PATIENT INFORMATION LEAFLET

HEREDITARY LEIOMYOMATOSIS AND RENAL CELL CANCER

WHAT ARE THE AIMS OF THIS LEAFLET?

This leaflet has been written to help you understand more about Hereditary Leiomyomatosis and Renal Cell Cancer (HLRCC). It tells you what it is, what causes it, what can be done about it, and where you can find out more about it.

WHAT IS HLRCC?

Hereditary leiomyomatosis and renal cell carcinoma (HLRCC) is a genetic condition that results in an increased risk of developing kidney cancer (renal cell carcinoma), benign skin tumours (cutaneous leiomyomas) and benign tumours of the womb (uterine leiomyomas, or fibroids).

WHAT CAUSES HLRCC?

HLRCC is caused by a fault in a piece of DNA. This piece of DNA, or gene, is called fumarate hydratase (*FH*).

IS HLRCC HEREDITARY?

Yes, HLRCC is passed down through generations. It follows an "autosomal dominant" inheritance pattern – this means that each child of an affected parent has a 50% chance of inheriting the altered *FH* gene.

WHAT DOES HLRCC LOOK LIKE AND WHAT SYMPTOMS CAN IT CAUSE?

1. Cutaneous leiomyomas (CLMs)
   Visually, CLMs are smooth, round lumps, similar in size to a large pimple on the skin. They can be clustered together or appear as single lumps on any part of the body. They vary in colour from pink to dark brown depending on skin type. The number of CLMs on affected individuals can vary extensively, ranging from a few to hundreds.

   The average age of onset of CLMs is around 25 years of age. The majority of people with HLRCC have at least 1 CLM by age 40.

   Pain is the most common symptom associated with CLMs. It is often described as sharp/shooting in nature. Pain can arise spontaneously or be triggered by touch, pressure and temperature changes. The intensity ranges from mild to excruciating, with some experiencing pain for only a short duration, while others experience extended waves, with little relief. A minority of patients report their CLMs to be itchy.

2. Uterine leiomyomas (fibroids)
   Female patients with HLRCC often begin experiencing worsening gynaecological symptoms starting in their mid-teens/early 20s. These symptoms may include:

   - prolonged and heavy menstrual periods
   - pelvic pain
   - pain during sex
   - low back pain
   - reproductive difficulties (reduced fertility/miscarriage)

   Larger fibroids may also press against other internal structures, resulting in additional symptoms like nerve pain, constipation, incontinence or increased urinary frequency.

3. Kidney cancer (renal cell carcinoma)
   Symptoms and signs associated with kidney cancer very often do not appear until later stages of disease, after the tumour has grown to a significant size. These include low back pain, fatigue, and blood in the urine.

People with CLMs often feel emotional distress related to how they see their bodies,

considering factors like the size, appearance, location, and scars from treatment. Long-term pain and a lower quality of life due to CLMs, fibroids, and cancer can also lead to feeling depressed or having poor mental health. In addition to worries about tumours and cancer, there may also be concerns about genetic testing, cancer checkups, and planning for the future and family. It is important to discuss concerns with your healthcare professional who will be able to recommend the right support for you.

HOW IS HLRCC DIAGNOSED BY YOUR DOCTOR?

1. A clinical history, family history and clinical examination are usually the first steps. A skin biopsy may be performed to confirm CLMs. Scans of the womb or kidney may add to the clinical diagnosis.
2. A clinical diagnosis of HLRCC is usually confirmed using a specialised genetic test. Genetic test of a blood or saliva sample to detect a disease-causing change in the Fumarate Hydratase (*FH*) gene is offered in people who are suspected to have a clinical diagnosis or a family history of HLRCC. However, some people may be diagnosed with HLRCC on clinical grounds even though the test does not show a fault in the *FH* gene.

CAN HLRCC BE CURED?

No, there is currently no cure for HLRCC. Screening and medical interventions can help patients manage their tumours and related symptoms, and minimise the impact of the condition on quality of life.

HOW CAN HLRCC BE TREATED?

1. CLMs may be treated with medical treatments to reduce pain. They may also be removed by a range of types of surgery. They can be cut out. They can also be treated with "cryotherapy" (freezing), electrosurgery or laser treatments, which may carry a higher chance of the CLM recurring at the treated site. A dermatologist can help guide on which treatments may be suitable.
2. A gynaecologist will advise on treatment options for uterine leiomyomas (fibroids). Surgery is very common, with the majority of individuals agreeing to undergo removal of fibroids from the wall of the womb ("myomectomy") and/or removal of the womb, in their 20s and 30s. The goal of a myomectomy is to remove the fibroid(s) while still preserving the ability to have children. Fibroids will often grow back after myomectomies. This can be followed by either further myomectomies, or a hysterectomy (removal of the womb). This solves the problem permanently, but at the cost of infertility and potential complications.
3. MRI Annual kidney screening is important, with the aim of identifying small tumours before symptoms start and before they spread (metastasise). If a kidney cancer is detected early before it has spread, it can be surgically removed. If it has spread, then there are several treatment options available. An oncologist will advise on the best approach if a kidney cancer is found.

SELF-CARE (WHAT CAN I DO?)

If CLMs are painful, avoid any specific triggers. These may include changing temperatures (particularly cold), sweating, clothing pressing/rubbing on sensitive areas.

UK healthcare guidelines are available for the care of people with HLRCC. Your doctor may arrange these assessments or refer you to a suitable specialist. These include:

- Referral to dermatology for assessment and management of CLM if present.
- Pelvic ultrasound in women to assess uterine fibroids (from age 20, or from when symptoms develop; this may be repeated annually in some centres).
- Annual kidney MRI with contrast, reviewed by doctors familiar with HLRCC (from ages 10-75 in the UK).
- Counselling for family planning and associated risks by being referred to clinical genetics (age 18).

WHERE CAN I GET MORE INFORMATION ABOUT HLRCC?

Patient support groups providing information:
www.facebook.com/groups/hlrcc/

www.smartpatients.com/communities/hlrcc

Web links to other relevant sources:
hlrccinfo.org/hlrcc-handbook/

hlrccinfo.org/hlrcc-quick-facts/

hlrcc.org

https://www.ukcgg.org/information-education/ukcgg-leaflets-and-guidelines/#collapse61117

Please note that the British Association of Dermatologists (BAD) provides web links to additional resources to help people access a range of information about their treatment or skin condition. The views expressed in these external resources may not be shared by the BAD or its members. The BAD has no control of and does not endorse the content of external links.

This leaflet aims to provide accurate information about the subject and is a consensus of the views held by representatives of the British Association of Dermatologists: individual patient circumstances may differ, which might alter both the advice and course of therapy given to you by your doctor.

This leaflet has been assessed for readability by the British Association of Dermatologists' Patient Information Lay Review Panel

BRITISH ASSOCIATION OF DERMATOLOGISTS

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PRODUCED | JANUARY 2024
NEXT REVIEW DATE | JANUARY 2027