**War games and cancer**

President Nixon declared war against cancer in the US Congress on December 23rd 1971 and we all know that the war is far from finished. Another war story but a real one and much closer to home came out just at the same time. An Indian army brigadier returning from the 1971 Indo-Pak war said “you win the war in first few days, otherwise, it becomes a festering sore”, no matter how much troops you deploy or gunfire you use! Is it the same in the war against cancer using higher doses of radiation or other cytotoxic agents? Is dose escalation beyond ‘conventional’ curative doses akin to deploying more troops or using more firepower in an attempt to win the war? Though successful in few localized cancers such as prostate, the strategy of radiation dose escalation may not always lead to victory, especially when facing deceptive enemies in difficult terrains. The contemporary radiation technology promises to single out the visible enemy of cancer in the difficult terrain of normal tissues but it does not guarantee its extermination with supralethal radiation doses. Cancers that deceptively infiltrate or spread beyond what is visible on the scan or have innate or acquired resistance to the radiation firepower may not be exterminated by mere dose escalation. It is therefore not surprising that the wide spread use of conformal or intensity modulated radiotherapy has not resulted in significant increase in cure rates of common epithelial cancers even though normal tissue damage in the friendly cross fire has been reduced to some extent. It is an open war secret that relentless fire power from big guns or target seeking high precision missiles would never guarantee victory without strategic planning, espionage, stealth, surprise, trusted allies, coordinated multi-pronged movements and uninterrupted supply lines. In the therapeutic war against cancer, strategic planning based on espionage information on tumour kinetics, radiosensitivity and microscopic spread and intelligent combat using trusted allies like physical or chemical radiation modifiers, coordinated pincer movement of optimal fractionation, stealth attacks on specific sub-cellular targets and maintaining the vital supply line of oxygen may together have a far greater impact than dose escalation alone.

This highlights the importance of vigorously pursuing research in novel radiation fractionation and combining radiation with chemotherapy, hyperthermia, selective repair inhibitors, radiation sensitizers and protectors. May be we can hit upon a magic “polypill”, of oncology which would dramatically increase the radiation therapeutic ratio. With the radiation technology available today, we certainly should not miss the opportunity of curing some more cancers by escalating the dose safely or reducing the normal tissue injury by reducing its radiation exposure. While doing so, thinking out of box, clinical innovations, physico-chemical and biological modulation of radiation response, individualization of treatment and emphasis on humane approach to management of cancer needs equal if not greater attention. Curing cancer with ionizing radiation is an art rooted in science which goes much beyond physical dose escalation with new technology which can win many battles but not all wars. Intelligent guerilla tactics can sometimes inflict more damages and run down a deceptive enemy such as cancer when it is hiding and feasting in the friendly territory of normal tissues.

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