

Regarding the paper ‘Dosimetry in Radiopharmaceutical Therapy’<sup>1</sup>: in general this is a very good paper, and I am pleased to see the attention being drawn to this important topic. Unfortunately, however, it ends on the familiar sour note that we should not do any dosimetry at this time, as it may not be perfect, and wait and wait until there is absolute proof of its usefulness.

1. Minor point - the 1962 Benua ‘dose to blood’ method<sup>2</sup> is completely outdated, being superseded by several detailed dosimetry models for the red marrow<sup>3</sup>. Dose to blood itself is not relevant to internal dose calculations; this was a poor early surrogate for the truly important dose to active red marrow, and ignores valiant efforts by many (Spiers, Eckerman, Bolch and others) to develop good marrow dose models. The Eckerman model is implemented in the easy-to-use OLINDA/EXM software<sup>4</sup>. The Benua method should not be cited as a recommended standard dosimetry method.
2. The authors state that: ‘Treating patients according to PTAD is a concept extended from XRT practice. However, there are few dose–response data available for RPT on which to base treatment prescription.’ and also state that ‘dosimetry is not performed because dose–response data are lacking, and dose–response data are lacking because dosimetry is not performed.’ The authors conclude that ‘If dosimetry is to become more than an academic exercise, we need to show that it makes a significant difference to clinical outcomes with RPT. Ultimately, the only acceptable way of achieving this is through multicenter randomized controlled clinical trials comparing dosimetry-based prescriptions with one-size-fits-all activity-based prescriptions.’ The authors did not mention Garin et al. ‘Compared with standard dosimetry, personalised dosimetry significantly improved the objective response rate in patients with locally advanced hepatocellular carcinoma.’<sup>5</sup>. As the authors note, we cannot mature in our understanding of dose-response relationships with no understanding whatsoever of what the potential radiation doses are. Our colleagues in XRT knew years ago that dosimetry was essential to radiation therapy. Their methods were not perfect at the start, but have improved over the years. If we continue to refuse to even start, we will never progress. Furthermore, for any future therapy applications of radiation in these patients, radiation doses from prior therapies are needed.

Thus, as noted some years ago<sup>6</sup>, RPT patients are clearly being treated at a lower standard of care than XRT patients. I ask anyone advocating against calculation of patient-individualized dosimetry of cancer patients if they would accept this if it was their spouse, child, or other loved one receiving therapy without optimization of their therapy, which requires patient-individualized dosimetry. We need to break this vicious cycle of endless pointless discussions, while inaction dominates and patients are given substandard medical care.



Michael Stabin  
President, RADAR, Inc.

## References

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