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Efficacy of bevacizumab combined with paclitaxel and carboplatin: A second line treatment of elderly patients with advanced non-small cell carcinoma (NSCLC)

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Purpose: The aim of this phase II study was to assess the efficacy and safety of paclitaxel combined with carboplatin plus bevacizumab as second line treatment of elderly patients with advanced NSCLC.

Patients and Methods: Twenty one previously treated elderly patients with NSCLC were enrolled into this study between March 2009 and March 2013. All patients received paclitaxel 175 mg/m^2 followed by carboplatin AUC of 5, and followed by bevacizumab 15 mg/kg, all agents were given via I.V infusion on day 1 and the cycle was repeated every 21 days for maximum 6-8 cycles. Patients who attained at least stable disease continued to receive single agent bevacizumab every 21 days until disease progression or unacceptable toxicity developed.

Results: The median age was 73 years old (range 66-82 years); 17 (81%) patients were men; ECOC PS was 0 in 4 (19%) patients, 1 in 9 (43%) patients and 2 in 8 (38%) patients. The objective response rate was 30.3%, while disease control rate was 63.7%, respectively, and the median progression-free survival time was 4. 2 months. Grade 3/4 neutropenia had been recorded in 4(19%) patients, grade ¾ thrombocytopenia occurred in 2(10%) patients, while grade 3/4 peripheral neuropathy occurred in 3(14%) patients and grade 3/4 fatigue had occurred in 4(19%) patients. No treatment-related deaths had been reported in this study.

Conclusion: Bevacizumab when given with paclitaxel and carboplatin exhibits activity in previously treated elderly patients with advanced NSCLC and has acceptable toxicity.

Smart liposomes bearing combination of synergistic anticancer agents

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Ovarian cancer is one of the most fatal gynecologic cancers. In this debut study, dual approach using synergistically active combination of paclitaxel-topotecan (Pac-Top; 20:1, *w/w*) is investigated with utilization of characteristic features of tumor micro-environment and additionally over expressed folate receptors (FR-α) to achieve targeting to tumor site. Various liposomes namely: Liposomes, PEGylated liposomes and FR-targeted PEGylated liposomes with lipid compositions viz. DPPC: DMPG (85.5:9.5), DPPC: DMPG: mPEG$_{2000}$-DSPE (85.5:9.5:5) and DPPC: DMPG: mPEG$_{2000}$-DSPE: DSPE-PEG-folate (85.5:9.5:4.5:0.5), respectively were developed using thin film casting method. These were nanometeric in size around 200 nm. *In vitro* drug release study showed initial burst release followed by sustained release for more than 72 hrs at physiological milieu (37±0.5°C, pH 7.4) while burst release (i.e. more than 90%) within 5 min at simulated tumor milieu (41±1°C, pH 4). SRB cytotoxicity assay in OVCAR-3 cell line revealed Pac-Top free (20:1, *w/w*) to be more toxic (GI$_{50}$=6.5 µg/ml) than positive control (Adriamycin, GI$_{50}$=9.1 µg/ml) and FR-targeted PEGylated liposomes GI$_{50}$ (14.7 µg/ml). Moreover, florescence microscopy showed the highest cell uptake of FR-targeted PEGylated liposomes so called "Smart Liposomes" which has not only mediated effective targeting to FR-α but also triggered release of drugs upon hyperthermia.

Biography

Ankit Jain scored 99.34 percentile in GATE-2008, (in BPharm. III year). He got valuable scholarships like JRF-UGC and SASS (New Delhi) in his study period. He is also a recipient of Young Jaina Award-2012. He owned number of best papers in national seminars and has more than 15 international publications including book chapters in reputed journals to his credit. Currently, he is pursuing PhD (CSIR-SRF) under kind supervision of Prof. Sanjay K. Jain (Professor in Pharmaceutics), Dept. of Pharm. Sciences, Dr. H.S. Gour Central University, Sagar (M.P.), INDIA. His research areas of interest include novel cancer targeting strategies, liposomal research and fabrication of drug nanocarriers.

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