Nadia Ajmal's Medical Elective Scheme report

Japan's rising life expectancy has brought in new challenges to the field of cancer care; it is estimated that 1 in 3 people in Japan will experience cancer, being a huge driver for Japan's motivation to find new therapies to battle this crisis. Although medical oncology is a relatively new field in Japan, having existed for only around 20 years, it has managed to progress exponentially since its inception. During my elective, I had the privilege to shadow medical oncology for 3 weeks alongside one week in the Advanced Medical Development (AMD) department at the Japanese Foundation for Cancer Research (JFCR).

The AMD department is responsible for conducting Phase I clinical trials, where a small group of patients is selected based on specific criteria to test experimental cancer drugs. Typically, drugs are administered to groups of 3 patients, with doses gradually titrated to a tolerable dose while minimising significant side effects. Due to the small patient population, the AMD ward was relatively quiet, allowing patients to be closely monitored as a result. Many of these patients had often failed first-line therapies for their respective cancers, often making these experimental drugs their last resort. Despite this, only a small proportion of the experimental drugs are effective. Unfortunately, due to the confidential nature of the work, specific therapies and mechanisms of action cannot be disclosed. However, a significant proportion of the department's research focused on identifying novel immunotherapy targets, highlighting the immense potential of immunology in future cancer care.

One aspect I found particularly interesting about this process is that having interstitial lung disease (ILD) or developing it at any point automatically disqualifies an individual from participating in clinical trials, a scenario I encountered several times during my time in AMD. This was due to previous cases of patients dying as a result of ILD due to the

adverse effects brought on by immunotherapy, leading to the implementation of stricter eligibility criteria.

Cancer epidemiology in Japan differs slightly from that of the United Kingdom; my time at the AMD exposed me to many cases of oesophageal and gastric cancer, prevalent in the country and other areas of East Asia due to the high prevalence of Helicobacter pylori infections, a high salt diet (including pickled vegetables), and smoking rates. This has prompted the introduction of gastric cancer screening programs, which are not performed in the UK. These cancers often expressed PD-L1 and HER2 and were the targets of a plethora of these experimental drugs that I saw in the AMD.

The rest of my three weeks were spent in the medical oncology department, where the majority of the patients seen included head and neck cancers, gastric cancer, and sarcomas. I was mostly posted in the outpatient department of the department, where I managed to see how immunotherapy was administered to allow patients to continue their day-to-day lives outside of their treatment cycles. Many patients were able to tolerate the side effects, if present, of the immunotherapy, often classed as at most a grade 1 American Society of Clinical Oncology reaction. I did not see many patients who experienced grade 2 or higher adverse reactions.

There were many patients discussed who experienced immunotherapy-related adverse effects (irAE). This was a new concept to me; I was aware of chemotherapy side effects, but university teaching rarely touches on irAE. There were patients who experienced transaminitis, nausea, and even the development of type 1 diabetes as a result of immunotherapy. This raised the question about the risk versus benefit of immunotherapy compared to chemotherapy; however, the efficacy and targeted benefit of immunotherapy greatly outweighed the latter.

I had the privilege of attending the Japanese Society for Medical Oncology (JSMO) conference in Yokohama, approximately one hour from Tokyo, where oncologists of high calibre around the world attended to discuss and present interesting research. In one talk I attended regarding haematological oncology, the speaker, a representative from MD Anderson Cancer Institute, highlighted that he no longer utilises chemotherapy for his patients, instead opting for targeted immunotherapy such as BTK inhibitors and CAR T-cell therapy. This highlighted the shift away from traditional cancer care, such as

chemotherapy and surgery, to more targeted therapies involving immunotherapy, particularly due to how difficult chemotherapy cycles can be on patients.

My time at the JFCR has provided me with a valuable opportunity to reflect on the great leaps made in immunology within the field of cancer care. Observing novel therapies in the AMD department, as well as the implementation of established therapies in the general medical oncology department, has provided me with insight into the potential of such advancements on patient prognosis and quality of life. Such a profoundly inspiring experience has strengthened my ambition to pursue a career in medical oncology, and I hope to contribute to current research on immunology.

Nadia Ajmal