

Preface

The great success achieved by immune checkpoint inhibitors and CAR-T cells dismissed the doubt of efficacy of immunotherapy in the treatment of cancer over the past century. The treatments targeting immune negative regulators have verified the immune editing theory, which have been established at the turn of the century. Previously, immune surveillance theory provided the notion of how the immune system can recognize and kill tumors, but did not fully consider reciprocity in the interaction between the immune system and the tumor. Immune editing theory makes us aware of regulatory controls that promote the development of tumors. Targeting negative immune checkpoints (such as the use of anti-CTLA4 and anti-PD-1 therapeutic antibodies), which are not against tumor targets, can elicit significant anti-tumor effects. This liberation of the once suppressed anti-tumor immune responses suggests that the immune system has adequate resources to destroy tumors.

Any kind of treatment need to analysis dialectically. There are advantages and disadvantages for each conventional therapy (surgery, radiotherapy and chemotherapy). Similarly, not all cancer patients respond well to immunotherapeutic interventions, and further precise medical research is required to determine these disparities in responses. Immunotherapy can also cause serious side effects, such as elicitation of cytokine storm, autoimmune, and even adverse event-related death. The combination of immunotherapy with conventional therapies can mutually complement and synergize with one another. Appropriate surgery, radiotherapy and chemotherapy may reduce tumor load; induce immunogenic cells death (ICD) of cancer cells; increase tumor sensitivity to immunotherapy and thus enhance immune therapeutic effect. This conforms to the traditional Chinese medicine theory of “strengthening bodily resistance and eliminating evil”. After the introduction of efficacious immunotherapy, tumor therapeutic principle will gradually change; their curative effects are mainly judged by overall survival rates, quality of life and tumor size, inclusive of survival without tumor clearance. However, if treatment seriously undermines the patient’s health and lowers their will to survive this is considered as a loss of therapeutic significance.

We are at the beginning of an era where potent immunotherapies are entering the market. Compared with conventional therapies, the developmental potential of immunotherapy is the largest and will be the key to the generation of precise medical treatments. Therapeutic antibodies, vaccines, immune cells and oncolytic immunotherapy for cancer are reviewed in this book. Discussed herein includes the progress of tumor immunotherapy, their advantages and existing problems, and hope can bring better enlightenment to the treatment of tumor.

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Progress in Cancer Immunotherapy

Zhang, S. (Ed.)

2016, XII, 283 p. 15 illus., 14 illus. in color., Hardcover

ISBN: 978-94-017-7553-3