FACT SHEET

Primary Mediastinal B Cell Lymphoma (PMBCL)

OVERVIEW

Lymphoma is the 6th most common cancer in Australia in adult men and women. It can affect people of all ages and is the most common blood cancer. Lymphoma is a cancer of the immune system and affects lymphocytes which are a type of white blood cell. When lymphocytes gain DNA mutations they divide and grow uncontrollably resulting in lymphoma.

There are two main types of lymphocytes called B lymphocytes (B-cells) and T lymphocytes (T-cells). Lymphomas caused by B-cells are more common and account for around 85% of lymphoma cases and lymphomas caused by T-cells account for around 15% of lymphoma cases. The first lymphoma to discovered was called "Hodgkin lymphoma" (around 15% of all B-cell lymphomas), after Thomas Hodgkin, who described it. All subsequent lymphomas discovered were called "non-Hodgkin lymphoma" (around 90% of all lymphomas, both B-cell & T-cell lymphomas).

There are over 80 different subtypes of lymphoma, that are classified according to its clinical behaviour. "Aggressive" (high grade or fast growing) lymphomas are those that grow quickly, usually weeks to months and need treatment immediately. "Indolent" (low grade or slow growing) lymphomas usually develop over years and often are not treated straight away but are monitored. It is important to know your subtype of lymphoma. Lymphoma cells can travel to any part of the body and be found in lymph nodes, the bone marrow, the spleen, blood, bone, skin and almost any organ or tissue.

The most common aggressive subtype of lymphoma is Diffuse Large B-cell lymphoma (DLBCL). It has several different subtypes based on how the patient presents, the appearance of cells under the microscope, and specific cellular markers.

Primary mediastinal B-cell lymphoma (PMBCL) is a subtype of DLBCL. PMBCL affects lymph nodes in the mediastinum, that is the central part of the chest, between the lungs. The mediastinum contains many vital organs, including the thymus, the heart, gullet (oesophagus), windpipe (trachea) and major blood vessels. It may spread to organs and tissues such as the lungs, pericardium (sac around the heart), liver, gastrointestinal tract, ovaries, adrenal glands, and central nervous system.

Most patients with PMBCL are aged between 25 to 40 years, but it may also occur in older children and is more common in women than in men. Distinguishing between PMBCL and the more common varieties of DLBCL is an important part of diagnosis, as some haematologists treat PMBCL differently from other subtypes of DLBCL.

SIGNS AND SMPTOMS

Common symptoms that are distinctive of PMBCL may be caused by the lymphoma pressing on nearby structures in the chest. This can cause:

- Cough
- Pain or aching in the chest
- Hoarseness
- Breathlessness
- Swelling in the neck, arm and face

Other symptoms may include loss of appetite and tiredness. Some people have more general symptoms, such as drenching night sweats, unexplained high temperatures (fevers) and unexplained weight loss. These are known as B symptoms.

DIAGNOSIS AND STAGING

A biopsy is always required for a diagnosis of PMBCL. A biopsy is a surgical procedure to remove part of or all of an affected lymph node or other abnormal tissue to look at it under the microscope. The biopsy can be done under local or general anaesthetic depending on what part of the body is being biopsied. Because of the common location of PMBCL, the biopsy may require keyhole surgery "mediastinoscopy" so sufficient material can be collected to be certain of the lymphoma subtype.

Once a diagnosis of PMBCL is made there are further tests that need to be performed to see where else in the body the lymphoma may be and is referred as staging. Because PMBCL is a blood cancer the lymphoma can travel all over the body, so it is important that a check of the entire body is done looking for the lymphoma. Staging tests may include:

- Positron emission tomography (PET/CT) scan
- Computed tomography (CT) scan
- Bone marrow biopsy

- Lumbar puncture (if lymphoma suspected in the brain or spinal cord)

Patients will also undergo a number of baseline tests prior to any treatment commencing to check their organ function and these baseline tests may include a heart scan, kidney scan, breathing test and blood tests.

TREATMENT OPTIONS

PMBCL is a fast-growing lymphoma and needs to be treated quickly. Chemotherapy and a monoclonal antibody treatment, called immunochemotherapy, is the main treatment for PMBCL. The standard treatments include:

- DA-EPOCH-R (combinations of etoposide, vincristine, cyclophosphamide, doxorubicin, prednisolone and rituximab). 'DA' stands for 'dose-adjusted', as the dose of drugs can be adjusted depending on how your body responds to the treatment
- R-CHOP (combinations of rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone)
- Radiotherapy may also be used
- A combination of different treatments

The details of your treatment will vary depending on the stage of the PMBCL and general fitness. The side effects from treatment varies between the different types of treatment.

PMBCL usually responds well to immunochemotherapy, but in some people the lymphoma comes back (relapses) and further treatment is needed. This may include:

- A stem cell transplant (although this treatment is not suitable for everyone)
- CAR T-cell therapy (after 2 prior therapies) soon available in Australia. Until then, the government funded medical overseas program (MTOP).

TREATMENTS UNDER INVESTIGATION

Many new individual and combination medicines are currently being tested in clinical trials around the world for both newly diagnosed and relapsed/refractory PMBCL including:

- Brentuximab Vedotin (Adcetris™)
- Pembrolizumab (Keytruda™)
- Ibrutinib (Ibruvica™)
- Chimeric antigen receptor therapy (CAR-T cells)

CLINICAL TRIALS

Clinical trials are essential in identifying effective medicines and determining optimal doses of these medicines for people diagnosed with lymphoma. People who are interested in participating in a clinical trial can find one using the following methods:

1. Speak to their specialist to see what options are available
2. See 'Understanding Clincial Trials' fact sheet, www.lymphoma.org.au

FOLLOW UP

Once treatment is completed, people with lymphoma need to be followed up by their specialist with regular appointments to monitor:

- Evaluate the effectiveness of the treatment
- Ongoing treatment side effects
- Recovery from treatment
- Signs of lymphoma relapsing
- Potential late effects caused by treatment that can occur months or years later, that can be based on the duration and frequency of treatment, age, gender and overall health of each person

RESOURCES AND SUPPORT

Organisation	How can they help?
Lymphoma Australia	• Lymphoma Australia offers a wide variety of resources and support for people with lymphoma or CLL and their carers. Visit lymphoma.org.au for further information • Lymphoma Australia Fact sheets & booklets • lymphoma.org.au/page/1218/fact-sheets • YouTube Channel: Presentations and interviews on a variety of topics • youtube.com/user/LymphomaAustralia • Lymphoma Nurse Support Line: 1800 953 081 or email: nurse@lymphoma.org.au • Online private Facebook group: **'Lymphoma Down Under'** http://bit.ly/2mrPA1k

SOME QUESTIONS TO ASK YOUR DOCTOR

- What are my treatment options for PMBCL?
- Do I need any other tests before we can decide on treatment?
- Are there any treatment options that are better for my type of lymphoma but are yet to be funded by the PBS in Australia?
- Are there any clinical trials currently available to me?
- How rare is PMBCL?

This resource was last reviewed and updated February 2020.