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Elective Report - Haemato-Oncology
The Royal Marsden Hospital, Sutton

Objective One

Describe the pattern of haematological malignancies in the UK ?

Haematological malignancies are divided according to whether they arise from a lymphoid or myeloid cell lineage. Based on this these malignancies can broadly be classified into being a leukaemia, lymphoma or myeloma. Within these categories there are several further subcategories of disease. In the UK most haematological malignancies are in the top twenty most commonly diagnosed cancers and in 2011 accounted for approximately 8.5% of all cancer cases. The distribution of haematological cancers in 2011 is summarised in the table opposite.

(Figures from http://www.cancerresearchuk.org/cancer-info/cancerstats/)

Cancer Type	%
Non-Hodgekins Lymphoma	3.8
Hodgekins Lymphoma	0.6
Leukaemia	2.6
Myeloma	1.5
Other Cancers	91.5

Objective Two

How do the tertiary cancer services provided by The Royal Marsden compare to those provided in secondary care?

The Royal Marsden is unique in the sense that it diagnoses and treats a wide array of haematological malignancies. These range from the common to the extremely rare. Alongside these the Royal Marsden also treats other haematological disorders which have a malignant propensity. The haematological oncology team receives referrals from all over the UK and also sees a great deal of international patients who travel especially to be treated at this world class centre. The Royal Marsden has a great advantage over secondary care in the sense that the haemato-oncology team have the expertise and experience needed to diagnose and treat diseases not so easily diagnosed secondary care. I saw this was the case especially in the case of more rare diseases, which were often referred from secondary care. Having spent much time in secondary care the most striking difference what that of how much time is spent with patients in an outpatient setting. Patients were given the time they needed in clinic and their questions answered as comprehensively as possible. Patients are supported through their treatment with the advantage of greater access to clinical trials. Patients are also supported in application of funding for treatments not yet available on the NHS.

The Royal Marsden works closely with the Institute of Cancer Research and the Centre for Molecular Pathology. This provides great diagnostic assistance in identifying specific molecular abnormalities in an attempt to tailor a patient's cancer treatment as much as possible.

The main limitations The Royal Marsden has compared to other larger secondary care hospitals is the lack of and A&E department and a limited number of beds meaning inpatient

admissions are often more difficult to accommodate. Despite this I was greatly impressed by how the upmost is done to try and accommodate sick patients wherever possible.

Objective Three

What are the treatment options available for haematological malignancies ?

Treatment of a haematological malignancy is dependent on the disease and stage. Research is proving the role of more targeted treatments to the specific molecular abnormalities of an individual's cancer. However the general treatments available for the main types of haematological malignancies are as follows.

Acute Myeloid Leukaemia (AML)

Treatment consists of induction chemotherapy with an aim to induce remission. In some cases an allogenic stem cell transplant from a HLA matched sibling, or unrelated donor is recommended. This allows for the intensive chemotherapy without the concern of bone marrow suppression. The aim is curative however allogenic transplants have significant complications namely infections and graft versus host disease (GVHD). Although a degree of this is beneficial as it has a graft versus disease effect, where normal tissue is affected GVHD can significantly reduce a patient's quality of life.

Acute Lymphoblastic Leukaemia (ALL)

Induction chemotherapy is recommended to induce remission followed by chemotherapy for consolidation and maintenance. In some cases an allogenic stem cell transplant can be carried out. Central nervous system (CNS) prophylaxis may be given in the form of intra-thecal chemotherapy.

Chronic Myeloid Leukaemia (CML)

First line treatment is Imatinib, a specific BCR/ABL tyrosine kinase inhibitor, which gives a haematological response in most cases of this disease. The only curative treatment is from an allogenic transplant which is recommended in some cases.

Chronic Lymphocytic Leukaemia (CLL)

Active surveillance may be acceptable in some patients who are asymptomatic. When patients become symptomatic, treatment consists of multi-agent chemotherapy. Radiotherapy maybe offered in the case of bulky lymph nodes and a surgical splenectomy may also be offered in cases of symptomatic splenomegaly.

Hodgekin's Lymphoma (HL)

Treatment is with chemotherapy and possible radiotherapy for local treatment to lymph nodes. Standard chemotherapy consists of the ABVD regimen (Adriamycin, Vinblastine, Bleomycin and Dacarbazine. Chemotherapy aims to achieve remission, however in the case

of relapse additional chemotherapy and/or haemopoetic stem cell transplantation may be offered.

Non-Hodgkin Lymphoma (NHL)

Radiotherapy can be used for localised disease control. Typical chemotherapy consists of the CHOP regimen (Cyclophosphamide, Hydroxydaunorubicin, Vincristine and Prednisolone). Rituximab, a revolutionary anti- CD20 mono-clonal antibody, is given in addition to these drugs.

Multiple Myeloma (MM)

There is no curative treatment and supportive treatment is given for complications. These include analgesia for pain, bisphosphonates to prevent fractures, antibiotics to treat recurrent infections and increased fluid intake to prevent further renal impairment. Alongside this combination chemotherapy can be given, and in some cases autologous stem cell transplantation in an attempt to maintain remission for long as possible.

Objective Four

A reflection of my activities and experiences

The Royal Marsden is recognised as one of the world's most renowned tertiary cancer centres and my experience could not have reflected this more so. I spent some time on the ward attending ward rounds as well a lot of time shadowing the consultant haematologists and specialist registrars in outpatient clinics.

Ward rounds were interesting because all patients' new issues were brought up and discussed just prior to the ward round commencing. This was helpful in following a patients' progress over my three weeks there. The ward round was split between transplant and non-transplant patients and I was given the opportunity to shadow both these rounds. I also spent some time speaking to patients on a one-to-one basis on the ward. It was harm warming to hear patients' stories where they recalled all the events leading up from their diagnosis and the impact their diagnosis had had on their own life and those of their families. I enjoyed hearing in their own words their experiences of the treatments they had and procedures they underwent.

Outpatient clinics were very much like ward rounds where patient issues were discusses beforehand, something I had not witnessed in the past. I sat in and observed the consultations and was also given the opportunity to perform clinical examinations of patients with their permission. This allowed me to elicit clinical signs I had not managed to do with such ease during medical school. Of note I confidently elicited splenomegaly and lymphadenopathy.

My shadowing period was supplemented by me being given a tour of the stem cell and haematology laboratories. This allowed me to understand the process by which stem cells are so delicately processed and stored. In spending time in the haematology lab I was shown how to use a microscope and showed common pathologies by looking at patient blood films and

bone marrow aspirates. I was also shown how flow cytometry works and its diagnostic value, something I had not understood in detail before.

I also spent time with the nursing staff that ran the minor procedures suite. Here I got to witness patients having bone marrow aspirates and trephines. I also got to witness a PICC line being inserted as well as the administration of intra-thecal chemotherapy, and the many safety protocols with regards to this. Alongside this I spent time in the apheresis unit seeing stem cell collection. I also got to see bone marrow transplantation performed on a patient on the ward.

My experience allowed me to witness and therefore understand all the steps involved in the treatment and diagnosis of haematological malignancies. I could not have asked for a better experience and for more friendly and enthusiastic medical professionals to shadow. I will truly remember this as a greatly educational elective, which has made me feel motivated to consider a career in haematology.