
Tremendous efforts were made to treat cancer ranging from small molecules to monoclonal antibodies. According to World Health Organization, about 30 to 50% of all cancer cases may be preventable. Unfortunately, 9.6 million people have died due to cancer globally in year 2018. Notably, one in 6 women and one in 5 men have chance to develop cancer during their lifetime. This issue discusses about testicular, gynecological and liver cancer along with cancer therapeutics.

Testicular cancer mostly initiate in germ cell of testicle. Majority of the cases were reported in adult men and were treatable in early stages of cancer using surgery, radiation and chemotherapy. Population pharmacogenetics, clinical trial, genetic determinants of chemotherapy induced toxicity and signaling pathways in testicular cancer have been discussed. Signaling pathway and application of natural products such as camptothecin, paclitaxel, podophyllotoxin, and vincristine have been discussed in gynecological cancers including ovarian, cervical and uterine cancer. Unfortunately, majority of the gynecological cancer get diagnosed at late or advance metastatic stage. Flavonoids have potential to treat cancer and also play important role in overcoming the drug resistance mechanism such as in case of Fisetin, and Quercetin. It can be used in combination with other cancer drugs as synergistic therapy. Bioavailability of flavonoids can be enhanced by several methods including derivatization, micro and nano delivery system that may help to enhance the pharmacokinetic and pharmacodynamics properties of flavonoids.

Nanomedicine has great application in therapeutics of hepatocellular carcinoma (HCC) and has potential to play important role in cancer imaging and diagnostics. Nanotechnology drug delivery system successfully delivers the drug at specific target site by crossing the physiological barriers. Lipid-based nanoparticles, liposomes, solid lipid nanoparticles, nanostructured lipid carriers, carbon nanotubes, metallic nanoparticles, dendrimers and its applications have been discussed in details. Superparamagnetic and paramagnetic nanoparticles help in imaging of cancer by enhancing the reliability and sensitivity of tumor diagnosis and several nano formulations are under clinical trial for liver cancer.

Monoclonal antibodies have been found to be very useful in cancer therapeutics. Trastuzumab is one of the admired molecular antibodies that help to control breast cancer in HER2 positive patients. In addition, Cetuximab is well-known epidermal growth factor receptor (EGFR) inhibitor for treatment of non-small cell lung cancer, while Bevacizumab is an antiangiogenic agent that binds with vascular endothelial-derived growth factor (VEGF) and used as anticancer agent in several cancer including colorectal cancer. Efficient bioavailability and target specific binding are important factor for success of monoclonal antibodies as cancer therapeutics.

REFERENCES


