

Enhancing radiotherapy: breaking free from undue zeal for the existent, and utter contempt for the prospective

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Ever since radiotherapy (RT) was discovered as a treatment for cancer, there has been a continuous quest to discover new methods to enhance its effectiveness. While earlier experimentations with time-dose-fractionation did yield some benefits (in regards to effectiveness and toxicity), the more recent experimentations have focused upon the use of chemical methods of enhancing RT. Though the currently used radiosensitizers and chemotherapeutic agents which are used in tandem with RT have unquestionably enhanced outcomes, the overall outcomes still leave a lot to be asked for.

There has been immense progress in the field of oncology in the recent decades. The recent advances in RT have been derivatives of enhancements in computer technology, imaging, and refinements in radiation delivery. The developments in the field of chemotherapy (meaning the increase in available agents and newer classes of agents which includes molecular targeted therapy) too have been impressive. But despite all the advances in radiation delivery as well as in chemotherapy, there smolders an undeniable disappointment in that there has been no proportionate improvement in concurrent chemoradiotherapy.

With the exception of a few existing examples (such as the use of platinum agents for concurrent chemoradiotherapy in few cancers), there have been no major breakthroughs in the field of chemoradiotherapy worthy of great acclaim. Other examples do exist, but the absolute outcomes are lack-lustre (for example, the use of temozolamide as a radiosensitizer for certain brain malignancies). Though the use of newer agents such as cetuximab and nimotuzumab has been experimented with RT and their prospects were advertised with much hype, the overall results (of marginal

benefits) have rather been a source of chagrin (1,2).

While the current zeitgeist of adhering to evidence based practice has its advantages, it must also be realized that the practice of evidence based medicine depends upon prolonged clinical trials, often spanning years. These years are lost awaiting results, while countless cancer patients suffer (die) due to lack of 'approved treatments'. It is to be pointed out that most trials which utilize newer agents to enhance RT outcomes utilize existing classes of drugs, and the expected survival increments in these trials are most often in single digit percentages. Radical new methods of concurrent RT with the use of nanoparticles, newer targeted therapies and newer chemotherapeutic agents have been somehow not given due regards. Also, the industry and the academia too seem to be disinterested in advancing the art and science of enhancing RT (3).

Here I recall the immortal words of Robert Hutchison from 1953—"from too much zeal for the new, and contempt for what is old, good lord, deliver us" (4). Unfortunately after half a century the converse seems to be entrenched, in that there seems to be reluctance in the utilization of newer agents to enhance radiotherapeutic outcomes. Hence it would be apt for me to say, "from undue zeal for the old, and utter contempt for the new, we good people must deliver ourselves!"

This special issue is a humble effort to put together a few perspectives regarding novel methodologies to enhance radiotherapeutic outcomes. Though not exhaustive, it intends to ignite a new interest in the otherwise slow/lethargically progressing field, studded with events of false starts and false hope.

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