

ogy/oncology patients acquiring HAI infections and antimicrobial resistance has been significantly reduced. This intervention affords this high risk population the opportunity to pursue cancer-specific treatment with a reduced risk of developing infectious complications.

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Inhibition of Japanese encephalitis virus infection by biogenic catechin silver nanoparticles: An in-vitro study

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Background: The interaction of nanoparticles with microorganisms is an emerging field. Within this, an area that has been limitedly explored is the interaction of nanoparticles with viruses. Recently studies on silver nanoparticles (AgNPs) showed potent antiviral activity against HIV, HBV, influenza and dengue virus. However, synthesis of metallic nanoparticles involves physical and chemical approach utilizing toxic chemicals, which may hinder its application for human use. Therefore, development of novel eco-friendly nanoparticles is of great interest. In the present study, we synthesized green AgNPs with catechin as reducing agent. Catechin, a polyphenol being itself having antiviral property may enhance the efficiency of AgNPs. We evaluated biogenic catechin AgNPs against Japanese encephalitis virus (JEV), which is a major public health problem particularly in Asia.

Methods & Materials: Green nanoparticles were synthesized by adding purified catechin into AgNO₃ solution by following standard method. Standard circulating JEV strain JERGO7 (Source: Human, 2007, Assam, India) was used. In vitro assays were done using VERO cell line. Cell viability assay for 2 fold diluted green AgNPs was done using MTT standard protocol assay. Cytopathetic effect (CPE) inhibition assay was performed with 1 Multiplicity of infection (MOI) of JEV. Cells were also observed daily under inverted microscope and were assigned a score based on appearance of CPE. Further, virus yield reduction assay was done to quantify the level of protection of nanoparticles treated both at pre & post JEV infection.

Results: Transmission Electron Microscopy (TEM) analysis revealed formation of biogenic AgNPs within the size of 50nm. Maximum (100%) cell viability for green nanoparticles was observed in the range from 0.04 µg/ml to 5.85 µg/ml. Within the same range CPE inhibition assay also showed full protection against JEV. Further, virus yield reduction assay showed reduction in plaques number in comparison to virus control in both pre & post JEV infection cells.

Conclusion: The present study demonstrated the ability of catechin reduced biogenic AgNPs to prevent JEV infection by inhibition of virus attachment and post infection spread. Future studies should

be focused on elucidating the mechanism of nanoparticle-virus interaction at cellular and microscopic level.

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Point surveillance of staphylococcus aureus nasal carriage among health care workers in rural tertiary care center of Central India

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Background: The anterior nares have been shown to be the main reservoir of Staphylococcus aureus in both children and adults. The Staphylococcus aureus is transmitted to nares by contaminated hands and from surfaces where it can survive for months. Colonized health care worker acts as a reservoir for the spread of Staphylococcus aureus to uncolonized susceptible patients. The study aims to investigate the nasal carriage of Staphylococcus aureus among health care workers.

Methods & Materials: A total of 192 nasal swabs were obtained from health care workers (nursing staff, attendants, and laboratory personnel) and cultured for carriage of Staphylococcus aureus. Isolates were identified based on their growth on mannitol salt agar, blood agar, gram staining, catalase and tube coagulase tests. All the isolates were subjected to in vitro antibiotic susceptibility testing as per CLSI guidelines.

Results: Among 192 health care workers, 28 (14.58%) were Staphylococcus aureus carriers. Highest rate of Staphylococcus aureus carriage was seen among central clinical laboratory staff (30.77%) followed this in orthopaedic ward (23.08%). Among 28 Staphylococcus aureus isolates 4(2.08%) were MRSA, 1(0.52%) inducible clindamycin resistant, 1(0.52%) low level mupirocin resistant. None of the isolate had constitutive clindamycin resistance and high level mupirocin resistance. The isolates were sensitive to Vancomycin (100%), Rifampicin (100%), Clindamycin (96.43%), Erythromycin (75%), ciprofloxacin (71.43%), Cotrimixazole (50%), Penicillin (0%).

Conclusion: It is important to develop proper protocol for eradication of nasal carriage and strict hospital infection control policy to reduce carriage of Staphylococcus aureus among health care workers.

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