1.Protective action of peanut oil in rats exposed to gamma-rays

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Abstract

The present study aims to clarify the role of peanut oil as a radioprotector in male albino rats against oxidative stress and bone injury induced by A-radiation. Rats were Subjected to a dose of 5Gy, over an exposure time of 133sec, at a dose rate 3.759rad/sec. Prior to irradiation, rats received peanut oil subcutaneously, (0.75mL/kg) over a one month period, oil three days/ week. Serum and bone mineral contents were estimated, and serum protein, cholesterol and creatinine concentrations were determined. We also investigated some enzyme activities as well as hormonal calcium control. It seems that the deleterious effects of exposure to (a) over tilde - radiation on most estimated parameters affecting Ca metabolism can be controlled to some extent by peanut Oil administration prior to irradiation.

Keywords: radiation; peanut oil; calcium metabolism

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References

1. Title: [not available]
Author(s): ABDELMONEIM AE
Source: EGYPTIAN J BIOCH Volume: 7 Pages: 153 Published: 1989

2. Title: [not available]
Author(s): AITSULA K
Source: ACTA OTO-LARYNGOL Volume: 428 Pages: 1 Published: 1986

3. Title: Free radical scavenging alleviates the biomechanical impairment of gamma radiation sterilized bone tissue
Author(s): Akkus, O; Belaney, RM; Das, P
Source: JOURNAL OF ORTHOPAEDIC RESEARCH Volume: 23 Issues: 4 Pages: 838-845 DOI: 10.1016/j.orthres.2005.01.007 Published: JUL 2005

4. Title: Vitamin D3 differentially regulates parathyroid hormone parathyroid hormone-related peptide receptor expression in bone and cartilage
Author(s): Amizuka, N; Kwan, MY; Goltzman, D; et al.
Source: JOURNAL OF CLINICAL INVESTIGATION Volume: 103 Issues: 3 Pages: 373-381 DOI: 10.1172/JCI3265 Published: FEB 1999

5. Title: Vitamin E improves bone quality in the aged but not in young adult male mice
Author(s): Arjmandi, BH; Juma, S; Beharka, A; et al.
Source: JOURNAL OF NUTRITIONAL BIOCHEMISTRY Volume: 13 Issue: 9 Pages: 543-549 Article Number: PII S0955-2863(02)00199-7 DOI: 10.1016/S0955-2863(02)00199-7 Published: SEP 2002

6. Title: Peanuts as a source of beta-sitosterol, a sterol with anticancer properties
Author(s): Awad, AB; Chan, KC; Downie, AC; et al.
Source: NUTRITION AND CANCER-AN INTERNATIONAL JOURNAL Volume: 36 Issues: 2 Pages: 238-241 DOI: 10.1207/S15327914NC3602_14 Published: 2000

7. Title: [not available]
Author(s): AZZI A
Source: J NUTR S Volume: 131 Pages: 378 Published: 2000

8. Title: Effect of vitamin E, vitamin C and spirulina on the levels of membrane bound enzymes and lipids in some organs of rats exposed to lead
Author(s): Upasani, C. D.; Balaraman, R.
Source: Indian Journal of Pharmacology Volume: 33 Issues: 3 Pages: 185-191 Published: June, 2001

9. Title: Dipeptidase activity in the small intestine after irradiation at different times of the day.
Author(s): Becciolini, A; Benucci, A; Porciani, S; et al.
Source: Strahlentherapie Volume: 158 Issues: 6 Pages: 368-74 Published: 1982-Jun

10. Title: Determination of 3- and 4-hydroxyproline.
Author(s): Berg, R A
Source: Methods in enzymology Volume: 82 Pt A Pages: 372-98 Published: 1982

11. Title: Membrane oxidative damage induced by ionizing radiation detected by fluorescence polarization
Author(s): Berroud, A; LeRoy, A; Voisin, P
Source: RADIATION AND ENVIRONMENTAL BIOPHYSICS Volume: 35 Issue: 4 Pages: 289-295 DOI: 10.1007/s004110050042 Published: NOV 1996

12. Title: Oxidative stress and vascular damage in hypertension
Author(s): Berry, C; Brosnan, MJ; Fennell, J; et al.
Source: CURRENT OPINION IN NEPHROLOGY AND HYPERTENSION Volume: 10 Issues: 2 Pages: 247-255 DOI: 10.1097/00041552-200103000-00014 Published: MAR 2001

13. Title: Renal toxicity after total body irradiation
Author(s): Borg, M; Hughes, T; Horvath, N; et al.
Source: INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS Volume: 54 Issue: 4 Pages: 1165-1173 Article Number: PII S0360-3016(02)03039-0 DOI: 10.1016/S0360-3016(02)03039-0 Published: NOV 15 2002

14. Title: [not available]
Author(s): BROZOSKA MM
Source: POLSKI MERKURIUSZ LE Volume: 1 Page: 363 Published: 1996

15. Title: Resveratrol, melatonin, vitamin E, and PBN protect against renal oxidative DNA damage induced by the kidney carcinogen KBrO3
Author(s): Cadenas, S; Barja, G
Source: FREE RADICAL BIOLOGY AND MEDICINE Volume: 26 Issue: 11-12 Pages: 1531-1537 DOI: 10.1016/S0891-5849(99)00019-2 Published: JUN 1999

16. Title: [not available]
Author(s): CHAVELLY T
Source: PRESSE MED Volume: 28 Pages: 547 Published: 1999

17. Title: [not available]
Author(s): CHEN LH
Source: NUTR RES Pages: 527 Published: 1985

18. Title: Peanut roots as a source of resveratrol
Author(s): Chen, RS; Wu, PL; Chiou, RYY
Source: JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY Volume: 50 Issue: 6 Pages: 1665-1667 DOI: 10.1021/jf011134e Published: MAR 13 2002

19. Title: HYPERPARATHYROIDISM AFTER NECK IRRADIATION
Author(s): CHRISTMAS, TJ; CHAPPLE, CR; NOBLE, JG; et al.
Source: BRITISH JOURNAL OF SURGERY Volume: 75 Issues: 9 Pages: 873-874 DOI: 10.1002/bjs.1800750914 Published: SEP 1988

20. Title: Effects of vitamin E deficiency on the distribution of cholesterol in plasma lipoproteins and the activity of cholesterol 7 alpha-hydroxylase in rabbit liver.
Author(s): Chupukcharoen, N; Komaratat, P; Wilairat, P

Source: The Journal of nutrition Volume: 115 Issue: 4 Pages: 468-72 Published: 1985-Apr

21. Title: A brief history of calcitonin
Author(s): Colman, E; Hedin, R; Swann, J; et al.
Source: LANCET Volume: 359 Issue: 9309 Pages: 885-886 DOI: 10.1016/S0140-6736(02)07949-7 Published: MAR 9 2002

22. Title: [not available]
Author(s): ENDO K
Source: J BONE MINER RES Volume: 1 Page: 175 Published: 2000

23. Title: SOME BIOCHEMICAL ASPECTS OF THE PROTECTIVE EFFECT OF STRONTIUM CHLORIDE ON GAMMA-IRRADIATED RATS
Author(s): FAHIM, FA; ROSHDY, HM; YOUSRI, RM; et al.
Source: BIOMETALS Volume: 6 Issues: 3 Pages: 163-170 Published: FAL 1993

24. Title: [not available]
Author(s): FARAG EK
Source: J EGYPTIAN SOC PARAS Volume: 29 Pages: 517 Published: 1999

25. Title: Assorted monounsaturated fatty acids promote healthy hearts
Author(s): Feldman, EB
Source: AMERICAN JOURNAL OF CLINICAL NUTRITION Volume: 70 Issues: 6 Pages: 953-954 Published: DEC 1999

26. Title: [not available]
Author(s): FILIPOV ZH
Source: EXPT HEMATOLOGY Volume: 19 Pages: 742 Published: 1991

27. Title: LEVELS OF PARATHYROID-HORMONE AND CALCITONIN IN SERUM AMONG ATOMIC-BOMB SURVIVORS
Author(s): FUJIWARA, S; SPOSTO, R; SHIRAKI, M; et al.
Source: RADIATION RESEARCH Volume: 137 Issue: 1 Page: 96-103 DOI: 10.2307/3578796 Abstract Number: A1994-06-8750G-014 Published: JAN 1994

28. Title: [not available]
Author(s): FUKUDA S
Source: J JPN SOC BONE MORPH Volume: 9 Pages: 35 Published: 1999

29. Title: HEPATIC RADIATION-INJURY IN THE RAT
Author(s): GERACI, JP; MARIANO, MS; JACKSON, KL
Source: RADIATION RESEARCH Volume: 125 Issue: 1 Page: 65-72 DOI: 10.2307/3577983 Abstract Number: A1991-099655 Published: JAN 1991

30. Title: Independent antioxidant action of vitamins E and C in cultured rat hepatocytes intoxicated with allyl alcohol
Author(s): Glascott, PA; Gilfor, E; Serroni, A; et al.
Source: BIOCHEMICAL PHARMACOLOGY Volume: 52 Issue: 8 Pages: 1245-1252 DOI: 10.1016/0006-2952(96)00478-9 Published: OCT 25 1996

31. Title: A murine model for bone loss from therapeutic and space-relevant sources of radiation
Author(s): Hamilton, S. A.; Pecaut, M. J.; Gridley, D. S.; et al.
Source: JOURNAL OF APPLIED PHYSIOLOGY Volume: 101 Issues: 3 Pages: 789-793 DOI: 10.1152/japplphysiol.01078.2005 Published: SEP 2006

32. Title: [not available]
Author(s): HIZHNYAK SV
Source: J DATA SCI RES Volume: 4 Pages: 101 Published: 1997

33. Title: Renal and systemic magnesium metabolism during chronic continuous PTH infusion in normal subjects.
Author(s): Hulter, H N; Peterson, J C
Source: Metabolism: clinical and experimental Volume: 33 Issue: 7 Pages: 662-6 DOI: 10.1016/0026-0495(84)90067-2 Published: 1984-Jul

34. Title: Homeostatic control of plasma calcium concentration
Author(s): Hurwitz, S
Source: CRITICAL REVIEWS IN BIOCHEMISTRY AND MOLECULAR BIOLOGY Volume: 31 Issues: 1 Page: 41-100 DOI: 10.3109/10409239609110575 Published: 1996

35. Title: The daily oral administration, of high doses of trans-resveratrol to rats for 28 days is not harmful
Author(s): Juan, ME; Vinardell, MP; Planas, JM
Source: JOURNAL OF NUTRITION Volume: 132 Issues: 2 Pages: 257-260 Published: FEB 2002

36. Title: Osteoporosis: gender differences and similarities
Author(s): Khosla, S; Melton, LJ; Riggs, BL
Source: LUPUS Volume: 8 Issues: 5 Pages: 393-396 DOI: 10.1177/096120339900800513 Published: 1999

37. Title: Estimation of plasma phosphatase by determination of hydrolysed phenol with amino-antipyrine.
Author(s): KIND, P R; KING, E J

Source: Journal of clinical pathology Volume: 7 Issue: 4 Pages: 322-6 DOI: 10.1136/jcp.7.4.322 Published: 1954-Nov

38. Title: Radioprotective effect of Panax ginseng on the phosphatases and lipid peroxidation level in testes of Swiss albino mice
Author(s): Kumar, M; Sharma, MK; Saxena, PS; et al.
Source: BIOLOGICAL & PHARMACEUTICAL BULLETIN Volume: 26 Issue: 3 Pages: 308-312 DOI: 10.1248/bpb.26.308 Published: MAR 2003

39. Title: Single- and double-strand DNA breaks in rat brain cells after acute exposure to radiofrequency electromagnetic radiation
Author(s): Lai, H; Singh, NP
Source: INTERNATIONAL JOURNAL OF RADIATION BIOLOGY Volume: 69 Issue: 4 Pages: 513-521 DOI: 10.1080/095530096145814 Abstract Number: A1996-13-8750E-001 Published: APR 1996

40. Title: Determination of bone markers in dairy cows with periparturient paresis
Author(s): Liesegang, A; Eicher, R; Kraenzlin, M; et al.
Source: SCHWEIZER ARCHIV FUR TIERHEILKUNDE Volume: 140 Issues: 10 Pages: 405-411 Published: OCT 1998

41. Title: Resveratrol stimulates the proliferation and differentiation of osteoblastic MC3T3-E1 cells
Author(s): Mizutani, K; Ikeda, K; Kawai, Y; et al.
Source: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS Volume: 253 Issues: 3 Pages: 859-863 DOI: 10.1006/bbrc.1998.9870 Published: DEC 30 1998

42. Title: Positive and negative regulations of the renal 25-hydroxyvitamin D-3 1 alpha-hydroxylase gene by parathyroid hormone, calcitonin, and 1 alpha,25(OH)(2)D-3 in intact animals
Author(s): Murayama, A; Takeyama, K; Kitanaka, S; et al.
Source: ENDOCRINOLOGY Volume: 140 Issues: 5 Pages: 2224-2231 DOI: 10.1210/en.140.5.2224 Published: MAY 1999

43. Title: [not available]
Author(s): NATH KA
Source: KIDNEY INT S Volume: 45 Pages: 11 Published: 1994

44. Title: [not available]
Author(s): NATH RL
Source: TXB MED BIOCH NEW AG Pages: 416 Published: 1996

45. Title: Low serum concentrations of 1,25-dihydroxyvitamin D in human magnesium deficiency.
Author(s): Rude, R K; Adams, J S; Ryzen, E; et al.
Source: The Journal of clinical endocrinology and metabolism Volume: 61 Issue: 5 Pages: 933-40 Published: 1985-Nov

46. Title: [not available]
Author(s): SHFRANOVSKAIA EV
Source: RADIATSIONNIA BIOL R Volume: 42 Pages: 44 Published: 2002

47. Title: [not available]
Author(s): SOTORNIK I
Source: VNITRNI LEKARSTVI Volume: 43 Pages: 616 Published: 1997

48. Title: Influence of ferulic acid on gamma-radiation induced DNA damage, lipid peroxidation and antioxidant status in primary culture of isolated rat hepatocytes
Author(s): Srinivasan, M.; Sudheer, A. Ram; Pillai, K. Raveendran; et al.
Source: TOXICOLOGY Volume: 228 Issues: 2-3 Pages: 249-258 DOI: 10.1016/j.tox.2006.07.004 Published: DEC 7 2006

49. Title: Serum alkaline phosphatases as indicators of radiation damage in rats.
Author(s): Stepan, J; Havranek, T; Jojkova, K
Source: Radiation research Volume: 70 Issue: 2 Pages: 406-14 Abstract Number: A1977-086556 Published: 1977-May

50. Title: Primary radiation damage of protein crystals by an intense synchrotron X-ray beam
Author(s): Teng, TY; Moffat, K
Source: JOURNAL OF SYNCHROTRON RADIATION Volume: 7 Pages: 313-317 DOI: 10.1107/S0909049500008694 Part: Part 5 Abstract Number: A2001-08-8715M-014 Published: SEP 2000

51. Title: A new superoxide-generating oxidase in murine osteoclasts
Author(s): Yang, S; Madyastha, P; Bingel, S; et al.
Source: JOURNAL OF BIOLOGICAL CHEMISTRY Volume: 276 Issues: 8 Pages: 5452-5458 DOI: 10.1074/jbc.M001004200 Published: FEB 23 2001

52. Title: [not available]
Author(s): ZOFOKOVA I
Source: MAGNESIUM RES Volume: 8 Pages: 77 Published: 1995

2. BLADDER DAMAGE IN MICE AFTER COMBINED TREATMENT WITH CYCLOPHOSPHAMIDE AND X-RAYS

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3. BLADDER DAMAGE IN MICE AFTER COMBINED TREATMENT WITH CYCLOPHOSPHAMIDE AND X-RAYS - THE INFLUENCE OF TIMING AND SEQUENCE

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Abstract

The response of the mouse bladder to single doses of cyclophosphamide (CY), X-rays, or their combination was assessed from the development of functional damage (haematuria and increased frequency of urination). For the combined treatments, a single dose of CY (100 mg · kg^{-1}) was given immediately before or at intervals of up to 9 months before irradiation, or at one week to 9 months after irradiation. Damage after X-rays alone was expressed late, with no functional changes earlier than 5 months. CY alone, by contrast caused a marked increase in urination frequency and haematuria within one week. There was subsequently partial recovery although some residual damage persisted for at least one year. CY given before or after X-rays caused an early, X-ray dose-related expression of damage. These results suggest that the drug precipitated some of the latent radiation injury. There was also a second wave of damage after the combined treatments and the response at 9–12 months was always more severe than after X-rays alone. This increased late damage could be explained in terms of additive drug and radiation toxicities. Since drug given up to 9 months before or after irradiation caused more severe bladder damage than X-rays alone, CY should be avoided in clinical situations where the bladder has been irradiated.

Keywords: Mouse bladder; Radiation; Cyclophosphamide

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