

Does yoga exercise therapy affect oxidative stress parameters in end-stage renal disease patients undergoing hemodialysis?

Sir,

With great interest, we read the recent manuscript by Gordon *et al.*,^[1] regarding the effects of *Hatha* yoga exercise therapy on oxidative stress parameters in end-stage renal disease (ESRD) patients undergoing hemodialysis. The authors have performed a prospective trial to investigate whether *Hatha* yoga exercise therapy affects the levels of oxidative stress markers including “malondialdehyde-MDA, protein oxidation-POX, phospholipase A2-PLA2 activity, superoxide dismutase-SOD and catalase activities” after 4 months. The markers have been analyzed from 68; (33+35) patients with ESRD patients, [Group 1 ($n = 33$) included individuals in the *Hatha* yoga exercise program for 4 months, while Group 2 ($n = 35$) included individuals not involved in the yoga exercise]. Authors have very clearly performed their study and discussed the results, and concluded that *Hatha* yoga exercise in patients with ESRD had therapeutic, preventative, and protective effects in ESRD, by decreasing the oxidative stress. In our opinion, however, some points of this work are not sufficiently clear.

First, in the human body, there are numerous oxidants and antioxidants, and measuring different oxidant and antioxidant molecules is impractical. After measuring the parameters, their levels may be unchanged or decreased, even when the actual oxidant status is increased.^[2,3] The authors analyzed only three oxidant parameters including levels of MDA, POX, and PLA2 activity in their study, and analyzed only two antioxidants including SOD and catalase activities. Namely, these levels cannot demonstrate the total oxidative status, and it may be difficult to interpret these results in relation to the effect of yoga exercise. Indeed, after 4 months, the changes of the MDA levels were not found to be statistically different ($P = 0.096$). Analysis and comparison of the total antioxidant status and total oxidant status among groups might have given the best results to assert the *Hatha* yoga exercise effect.

Second, the authors used the two-way analysis of variance for comparisons among groups. Authors have not stated whether Paired-T and Wilcoxon tests were used or not for comparing the baseline and 4th month analysis. Also, some

of the P values seem to be too significant, for example, in Table 1, control group's baseline/4th months creatinine was $1060.66 \pm 50.80/1041.83 \pm 54.07$, $P = 0.000$, uric acid: $0.39 \pm 0.03/0.39 \pm 0.53$, $P = 0.002$, in Table 2, control group's baseline/4th months POX: $2.34 \pm 0.02/2.35 \pm 0.02$, $P = 0.0001$, catalase: $80.48 \pm 0.49/80.03 \pm 0.55$, $P = 0.0001$, and all of the P levels should be reviewed again.

We hope that the above mentioned items would add to the value of a well-written manuscript of Gordon *et al.*^[1]

Turgay Ulas, Ilhan Hacibekiroglu¹, Sevilay Ulas², Ali Yildiz³

Departments of Internal Medicine and ³Cardiology, Faculty of Medicine, Harran University, ²Department of Public Relations and Publicity, College of Social Sciences, Harran University, Sanliurfa, ¹Department of Internal Medicine, Diskapı Yildirim Beyazıt Training and Research Hospital, Ankara, Turkey

Address for correspondence:

Dr. Turgay Ulas,
Department of Internal Medicine, Harran University School of Medicine, Yenisehir Campus - 63000, Sanliurfa, Turkey.
E-mail: turgayulas@yahoo.com

REFERENCES

- Gordon L, McGrowder DA, Pena YT, Cabrera E, Lawrence-Wright MB. Effect of yoga exercise therapy on oxidative stress indicators with end-stage renal disease on hemodialysis. *Int J Yoga* 2013;6:31-8.
- Ulas T, Buyukhatipoglu H, Kirhan I, Dal MS, Eren MA, Hazar A, *et al.* The effect of day and night shifts on oxidative stress and anxiety symptoms of the nurses. *Eur Rev Med Pharmacol Sci* 2012;16:594-9.
- Ulas T, Tursun I, Demir ME, Dal MS, Buyukhatipoglu H. Comment on: Infusion of lin-/sca-1+and endothelial progenitor cells improves proinflammatory and oxidative stress markers in atherosclerotic mice. *Int J Cardiol* 2013;164:128.

Access this article online

Website:
www.ijoy.org.in

DOI:
10.4103/0973-6131.123500

Quick Response Code

