North Gloucestershire ICD Information and Support Group

Newsletter July 2008

Notes on Group Meeting on 24th July 2008

The 5th meeting of the Group took place at Up Hatherley Church Centre, Cheltenham and was attended by a total of 53 people. Of these, 20 were people invited to a separate presentation beforehand organised by the John Radcliffe Hospital with Medtronic presenting its *CareLink* remote monitoring of ICDs. 26 were Group members, together with Dr Bogdan Nuta, Nick Butler and Chrissie Jones from Gloucestershire Hospitals, Nicola Meldrum from the John Radcliffe Hospital, Oxford and Gina Willis and Lucy Pring from Medtronic. The meeting was generously supported financially by Medtronic.

1. Dr Bogdan Nuta (Consultant Cardiologist, Gloucestershire Hospitals) described the recently expanded capability for implantation and routine monitoring of ICDs in the county: ICDs are now routinely fitted. Gloucestershire has hitherto lagged behind the national average for device implantation, but this is expected to change. The capability now exists for downloading and for reprogramming devices.

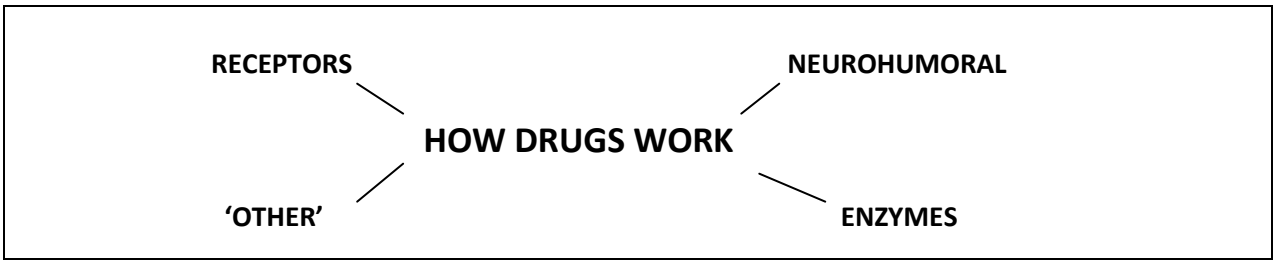
It is now possible for patients who currently attend pacing clinics at Oxford (or elsewhere) to be transferred to management at Gloucester. For anyone considering switching, they should to contact Nicola Meldrum in the first instance.

Dr Nuta expressed strong support for the ICD Group, adding that it is not possible to function effectively in the NHS without hearing the patients' voices, and he saw our group as serving as the 'ears in the community' of problems for recipients and carers of living with ICDs.

The challenge for members of our Group is to get any views and concerns expressed into the system.

2. Mr Nick Butler (Pharmacy Manager, Gloucester Royal Hospital) gave an overview presentation on cardiac drugs using two very simple, lucid diagrams. This approach was specifically chosen to cover what is a complex subject in an easily understood fashion – something most ICD patients have been asking for.

Diagram 1 How Drugs Work



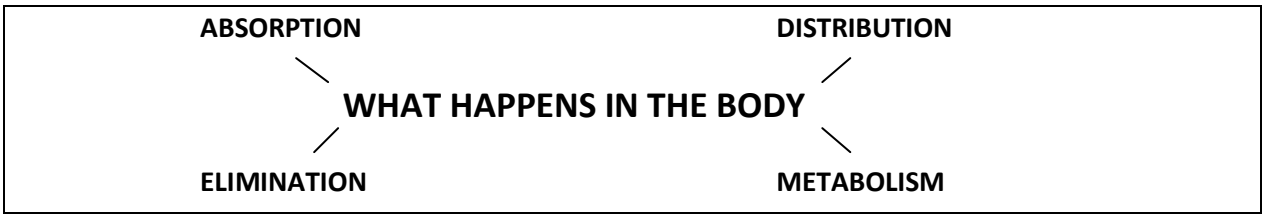
Receptors. Many drugs act on receptors within the tissues, as either blockers or 'antagonists 'or as stimulators or 'agonists' of given physiological functions. The family of Beta-blockers are particularly relevant as they block the receptors that stimulate the heart to beat faster, thereby slowing the drive. These generally end in 'ol', and include atenolol, bisoprolol, sotalol. Other important blocking drugs are the 'sartans', which antagonise the action of angiotensin at its site of action in the blood vessels. These have been quite recently introduced and work by reducing resistance of the cardiovascular system to circulating blood and thus lowering blood pressure – candasartan is an example.

Neurohumoral. Neurohumoral transmitters are the natural chemicals within the body that allow electrical impulses to pass across junctions between nerve cells, and families of drugs have been developed that can either sustain the action of such transmitters (allowing impulses to continue to pass), or to inhibit them, thereby inhibiting nervous transmission. These types of drugs are particularly effective for mental health disorders.

Enzymes. There is a broad family of drugs that act by inhibiting the actions of specific enzymes. Probably the most salient one for heart disease is aspirin. This acts by inhibiting an enzyme called cyclo-oxygenase, thereby affecting the production of agents in the tissues called prostaglandins and subsequently reducing the blood-clotting properties of blood platelets. ACE-inhibitors affect the action of **A**ngiotensin **C**overting **E**nzyme, thereby controlling levels of angiotensin. Statins, that are used to control cholesterol levels in the blood, have the property of inhibiting the action of one of the important enzymes in the biosynthesis of cholesterol by the liver.

Others. A variety of drugs act by blocking 'channels'. There are numerous channels or molecular gateways through cell membranes, the purpose of which is to allow a variety of agents such as calcium, sodium, potassium or hydrogen ions to pass. These are often known as ion pumps. Numerous drugs can block calcium- , sodium- or potassium- channels across heart cell membranes, thereby affecting polarization of membranes and thus, for example, the electrical impulses regulating heart beat. Amiodarone is a well-known example. Hydrogen-ion/proton pump inhibitors are also popular (eg omeprazole) for the control of stomach acidity.

Diagram 2. What Happens to Drugs in the Body



Absorption of drugs is very important, and generally depends upon the amount of food in the stomach. It is important to avoid ingestion of alcohol, antacids and specific dietary ingredients at the same time as taking medications. The instructions provided by the pharmacist on when to take a given drug in relation to meals are very important to delivering overall drug efficacy.

Distribution via the blood to the target tissues is a critical factor. Patients with heart failure (ie a compromised circulation) may have slower distribution rates. Also, fluid balance and exercise can influence this.

Metabolism. Some drugs might need to be modified by the body to make them water-soluble. Others might need to dissolve in tissue membranes and build up their levels before they can exert their action. This is why some drugs need 'build-up' doses early on before being fully effective – warfarin is an example. Some drugs are rapid-acting, and so may require dosages of more than once-daily. Others are longer-lasting, resulting in less frequent dosage prerequisites.

Elimination. Many drugs are eliminated by mechanisms involving the liver, where they may first be deactivated, and then the kidneys, where they are filtered from the blood into the urine. Some drugs (amiodarone is well-known here) take many months to be excreted from the body. Some drugs also can influence negatively kidney function.

The over-riding fact is that despite the tremendous advances made by pharmaceutical companies in recent years, there will always be a balance between desired efficacy and mitigation of adverse effects. Moreover, we are all different in the way we respond to, metabolise and clear drugs from our bodies – this is why it is important to iterate with one's GP or cardiologist to identify appropriate drugs and dosages for a given arrhythmia.

Nick Butler acknowledged that he merely skimmed the surface of a very complex subject. He kindly agreed to return to address in more detail aspect of specific cardiac drugs at a future meeting.

3. Lucy Pring (Medtronics) – CareLink: Remote Monitoring of Medtronic ICDs

Nicola Meldrum described the John Radcliffe Hospital initiative to implement remote ICD interrogation for recipients of ICDs implanted there since about 2000. This presentation was by Medtronic for recipients of such devices. Should anyone wish to be have more information for any brand ICD implanted at Oxford (ie non-Medtronic), they should contact Nicola for further details.

The Medtronic technology has been used in the USA for 7 years and in Europe for about 2. About 6 months ago it was introduced into the UK and to date 25 hospitals have implemented the technology, with about 1600 ICD recipients now using CareLink

Lucy Pring described the basic principles of the CareLink technology. ICDs can be interrogated at home, over a normal telephone link and the information stored in a secure data base. This is available to the Oxford pacing team for analysis. The technology avoids regular trips to Oxford for routine downloads.

Once the remote monitoring hardware is installed, Nicola will ask for a download to be performed at a given time and date and then transmitted to the CareLink database, which will then be analysed by Oxford. The analysis includes read-out of leads impedance, capacitance, battery life and any pacing or shock interventions. Should any aspects of the downloaded data warrant further discussion, the ICD recipient will be contacted directly by Oxford.

The technology available is currently for 'one-way communication', ie ICD performance characteristics can be accessed by Oxford, but any reprogramming of the device cannot currently be done on-line. Should any reprogramming or changes in threshhold settings be required, the ICD recipient will be requested to visit the Pacing Clinic at Oxford.

Full details of how the CareLink technology may be used were explicitly described by Lucy, and will not be covered here. Nicola Meldrum urges anyone who requires further details to contact her.

CareLink technology is available for all types of Medtronic ICDs implanted since about 2000 (single-, double- and triple-chamber ICDs) as well as for pacemakers and for monitors of sustained abnormal heart rhythms.

For those ICD recipients who have agreed to go ahead with this technology, they will be invited to come on-line during the next few months.

The costs of the CareLink modem and remote detector (currently in excess of £300 per patient) will be borne by the John Radcliffe Hospital. It is believed, nonetheless, that the saving of time/resource/expense at Oxford via a reduced need for conventional downloads will more than cover this outlay.

ICD Group Activities

We accepted invitations to attend the Arrhythmia Alliance Regional Meetings in Stratford (May) and Bristol (June). These have been very useful for making contact with clinical staff from other hospitals which implant ICDs, so that we can share our experiences, as well as to get ideas and suggestions from other Support Groups for improving the usefulness of this Group.

The Arrhythmia Alliance kindly provided us with leaflet information on ICDs which have been distributed to GP surgeries by several of our members. We believe this is a very valuable facility, as some of us have experienced in the past actual lack of detailed knowledge by some surgical support staff of ICDs and the specific needs of recipients and carers. Any members wishing to have this information should contact us.

Following on from the subject of our April meeting, we have further meetings planned with the Ambulance services, the Arrhythmia Alliance and other community groups and experts, to identify how best to proceed with our project to address helping the survival rates of people subject to Sudden Cardiac Arrest. We have considerable funds already donated or promised, and these are growing.

When our proposals, which are likely to include ways of training groups within the community in Cardio Pulmonary Resuscitation as well as the provision of Automated External Defibrillators, have been formulated and ratified we will communicate these to the members. We applaud the efforts of some our members in raising money for a subject that is obviously 'very close to all of our hearts'.

We have had a meeting with an ICD recipient who has been encouraged by the Bristol ICD group to start a support group in Bath. He hopes to get his group launched fairly soon. Similarly, we shall be presenting our experiences of identifying the needs of an ICD support group at the inaugural meeting of the Coventry and Warwickshire *ShockWaves* ICD Support group.

The next Group meeting is planned for Thursday November 6th at the Up Hatherley Church Centre at 16.00. The theme will be Rehabilitation for ICD Recipients. Details of speakers have yet to be confirmed, and will be published on the group website and also communicated to members by email or telephone in due course. All are welcome to attend.

For further information, visit our website at *www.icd-gloucestershire.org.uk*.

Any questions should be emailed to *information@icd-gloucestershire.org.uk*
or by telephone to 01242-260-614/01242-527-588

Colin Prottey & Robin Harvey August 2008