



Letter to the Editor

Prolonged lifetime by adjunct homeopathy in cancer patients—A case of immortal time bias



In 2014 Gaertner et al. published their retrospective study about the impact of adjunct homeopathic therapies on cancer patients in this journal.¹ They report to have found vast benefits in annual survival ratios and median survival time in cases of fatal cancer conditions. However, these results most probably are highly biased in favor of homeopathy, a problem that arises from the inappropriate model they employed. There are a few other issues such as very small number of subjects, differences in group properties and maybe different approaches in conventional treatment that may or may not have had some impact on the results, this letter will focus on the immortal time bias.

The authors compared survival data of cancer patients that chose to undergo a homeopathic treatment adjunct to their standard treatment. The active drug data were sourced from the files of their homeopathic outpatient unit of Medical University in Vienna. Control data were extracted from published clinical trials of standard treatments of fitting cancer types from all over the world. Control data were annual survival rates and median survival times with regard to time of first treatment (FT).

Inclusion criteria of Gaertner et al. required the homeopathic patients to have completed at least three homeopathic sessions prior to enrollment. The subjects did start their homeopathic treatment together with conventional care on very rare occasions only, some started with a considerable delay. But because the authors report survival-time after first diagnosis (FD) survival time is accrued nevertheless.

For instance the subset of patients with pancreatic cancer (PC) started their homeopathic treatment on average 8 months after FD, with a span of 1–24 months. In addition it took another five months on average to complete the three sessions required by the admission criteria. This gives an average delay from FD of 13 months which is nearly twice as long as median survival time of 6.6 months established from the control data for PC.¹ (Table 4)

Apparently being unaware of the very likely occurrence of possibly substantial immortal time bias, the authors compare annual survival rates and median survival time of active treatment group to controls based on FD and FT respectively. The difference in time of FD and FT is not known but most probably is quite small compared to median survival time, so ignoring this delay may be of minor impact.

The issue of delayed entry bias or immortal time bias is well covered in literature.^{2–5} In simple terms this bias derives from the fact, that in the PC control data, 92% of the patients died within the first year whereas at the same time most patients of the active group could not have died and accrued lifetime after FD, simply for the reason that the patients had not yet been included in the study.

According to Lash and Cole⁵ it is not sufficient to enter the data of patients with delayed entry as left censored data into the survival

analysis, but it is necessary to utilize a statistical model able to handle the different amount of time of immortality in active group and control. They propose to use ‘time after enrollment’ to model the impact of the adjunct treatment, where control data would have to be established by the Kaplan–Mayer plots from literature. Gaertner et al. did nothing in this direction.

Tentative evaluations for the subset of PC-patients in this study show, that under this approach the vast advantage of the adjunct homeopathic treatment as reported by Gaertner et al. dwindles down to insignificant values while after two years the advantage in survival ratio is modified to a slight disadvantage (data not yet published).

Gaertner et al.'s results very probably are highly biased and may be very misleading. Even while it is of a preliminary nature only, as the authors well indicate, until a PCT is published this paper will serve as a source of ‘scientific evidence’ for the homeopathic practitioner to promote homeopathy to the public—not only as an effective adjunct treatment for cancer but as a powerful method in general. In fact, one of the co-authors does so on his personal website.⁶ Because this seems highly unjustified there is an urgent need for the data to be corrected in a way that can be cited along with the original paper.

And it would be a good idea if the authors clarify the mess of inconsistent data representations.

References

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