

Effects of α -IFN -SingleWalled Carbon NanoTube and α -IFN-PLGA Encapsulated on Breast Cancer in Rats Induced by DMBA by Using CA15-3 Tumor Marker

Authors : Anoosh Eghdami

Abstract : Background and aim: Conventional anticancer drugs display significant shortcomings which limit their use in cancer therapy. For this reason, important progress has been achieved in the field of nanotechnology to solve these problems and offer a promising and effective alternative for cancer treatment. Tumor markers may also be measured periodically during cancer therapy. Tumor markers may also be measured after treatment has ended to check for recurrence the return of cancer. The aim of this study was to evaluate the effect of nano drug delivery in induced breast cancer with DMBA by using CA15-3 tumor marker. Material and method: the rats were divided into five groups. The first group (control n=15) were fed only sesame oil as a gavage. In the second group n=15, 10 mg DMBA was dissolved in 5ml of sesame oil and were fed as a gavage. In addition to DMBA treatment as the second group, in the 3, 4 and 5 groups after cancer creation, respectively affected by alpha interferon (α -IFN), alpha interferon conjugated with single walled carbon nano tube (α -IFN-SWNT) and encapsulated in poly lactic poly glycolic acid (α -IFN-PLGA). Tumor marker was measured in recent three groups. Results: The ANOVA test was used to determine the differences among the groups. Cancer inducing in rats (group 2) caused a significant increase in blood levels of CA15-3 ($P < 0.05$). Administration of α -IFN, α -IFN -SWNT and α -IFN-PLGA in 3 groups of cancerous rats caused a significant decrease in blood levels of CA15-3 only the group that treated with α -IFN-PLGA ($p < 0.05$). Conclusion: the results of this study indicate that nano drugs more effective than traditional drug in cancer treatment, although further work is needed to elucidate the safety and side effect of these compound in human.

Keywords : breast cancer, nano drug, tumor markers, CA15-3, α -IFN-PLGA, -IFN -SWNT

Conference Title : ICPPM 2016 : International Conference on Pharmacology and Pharmaceutical Medicine

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : February 11-12, 2016