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Conclusions: Study showed high compliance with international recommendations regarding screening for LTBI in HIV infected patients. It showed over two third of patients received prophylactic therapy. As TB continues to be a major threat to HIV infected patients all efforts should be taken for prevention.

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Inhibition of inflammatory responses in LPS/LTA-stimulated keratinocytes using magnetic nanosystems developed based on PBP10 peptide

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Background and purpose: Down-regulation of pro-inflammatory mediators and restoration of the physiological balance between pro- and anti-inflammatory factors, is an important strategy to modulate various inflammation-associated medical conditions, including skin and soft tissue infections (SSTIs). It was found that PBP10, a synthetic rhodamine B-conjugated peptide based on the PIP2-binding site of human plasma gelsolin, interacts specifically with LPS and LTA and limits microbial-induced inflammatory effects. Using the human keratinocytes cells stimulated by LPS and LTA as an in vitro model of bacterial infection, we examined the bactericidal and anti-inflammatory effects of nanosystems consisting of iron oxide-based magnetic nanoparticles with aminosilane (MNP@NH2) or gold shells (MNP@Au) functionalized by a set of PBP10 peptides and investigated the utility of MNPs as factors enhancing the biological activity of PBP10 peptides.

Methodology: Bactericidal activity and biocompatibility of PBP10-containing nanosystems was evaluated by killing assay method, MTT assay and hemolysis assay. Quantification of NO release, ROS formation and release of IL-8 by LPS/LTA-stimulated HaCaT cells was assessed using Griess assay, DCFH-DA-based fluorimetric assay and ELISA assay, respectively.

Results and discussions: Our results indicate that PBP10-containing nanosystems can kill both Gram-positive and Gram-negative bacteria and limit the production of inflammatory mediators, including NO, ROS and IL-8 in the response to heat-killed microbes or extracted bacterial cell wall components. The developed nanosystems are characterized by enhanced therapeutic efficacy, lower toxicity and improved hemocompatibility when compared to free peptides.

Conclusions: The augmentation of peptide bioactivity by MNPs suggest the possible application of MNP-based nanosystem in development of improved anti-infectious therapeutic agents with combined immunosuppressive functions that diminish the excessive inflammatory reaction of the host in the response to induction by bacterial-derived compounds.

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Serological investigation of MERS-CoV in humans between 2011-2016, Jeddah, Saudi Arabia

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Background: The Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) is a novel zoonotic virus emerged in 2012 in the Middle East. Accumulating body of evidence suggests that dromedaries are the main known reservoir hosts. Nonetheless, both Human-to-human and camel-to-human transmissions have been reported. So far, only 2,090 confirmed cases have been reported in 27 countries with a high mortality rate of 30–40%. However, prevalence of MERS-CoV in the general population is still not clear and epidemiological studies are limited especially in Saudi Arabia which is the most affected country. Therefore, our main goal in this study was to determine the sero-prevalence of MERS-CoV among healthy people in the western region of Saudi Arabia.

Methodology: A total of 7, 462 archived serum samples collected between 2011 and 2016 from healthy blood donors in the western region of Saudi Arabia were screened by ELISA tests for the presence of MERS-CoV antibodies. All ELISA positive samples were tested for presence of neutralizing antibodies using MERS-CoV neutralization assay.

Results: The indirect ELISA results showed that the seroprevalence of MERS-CoV for the years 2011, 2012 and 2013 were 1.11% (1/90), 0.74% (10/1360) and 1.8% (18/999), respectively. Interestingly, testing samples from 2016 showed increased seroprevalence of 3.01% (151/5013).

The cumulative overall seroprevalence of MERS-CoV for all years was 2.41% (180/7,462). Interestingly, none of the positive samples showed any evidence of neutralizing antibodies.

Conclusion: Our data here showed that MERS-CoV or a closely related coronavirus might have been circulating before 2012 in Saudi Arabia. Data also suggest that there might be several cases that are undiagnosed or missed probably due to mild or asymptomatic infections which could resulted in the observed very low or undetectably neutralizing antibodies. Interestingly, we found that seroprevalence of MERS-CoV is increasing over the years underscoring the importance for continued active surveillance for MERS-CoV.

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