

NET Patient Foundation

NET Patient Foundation (NPF) is a UK wide charity solely dedicated to providing support and information to those affected by Neuroendocrine Cancer.

The Neuroendocrine System

The Neuroendocrine System is made up of specific cells, found throughout the body, that help regulate normal bodily functions such as breathing and digestion.

Neuroendocrine Cancer

Neuroendocrine Cancer is a term used to cover a group of cancers that start in neuroendocrine cells. These cancers may also be referred to as NETs, NECs, **NENs (Neuroendocrine Neoplasms)** or even Carcinoids. Neuroendocrine Cancer occurs when neuroendocrine cells stop working normally and start to grow or behave abnormally.

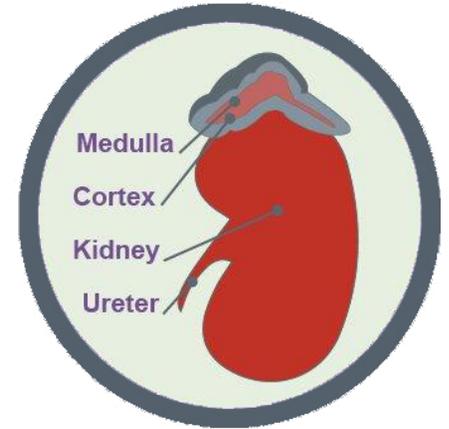
Further information about Neuroendocrine Cancer, including videos and support services can be found at www.netpatientfoundation.org

The Adrenal Glands

The adrenal glands are hormone producing organs that sit on top of the kidneys.

The outer part is called the cortex.

The inner part is called the medulla – responsible for producing adrenaline and noradrenaline. These are our fight or flight hormones, which are released when our sympathetic nervous system ‘senses’ we are under physical or emotional stress.



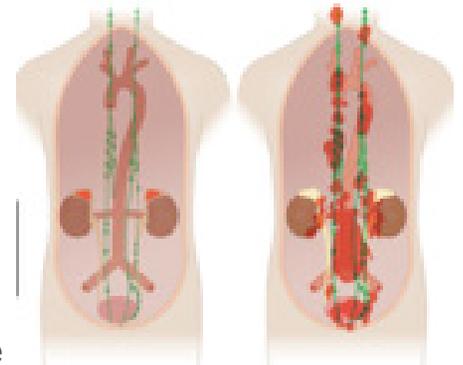
Pheochromocytomas originate in the medulla.

Paragangliomas are pheochromocytomas that are found along nerve pathways or ganglia.

Although the majority of these tumours are not linked to a genetic condition and are therefore known as ‘sporadic’ tumours, up to 25% can be associated with certain genetic conditions (MEN2, VHL and NF) or due to a very rare change in the succinate dehydrogenase (SDH) gene.

Further information including support:

www.netpatientfoundation.org - for sporadic (non-genetic) PPGL and www.amend.org.uk - for genetic PPGL.



Signs and symptoms of PPGL are related to tumour position/size (1) and /or excess hormone production (2):

- 1. Discomfort / pain, occasionally nausea/vomiting**
- 2. Hyperadrenergic episodes (e.g., self-limited episodes of non-exertional palpitations, hypertension, diaphoresis - excessive, abnormal sweating, headache, tremor, anxiety, apprehension, lethargy and/or pallor)**

Blood / Urine Tests

Full blood count

Liver and kidney function

Hormonal work-up:

Glucocorticoid excess (minimum 3 of 4 tests)

Dexamethasone suppression test (1mg 23:00)

Excretion of free urinary cortisol (24 hr urine)

Basal cortisol (serum) Basal ACTH (plasma)

Sexual steroids and steroid precursors

Serum DHEA-S, 17-OH-progesterone, Androstenedione & Testosterone

17-beta-estradiol (serum, men & postmenopausal women only)

Mineralocorticoid excess

Potassium (serum) Aldosterone/renin ratio (only in those with arterial hypertension +/- hypokalaemia)

Catecholamine excess

Normetanephrine, metanephrine & 3-methoxytyramine (3-MT) (serum or urine)

Consider ALL patients for genetic testing - specifically SDH gene

In those with a clearly established diagnosis of PPGL, steroid analysis work-up is not required.

Serum Chromogranin A (especially in NM & 3-MT negative patients)

Scans

CT chest & abdomen and / or CT chest & MRI abdomen

Bone scintigraphy- where there is clinical suspicion of metastases

FDG-PET

mIBG scintigraphy, Dotatate PET, Dopa/Dopamine PET

Pathology

Differentiation and cellular morphology

Synaptophysin

Chromogranin

Ki67

Treatment for Pheochromocytoma and Paraganglioma(s) : PPGL

For all patients, there are many things to consider in planning treatments. Your treatment will be personalised to you and the type of NEN you have.

Even if you have a diagnosis that sounds the same as another patient, your treatment and follow up plan may be different.

Your care team will discuss your treatment options with you - giving you both written and verbal information - to help you make an informed choice. Together you can agree on the most appropriate treatment for you.

Information about the treatments that are used in NET and NEC can be found in the NPF Handbook - Your Guide to Living with Neuroendocrine Cancer - www.netpatientfoundation.org

There is consensus agreement that all Neuroendocrine Cancer patients should be reviewed by a Specialist Neuroendocrine Cancer MDT.

Follow-up for Pheochromocytoma and Paraganglioma(s) : PPGL

As per national and international guidelines nb local policy may differ

Patients who underwent successful surgery for nonmetastatic disease are at risk of malignant recurrence and require long-term clinical (adrenergic symptoms and blood pressure levels) and biochemical follow-up.

Biochemical testing (MN, 3-MT and Chromogranin-A) is repeated -14 days following surgery, thereafter every 3 - 4 months for 2 - 3 years. This should subsequently be repeated every 6 months.

Follow up for a minimum 10 years – except for high-risk patients (young, with genetic disease, large tumour and / or paraganglioma) who should receive lifelong annual follow up.

Imaging to be repeated at least every 6 months during the first year and yearly afterward, irrespective of the negative results of biochemical tests.

In patients with (pre-operative) biochemically inactive disease, imaging every 1 - 2 years. Patients with new events or pathological endocrine tests and/or elevated circulating chromogranin A should undergo imaging that includes thorax and abdomen CT and best functioning imaging.

A big part of meeting with your doctors, or specialist nurse, is to make sure you get the information you need to understand what's happening, so that you can make an informed choice about your care. Asking questions can be difficult, especially if you're feeling nervous, confused, frightened or struggling to understand what you are being told. You might want to know as much as possible straight away or prefer to take things in small amounts at your own pace.

Suggestions that may help:

- Prepare a list of questions that are important to you
- Ask for simple explanations - do not be worried about asking your nurse or doctor to repeat what they have said
- Take someone with you or ask if you can record the conversation. Many mobile phones have a record function or an app you can download
- Ask for a copy of any letters sent to your GP and/or other care team(s)
- If you have a nurse specialist - keep in touch. They can be a great source of information and support for you.

Example questions:

- Who can I call if I have any questions? Who is my main point of contact?
- Who will be involved in my care?
- What are the treatment options for me? How might they affect me ?
- How often will I need to have scans and tests?
- Are there any flags or warning signs I need to look out for?

Further information about making the most of your consultations can be found in our handbook: www.netpatientfoundation.org
AMEND booklet "Working with your medical team": www.amend.org.uk

REFERENCES

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