## Treatment

<table>
<thead>
<tr>
<th>Cardiac Sarcoidosis</th>
<th>Pulmonary Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overview</strong></td>
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<tr>
<td>Timely diagnosis and treatment with medication is important for a favourable prognosis.</td>
<td>Medications can reduce symptoms and improve the pressures in the blood vessels.</td>
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<tr>
<th>General Sarcoidosis Treatment</th>
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<td>Your doctor may prescribe medication to suppress the sarcoidosis:</td>
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<td>You may be prescribed the following to help regulate heart rhythm or to treat any heart failure:</td>
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<tr>
<td>- specific heart medications (tablets)</td>
<td>- diuretics</td>
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<tr>
<td>- implant a pacemaker or defibrillator (ICD)</td>
<td>- endothelin antagonists</td>
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<tr>
<td>Heart transplant may be considered (very rare).</td>
<td>prostacyclins</td>
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<th>Transplant</th>
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<tr>
<td>Lung transplant may be considered (very rare).</td>
<td>Heart transplant may be considered (very rare).</td>
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## Who We Are

SarcoidosisUK provide support and information to anyone affected by sarcoidosis. We also raise awareness and fund research. The vast majority of our funds go towards researching a cure. Contact Us for information on our Support Group network and free Nurse Helpline.

## How You Can Help:

- **Donate** to fund research: www.sarcoidosisuk.org/donate
- **Get involved** in medical research: www.sarcoidosisuk.org/research/get-involved-sarcoidosis-research

## Thanks to:

- **Dr. M. Thillai**, Consultant Chest Physician, **Dr. L. Williams & Dr. S. Agarwal**, Consultant Cardiologists and **Dr. K. Tweed**, Consultant Radiologist (all Cardiac Sarcoidosis Unit, Royal Papworth Hospital).
- **Dr. M. Wickremasinghe**, Consultant Respiratory Physician and **Dr. A. Varnava**, Consultant Cardiologist (both Imperial College Healthcare NHS Trust).

## Contact Us

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DocRef: CSA3927
Sarcoidosis and the Heart

The heart can be affected by sarcoidosis in two ways. Firstly, sarcoidosis can occur in the heart muscle itself (cardiac sarcoidosis). Secondly, the heart may be indirectly affected as a result of sarcoidosis in the lungs (pulmonary hypertension). Both conditions can have serious consequences.

Cardiac Sarcoidosis

Cardiac sarcoidosis occurs when the heart muscle itself is affected. The accumulation of immune cells causes clumps of tissue called granulomas. These can occur in the heart in different places:

- left or right ventricles and interventricular septum (wall in-between the ventricles)
- papillary muscles (connected to the heart valves)
- pericardium (thin sac lining the heart)
- cardiac conduction system (muscles regulating the heart beat)
- and less often the left or right atrium (upper chamber)

Cardiac sarcoidosis occurs in up to a third of all sarcoidosis patients, but only causes specific symptoms in around 5% of cases.

Symptoms:

Symptoms of cardiac sarcoidosis include:

- irregular heartbeat (pounding or fluttering sensation, or a ‘skipping of beats’)
- dizziness and/or fainting spells
- shortness of breath
- chest pain
- swelling of the legs (in later stages)

Pulmonary Hypertension

Pulmonary sarcoidosis (sarcoidosis of the lungs) can also indirectly affect heart function. Abnormalities of the lungs, and of the blood vessels between the lungs and the heart, can cause an increase in the pressure within the blood vessels in the lungs (pulmonary hypertension). This pressure can then overload the right ventricle. This can occur in up to 15% of all patients with sarcoidosis.

Techniques to Understand your Condition

Most newly diagnosed sarcoidosis patients will have an ECG, holter monitor and echocardiogram. Suspected cardiac sarcoidosis patients may go on to have further diagnostic tests. Most of these are described below.

ECG (Electrocardiogram): This provides information about the electrical conduction system of the heart, as well as the heart rate and heart rhythm.

Echocardiogram (Echo): This uses ultrasound waves to create images which show the pumping function of the muscular heart chambers and the function of the heart valves. It also allows measurement of the blood pressure within the heart vessels (to look for pulmonary hypertension).

Magnetic Resonance Imaging (MRI): This scan can identify involvement of sarcoidosis in the heart. Usually you will be injected with a special dye to show any changes to the soft tissue in the heart muscle. MRI images also provide information about heart function.

Nuclear Scans: Thallium scans and PET scans create images that can identify any active inflammation within the heart muscle and can help to guide treatments. For the cardiac PET scan it is important that a strict diet is kept to in the days before the scan (this will be explained to you beforehand).

Holter monitor: A holter monitor is a small, portable ECG device that takes a continuous recording of your heart rhythm over a longer period of time (usually 24 hours but sometimes longer). It is particularly useful to identify any evidence of problems in the conduction system of the heart (e.g. very fast or slow heart beats or any abnormal rhythms).

Clinical Electrophysiology Studies: A catheter is used to map the conduction system of the heart. This can uncover abnormalities which may predispose abnormally slow heart rates, as well as any abnormally fast or dangerous heart rhythms which can arise from areas of inflammation or scarring.

Right Heart Catheterisation: This test uses a probe to measure the pressures in the heart and in the nearby blood vessels to determine pulmonary hypertension involvement.

Biopsy of the Heart: This is rare and only used when there is a specific reason to do so. Patients who have had a lung biopsy will usually not need a heart biopsy or any further biopsies.

Blood Samples: The following may be tested:

- angiotensin converting enzyme (ACE)
- brain natriuretic peptide (BNP)
- troponin