 % respectively. We assigned suspected patients to high risk area if the amount of their symptoms were equal or greater than 6; or to low risk area if less than 6. Patients were separated by space in both quarantine areas according to the Sierra Leone Emergency Management Program Standard Operating Procedures for Managing Ebola Virus Disease in Holding Centers. By the end of our work in Sierra Leone, there was no patient of cross transmission reported under this triaging model.

Conclusions: Questionnaire triaging model is efficient in screening suspected EVD patients in highly epidemic regions, which could be reference in patient management for other fetal infectious diseases. Even though clinical manifestations of EVD patients are generally non-specific, the amount of all symptoms could be of more diagnostic value.

lijin302@hotmail.com