Statistical Concerns About Acupressure on Pain in Cancer Patients With Bone Metastasis Trial

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It is with great interest that we read the article by Serçe et al,1 describing the effect of acupressure on pain in cancer patients with bone metastasis. The authors conclude that acupressure is applicable for cancer patients with bone metastasis by nursing staff after receiving brief training and may make a difference in relieving pain of those patients. Although the authors have put in considerable effort in the development of their study, we have several serious concerns about the scientific quality of their study.

The results presented by Serçe et al related to the correlation study (Table 3 of the Serçe et al article) correspond to bivariate correlations.1 There are in fact no differences in the results observed between both groups, with the sole exception of “emotional state,” which was significantly correlated to pain in the acupressure group but was not correlated to pain in the control group. The results related to the other variables were exactly the same in the 2 groups studied. Without controlling for potential confounding factors (partial correlation), it makes no sense to analyze such correlations as they do not reflect causality at all.2 The authors failed in their interpretation of this result, and their discussion, to answer the question: Does this correlation represent real causality or just co-occurrence of 2 unrelated events?

Next, the authors present data related to AS Pain Mean Scores of the patients before and after the acupressure. The methodology indicated that authors used paired t test to compare the pain levels before and after acupressure within the 2 studied groups, which is correct. However, the authors present in their Table 4 results related to the comparison between the 2 studied groups (inter-groups), which cannot be realized by means of a paired t test. No information about the test that was used for such comparisons is provided in the article.1 The authors observed statistically significant differences between pre/post interventions (7.6 ± 1.9 vs 6.8 ± 1.9; P = .004) in the treatment group but no statistically significant differences in the control group (8.2 ± 1.7 vs 7.7 ± 2.1; P = .056).

There is a lack of discussion in the article about the results observed in the between-groups analysis. At baseline there are statistically significant differences in VAS Pain Mean Scores between the 2 studied groups (7.6 ± 1.9 vs 8.2 ± 1.7; P = .001), which means that at the beginning of the study the pain was higher in the control group and that such level of pain was statistically significant. The authors have failed to correctly interpret this result. An approach that is often more practical is to use analysis of covariance (ANCOVA), which has high statistical power and adjusts each subject’s follow-up measurement according to their baseline measurement.2

We have recalculated the P values corresponding to the data presented by the authors in their Table 4.3 The table indicates that the data presented correspond to X ± SE; however, no explanation related to the interpretation of “SE” is given. We have interpreted that SE corresponds to “standard error of the mean,” and hence, we have recalculated the P value associated to such data and the sample size.3 At the baseline, 7.6 ± 1.9 versus 8.2 ± 1.7 does not reflect a statistically significant difference (P = .8148 vs P = .001 reported by the authors). Similarly, post-acupressure 6.8 ± 1.9 versus 7.7 ± 2.1 does not reflect a statistically significant difference (.7518 vs .041 reported by the authors). We cannot verify the result of the intragroup (paired) results as it is not possible without access to the raw data. The data as presented indicate that there were no differences between groups at the baseline or after the intervention; so, in fact, there was no effect of the acupressure intervention.

The authors indicate in their discussion that “In the present study, it was determined that acupressure significantly decreased the pain level of the patients in the intervention group,” which might be correct but such difference was not statistically different from that observed in the control group; so, in fact, with intervention and without intervention the result is the same with regard to pain reduction, and hence, there are no effect of the acupressure treatment.

We are aware that Serçe et al are presenting preliminary data and that larger randomized clinical trials will help better...
understand the results observed. However, we regrettably have shown that although this study may show that acupressure in the radiotherapy setting could be feasible, and performed by persons receiving a brief training, it does not make a difference in pain of patients.

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