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The foe that extends a helping hand: Oncolytic virotherapy, present and future prospective

Anish S Bharatwaj, Krishnan Vengadaragava Chary and J Thirunavukkarasu
Saveetha Medical College, India

Introduction: The saga of finding strains of virus that can selectively destroy tumor cells started in the 1960s and is still ongoing. The approval of Talimogene Laherparepvec by the FDA for treatment of malignant melanoma is proof of our advancements. It is now proposed that viruses carry out oncolysis by 4 ways, of which intracellular replication and expression of cytotoxic products of replication are most significant. Other mechanisms include induction of anti-tumor response and transgene expression causing cell apoptosis. Of the viruses studied, herpes virus (Strains HSV1716 and G207) and adenovirus (ONYX-015 and ICOVIR) are most noteworthy.

Methodology: The analysis took place in Saveetha Medical College between July and December 2016. Data regarding clinical trials were obtained from clinical trials database, United States of America and US Food and Drug Administration drug approval information. Descriptive statistics was done and SPSS 2017 was used to find the inference.

Result: 11 trials have been carried out with seven viruses so far, herpes virus, adenovirus, reovirus, newcastle virus, parvovirus, polio virus and morbili virus. Of clinical importance are the strains of herpes virus, reovirus and newcastle disease virus. The strain HSV1716 showed radiological evidence of tumor reduction in phase II and G207 showed no adverse effects with 5 disease free stable patients. Both strains are administered intra tumor. The reovirus dearing strain in phase II showed 3 stable patients and Phase III is underway. Newcastle disease virus ulster strain showed increased progression free survival period and overall survival.

Conclusion: Many more trials and meta-analysis are required to provide evidence based results. Moreover some studies indicate that addition of other factors like angiogenesis inhibitors will aid in virotherapy. Some studies support the use of chemotherapy and radiotherapy following virotherapy, while others claim equal or inferior efficacy. In the coming years, however, virotherapy is expected to cause a paradigm shift in oncology.

Biography

Anish S Bharatwaj is currently pursuing MBBS from Saveetha Medical College. He is immensely passionate about the field of neurology and oncology. He is extremely interested in the art of research and has done two researches in social and preventive medicine and pathology.

anish.sb@rediffmail.com

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