**Activity 3: Answers**

**Question 1**

**Using the profiles and your own knowledge, explain why acute myeloid leukaemia (AML) is treated with chemotherapy and bone marrow transplant/stem cell transplant.**

* AML is a type of aggressive cancer blood cancer that results in an overproduction of immature white blood cells and a lack of red blood cells.
* Blood cells are produced from adult stem cells in the bone marrow of long bones and flat bones.
* AML will affect many systems in the body because it is present in the blood, including the immune system and the oxygen transport system.
* Chemotherapy will be used to reduce the number of cancerous blood cells as it is a medicine that is cytotoxic and will prevent the reproduction and spread of the cancer cells.
* Chemotherapy in this case would not cure the cancer, because it would not prevent the production of cancerous blood cells once the treatment is stopped.
* Chemotherapy is likely to be used to reduce the symptoms of active cancer and to prolong life.
* Bone marrow transplant or stem cell transplant would be offered as a curative treatment, as this would replace the bone marrow tissue that is producing the cancerous cells.
* Bone marrow/stem cell transplant success would rely on the availability of donor tissue that matches the recipient and would depend on the transplant going well.
* Chemotherapy is the mainstay of treatment, but if there is disease localised in the brain or spine, for example, radiotherapy can be used to treat it.

**Challenge:** **Why does AML have such system-wide symptoms?**

AML has system-wide symptoms because it originates in the bone marrow, which is responsible for producing blood cells. Since blood circulates throughout the entire body, the effects of AML are widespread.

**Question 2**

**Using the profiles and your own knowledge, compare the cancer treatment for germ cell testicular cancer (GCTC) and thyroid cancer (TC).**

* GCTC is a type of cancer that develops in the germ cells of the testicles, which are responsible for producing sperm in the male reproductive system.
* TC is where cells in the thyroid gland grow abnormally and can potentially spread to other parts of the body. The thyroid gland produces the hormones T3 and T4 (thyroxine) which are needed to regulate cellular metabolism as part of the endocrine system.
* The thyroid absorbs iodine from food to make T3 and T4.
* GCTC is treated with surgical removal of the affected testicle, which can be a relatively straightforward treatment if the tumour is small and easy to remove.
* Chemotherapy may be offered after surgery if the tumour has spread, or to reduce the likelihood of the cancer returning.
* TC can also be treated with surgery called a thyroidectomy which would remove the thyroid.
* TC can also be treated with radioactive iodine, which would be absorbed by the thyroid and kill the cancer cells with beta radiation that has a short half-life.
* For both types of cancer, the main treatment is surgery, and this could be enough to cure the patient of their cancer.
* Chemotherapy isn’t commonly offered for thyroid cancers.
* Both GCTC and TC patients would be offered talking therapies to help support the patient though the psychological impact of these cancers and to help them make choices that will support their well-being and that of their family through treatment.
* TC has an additional treatment type as the thyroid is a tissue that would absorb radioactive iodine and this could be offered instead of surgery, which is not possible with GCTC.

**Challenge: Why would talking therapies be offered to a patient undergoing cancer treatment?**

Talking therapies are often offered to patients undergoing cancer treatment because cancer affects not only the body but also the mind and emotions. These therapies help patients cope with the emotional, psychological and social challenges of their diagnosis and treatment.