

10.2.4 Immunotherapy

Immunotherapy is a type of biological cancer treatment that helps the patient fight against cancer using the immune system, which is made up of white blood cells and the organs and tissues of the lymph system (Patel and Arthur, 2006).

Immunotherapy can be divided into five main types for cancer treatment (Patel and Arthur, 2006):

- (1) **Monoclonal antibodies** are drugs that are designed to bind to specific targets in the body. They can cause an immune response that destroys the cancer cells. Other types of monoclonal antibodies can mark cancer cells for the immune system to find and destroy them easily.
- (2) **Adoptive cell transfer** is a treatment to stimulate T cells which are a type of white blood cells in the immune system to fight cancer. T cells are extracted from the tumor and the most active ones get chosen, gene-modified, and proliferate to a large scale which normally takes 2–8 weeks to destroy the cancer cells.
- (3) **Cytokines** are proteins inside the cells and play vital roles in the immune system's ability to respond to cancer. Interferon and interleukin are the two main types of cytokines used to treat cancer.
- (4) **Treatment vaccines** are against cancer by enhancing the immune system's response to cancer cells. Treatment vaccines are different depending on the cancer types.
- (5) **Bacillus Calmette-Guérin**, abbreviated to **BCG**, is another immunotherapy targeted for bladder cancer. It is a weakened form of the tuberculosis bacteria. BCG can cause an immune response against cancer cells when transported directly into the bladder with a vessel. It is now being studied for treating other types of cancer as well.

Immunotherapy can cause side effects. The most common side effects are skin reactions at the needle site, including: pain, swelling, soreness, redness, and itchiness. Other side effects are rash, fever, chills, dizziness, nausea, muscle or joint aches, fatigue, headache, trouble breathing, and low or high blood pressure. Immunotherapies may also cause severe or even fatal allergic reactions (Anon., 2016g).

10.2.5 Hormone Therapy

Hormone therapy uses **hormones** to slow or stop the cancer growth (Anon., 2014h). It can decrease the opportunity for cancer to return and also reduce or prevent symptoms for those patients who are not able to have surgery or radiation therapy. Since hormone therapy interferes with the body's ability to produce hormones and how hormones behave, it can cause unwanted side effects. The side effects depend on the type of hormone therapy received and how the body responds to it (Anon., 2015a). Some side effects also differ based on gender (Anon., 2015a). Some common side effects for hormone therapy include hot flashes, weakened bones, diarrhea, nausea, and fatigue (Anon., 2015a).