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Effect of 2.45 mT sinusoidal 50 Hz magnetic field on *Saccharomyces cerevisiae* strains deficient in DNA strand breaks repair

Miguel J Ruiz-go´ Mez, Francisco Sendra-Portero and **Manuel Marti´Nez-Morillo**
University of Malaga, Spain

Purpose: To investigate whether extremely-low frequency magnetic field (MF) exposure produce alterations in the growth, cell cycle, survival and DNA damage of wild type (wt) and mutant yeast strains.

Materials & Methods: Wild type and high affinity DNA binding factor 1 (hdf1), radiation sensitive 52 (rad52), rad52 hdf1 mutant *Saccharomyces cerevisiae* strains were exposed to 2.45 mT, sinusoidal 50 Hz MF for 96 h. MF was generated by a pair of Helmholtz coils. During this time, the growth was monitored by measuring the optical density at 600 nm and cell cycle evolution were analyzed by microscopic morphological analysis. Then, yeast survival was assayed by the drop test and DNA was extracted and electrophoresed.

Results: A significant increase in the growth was observed for rad52 strain (P¼0.005, analysis of variance [ANOVA]) and close to significance for rad52 hdf1 strain (P¼0.069, ANOVA). In addition, the surviving fraction values obtained for MF exposed samples were in all cases less than for the controls, being the P value obtained for the whole set of MF-treated strains close to significance (P¼0.066, student's t-test). In contrast, the cell cycle evolution and the DNA pattern obtained for wt and the mutant strains were not altered after exposure to MF.

Conclusions: The data presented in the current report show that the applied MF (2.45 mT, sinusoidal 50 Hz, 96 h) induces alterations in the growth and survival of S. cerevisiae strains deficient in DNA strand breaks repair. In contrast, the MF treatment does not induce alterations in the cell cycle and does not cause DNA damage.

mjrg@uma.es

Correlation of prostate specific antigen with metastatic bone disease in prostate cancer on skeletal scintigraphy

Muhammad Waleed Asfandyar, Akhtar Ahmed, Naureen Nizar, Altaf Hashmi, Anwar Naqvi and **Syed Adib-ul-Hasan Rizvi**
Sindh Institute of Urology and Transplantation, Pakistan

Aim: To evaluate the ability of serum PSA between 2 cutting points considering it as a predictor of bone metastases on bone scan in prostate cancer.

Materials & Methods: From Aug to Nov-2013, 42 patients with prostate cancer who underwent bone scan were analyzed. All patients necessarily have a pathological report available. Bony metastases were determined from the bone scan studies and no further correlation with histopathology or other imaging modalities were performed.

Results: The mean age, mean PSA and incidence of bone metastasis on bone scan were 68.35 years, 370.51 ng/mL and 19/42 (45.23%), respectively. According to PSA levels, patients were divided into 5 groups <10ng/mL (10/42), 10-20 ng/mL (5/42), 20-50 ng/mL (2/42), 50-100 (3/42), 100-500ng/mL (3/42) and more than 500ng/mL (0/42) presenting negative bone scan. The incidence of positive bone scan (%) for bone metastasis for each group were 01 patient (5.26%), 0%, 03 patients (15.78%), 01 patient (5.26%), 04 patients (21.05%), and 10 patients (52.63%), respectively. Therefore, when the cutting point adopted for PSA serum concentration was 10 ng/mL, a negative predictive value (NPV) for bone metastasis was 95% with sensitivity rates 94.74%; and the PPV and specificity of the method were 56.53% and 43.48%, respectively. When the cutting point of PSA serum concentration was 20 ng/mL the observed results for PPV and specificity were 78.27% and 65.22% respectively, whereas NPV and sensitivity stood 100% and 95% respectively.

Conclusion: We concluded that serum PSA concentration of higher than 20 ng/mL was the more accurate cutting point than a serum concentration of PSA higher than 10 ng/mL to predict metastasis on bone scan.

waleed_siut@yahoo.com