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Guest Editorial

Hypofractionated breast irradiation in the United States: changing the paradigm through 'socialised' data

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Radiation Oncology training in the United States in the management of breast cancer has, for decades, revolved around what we considered 'traditional' fractionation consisting of fraction sizes of 180–200 cGy and achieving 'traditional' total breast/chest wall doses of 5,000–5,040 cGy in 25–28 fractions. Most of us had been trained that using moderately large doses per fraction would result in cosmetic results ranging from suboptimal to disfiguring. The literature even had examples demonstrating the superiority of cosmesis from dose reduction to 180 cGy per fraction from 200 cGy per fraction.[1] Despite the fact that multiple highly respected clinical trial groups such as the National Cancer Institute of Canada (NCIC) and the National Surgical Adjuvant Breast and Bowel Project have either used primarily or allowed hypofraction for a number of decades, 'tradition' prevailed in the United States. With the advent of intensity-modulated radiotherapy (IMRT), it was inevitable that this technology would be used to facilitate improved dosimetry and hopefully this would translate into improved outcomes in breast cancer treatment. In the United States, the cost of therapy had been relegated to the back bench, mainly owing to the idea that the best technology should be utilised to achieve the best effect, a noble idea. One must somewhat apologetically admit that the profitability factor of increased reimbursement from advancing complexity and technology was a driving factor among some (technology must be paid for in one manner or another and increased profitability is a desire of human beings by nature); however, most physicians do remain in fidelity with the provision of the best standard of care as the penultimate goal. Recently, criticism of the necessity of IMRT in the treatment of breast cancer has been questioned[2–4] in all but a few special circumstances, that is, treatment of left-sided breast cancer and treatment of the internal mammary nodes.[5,6] The vast majority of patients do not substantively benefit from breast and chest wall IMRT in the opinion of many researchers.

In 2010, the NCIC published the 10-year analysis of hypofractionated radiotherapy demonstrating conclusively that the outcomes of local control, cosmesis and survival were identical to those achieved with the 'traditional' regimen in early-stage breast cancer.[7] Soon afterward, consensus guidelines from the American Society of Radiation Oncology were issued.[8] For we 'traditionally' trained radiation oncologists, this presented a dilemma of opportunity. I, myself, admit to using the 'Canadian' regimen, as it has been coined in the States (with no disrespect meant towards our British and other European colleagues, who similarly pioneered hypofractionation) with trepidation, restricting the regimen to petite women with A or B (United Kingdom B and C) breast cup sizes. After many years of indoctrination that our colleagues in countries with 'socialised' medicine were constrained to offering more cost restrictive (and perhaps suboptimal) care, it was difficult to change

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perception and accept a new paradigm. The observed reduction in acute side effect even as compared with the traditional fractionation schedules was impressive. Cosmesis is indeed equivalent for those women properly selected. Now, some 5 years later, the paradigm shift is robust and deliberate. Multiple authors have reported favourable results from their institutions.[9,10] The convenience to the patients has been very well received as one can imagine. Costs are reduced significantly, which is so beneficial to an excellent, but very expensive health care system. Perhaps old dogs can learn new tricks.

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