

Treatment of Lung Cancer at Portsmouth Regional Hospital

A Review of Cases by Dr. Wilhelmina Cabalona

129 patients were diagnosed with primary pulmonary carcinoma between January 1, 2016 and June 1, 2018 at Portsmouth Regional Hospital (PRH). Of these, 9% were Small Cell Carcinoma, 81% were Non-Small Cell Carcinoma (NSCLC), and 10% were Poorly Differentiated, Unclassified. Of the Non-Small Cell Carcinomas, 33% were Squamous Cell Carcinoma and 56% were Adenocarcinoma and 11% were Adenosquamous Carcinoma. This distribution of subtypes is consistent with that seen in the literature.

Of the 129 diagnosed patients, a more detailed review of the medical record was performed in 69, with the remainder excluded due to insufficient data for comprehensive review. This included patients who were diagnosed at PRH but went elsewhere for treatment.

The management of the 69 reviewed patients was compared with the National Comprehensive Cancer Network (NCCN) Guidelines, Version 1.2019 for Small Cell Lung Cancer (9 patients analyzed), Non-Small Cell Lung Cancer (23 patients at Stage 1, 4 patients at Stage 2, 5 patients at Stage 3A, 4 patients at Stage 3B and 20 patients at Stage 4 analyzed). **All patients reviewed were treated according to the NCCN guidelines.**

Of the patients with Stage 4 disease, 7 received immunotherapy. Immunotherapy in advanced stage non-small cell lung carcinoma has been proven to be effective in some patients in extending survival.

Immunotherapy and Lung Cancer

The immune system is critical in fighting disease and maintaining health. However, the immune system must maintain a balance, which it does by using “checkpoints” which are molecules on immune cells that are turned on or off to begin or end an immune response so that healthy cells are not damaged. Cancer cells can sometimes take over these checkpoints to avoid detection by the immune system, allowing them to proliferate. Some of the newer immunologic drugs block these checkpoints, allowing the patient’s own immune system to recognize and destroy cancer cells.

Opdivo (Nivolumab) and Keytruda (Pembrolizumab) target PD-1, a protein on T cells (a type of white blood cell), that normally helps keep these cells from attacking other normal cells in the body. By blocking PD-1, these drugs boost the patient’s own immune response against the cancer cells. This can shrink some tumors or slow their growth, resulting in increased survival. Patients with the highest levels of PD-L1 expression have the greatest chance of benefit from receiving the drug, but only approximately 30% of patients with advanced NSCLC have very high levels of PD-L1 expression.

Tecentriq (Atezolizumab) targets PD-L1, a protein related to PD-1 that is found on some tumor cells and immune cells. Blocking this protein can also help boost the patient’s immune response against tumor cells.

Keytruda and Tecentriq can be used as part of initial treatment for some patients with Non-Small Cell Lung Cancer (NSCLC). Opdiva, Keytruda and Tecentriq can be used in patients with certain types of NSCLC whose cancer recurs or advances after initial treatment with conventional chemotherapy.

Imfinzi (Durvalumab) also targets the PD-L1 protein. This drug is used in patient with certain types of NSCLC whose cancer has not recurred or advanced after initial chemotherapy combined with radiation therapy. In this case the goal is to delay progression of disease for as long as possible.

There is ongoing active research in the area of immunotherapy for a variety of cancers, with new therapies becoming available at a rapid rate. In addition, researchers are trying to combine and customize treatment regimens to increase the effectiveness of immunotherapy by combining it with other immunologic agents, chemotherapy drugs and radiation treatments. While immunotherapy is currently being used primarily in patients with more advanced NSCLC, research is underway to look at whether immunotherapy may be beneficial in combination with surgery or radiation therapy to treat patients with earlier stage disease.