
Poster

[P25-11] P25-11: Clinical toxicology (1)

Chair: Kenji Ikeda, Japan

Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall (1F)

(Mon. Sep 25, 2017 12:30 PM - 1:30 PM Annex Hall)

[P25-11-3] Amelioration of radiation-induced hematological and biochemical alterations in Swiss albino mice by vernonia cinerea extract

Nitin Verma¹, Rattan Lal Khosa² (1.Baddi University of Emerging Sciences &Technology, 2.Professor and Dean Research and Planning)

Keywords: Vernonia cinerea, Radiation, Tissue protection 60Co radiation

Background

Many synthetic and natural agents have been investigated in the recent past for their efficacy to protect against radiation damage. Among the natural radio protective agent's cystamine, cystine, 5-hydroxy tryptophan, glutathione and vitamins like A, C and E have been extensively studied. Synthetic molecules induce inherent toxicity in doses sufficient to produce radioprotective action and this warrants further search for safer and effective radioprotective molecules. Some isolated plant products and crude extracts that may have a natural combination of several bioactive molecules capable of giving radioprotection through various mechanism such as free radical scavenging , calcium channel blocking , inhibition of lipid peroxidation , enhancement of DNA repair and stimulation of stem cell proliferation are considered important. *Vernonia cinerea* possesses several of the above mentioned properties. This study was carried out to observe the radioprotective effect of *Vernonia cinerea* ethanolic extract (VCEE) against radiation-induced hematological and biochemical alterations in blood and liver of mice.

Methods

Adult Swiss albino mice were exposed to 6 Gy gamma radiation in the presence (experimental) or absence (control) of VCEE to study the quantitative and qualitative alterations in the blood and liver.

Results

Radiation exposure resulted in a significant decline ($P < .001$) in erythrocyte count, hemoglobin (Hb), and hematocrit (Hct) in peripheral blood. Maximum changes in all the parameters were observed on day 3 after irradiation. In contrast, VCEE -pretreated irradiated animals showed a significant increase in erythrocyte, Hct, and Hb values compared with irradiated controls. Furthermore, a significant elevation in lipid peroxidation level over normal was recorded in irradiated control mice, whereas this increase was considerably lesser in VCEE pretreated animals. Likewise, pretreatment with VCEE caused a significant increase in glutathione levels in serum as well as in liver in comparison to irradiated controls.

Conclusions

From this study, it is clearly evident that VCEE provides protection against radiation-induced hematological and biochemical alterations in Swiss albino mice.