PHAROS

A beacon of hope in the darkness

Newsletter of the Reading Prostate Cancer Support Group (RPCSG)

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THE MAY and JUNE MEETINGS

The May meeting was one of the popular Open Meetings at which members had an opportunity to talk among themselves about any topic at all, hence there was no online connection. It was attended by 32 members including partners and was most enjoyable.

The June meeting featured a talk by Andrew Doggart of the Royal Berkshire Hospital. This was a most enjoyable and informative talk. I am grateful to Beverley who provided the following account of Andrew's talk:

'Andrew Doggart gave a very informative talk on Radiotherapy in general and more particularly Brachytherapy. Andrew is the Principle Physicist at the Royal Berkshire Hospital and Head of Brachytherapy having started the service around 20 years ago along with the urologist and oncolgists.

He started by explaining that all cells are basically made up of water (about 60%) and DNA. This is very important as is the reason radiotherapy works killing cells in the body. He pointed out that there are different sort of radiation and there are many all around us in general life e.g. sunlight, microwaves, TV and radio. The important rays used for treatment are Ionising radiation used in X-rays. This type of radiation kills cells by breaking the DNA strand so the cell cannot reproduce. The cell then dies and tumour cells are more sensitive to radiation so therefore the tumour eventually dies. This can take some time however. Andrew then went on then explain that the radiation attacks the water within the cell which breaks into a free radical that then attacks the DNA molecule breaking the strands. Some radiation directly attacks the helex breaking the DNA modal again killing the cell.

He then went onto explain the different uses of radiation (radiotherapy). He described the two uses… tele meaning long range and brachy meaning short distance radiotherapy. Tele radiotherapy is when the source of radiation is between 80-100cms away from the cells needing treatment. It is the original type of radiotherapy and is still the most common form of radiotherapy. It is used in over 90% of all treatments. He explained the background behind the discovery of radiotherapy waves by Wilhelm Conrad Roentgen. It was the culmination of many years of working on different fields leading to several people producing radiotherapy waves but Roentgen was the scientist that wrote the scientific paper describing it. Marie Curie and her husband then moved the treatment forward over years of trial and error. It was an amazing effort as they did not have all the knowledge we now have and were working on a basic idea of "we have a problem, what might work to fix it".

Brachytherapy or short distance radiation was also discovered and rivalled teletherapy in the early to mid 20th century. It was thought to be a better system but over the years the teletherapy has continued to improve and has now become the most useful type of radiotherapy.

Andrew then went into more detail about the Teletherapy (or external beam radiotherapy). A Linac (Linear accelerator) is used and produces x-rays and patients are irradiated from different angles. The dose is given to a patient in a series of 'fractions' over a period of days. The days have been worked on over many years and they don't often change. However the number of fractions given to breast cancer patients has just been fairly dramatically reduced after many years of testing. The patient is irradiated from the outside in and various arrangements can be used but some healthy tissue is also irradiated. The aim is to give a maximum dose to the tumour tissue and the minimum dose to any healthy tissue. This can be quite complex to manage!

The Linacs cost around £1.5m. The housing around it however cost several more million as they need to be lead lined and have very strict rules around the site. They are very complex machines and therefor need highly qualified support staff to use and maintain. They have a comprehensive quality assurance programme to ensure patient safety. He explained the Linac works by shooting a radiation beam along the machine before it is forced out and onto the patient.
Andrew also explained a little about Proton therapy. This is targeted proton beams which deposits most of the energy onto the target (as opposed to conventional therapy which has deposited most if its energy before it reaches its target) This is very beneficial for some tumour sites especially the brain as it damages less of the surrounding tissue but actually doesn't make any difference in most tumour sites where the surrounding tissues can cope. It is exceptionally expensive and cost the NHS £250 million for 2 Proton facilities in the UK but they only treated 1500 patients per year. In comparison the RBH treat twice that in a year with radiotherapy and they are a relatively small hospital with a lot less money available! It has been suggested by many that Proton beam is being forced by the public who do not really understand its uses.

Andrew then moved onto Brachytherapy or short range therapy. There are many types and over the years it has been used on skin tumours and cervical tumours in different formats. The sources contain radioactive material and in the past has been radioactive, That was very securely managed. He suggested that is a source had been lost down a drain at the RBH the roads around would be taken up to find it!! Fortunately now radioactive iodine 125 seeds are used and although are still securely managed do not cause the problems if 'lost'. There is a selection of different sizes of needles, tubes and seeds depending on what is needed. The brachytherapy seeds used in the prostate are about the size of a grain of rice. Brachytherapy is used to improve the dose distribution to the tumour. The seeds have a rapid fall off, highly localised dose of radiotherapy thus sparing the surrounding tissue minimising the side effects. The way to get to the prostate is to stick a needle into it through the perineum. The seeds are then passed through a 'Mick applicator' named after Michael who invented it. The process entails the urology consultant using an ultrasound probe placed into the rectum so the prostate can be visualised. The physicist then plans where the seeds need to be placed in order to cover the whole area needing to be treated. The seeds are tailored to the size and shape of each individual prostate and between 50-100 seeds are placed in the prostate. They remain permanently although they become inactive after about 12 months. The seeds need to be inserted but the Oncologist is the only person allowed to do the instillations. The physicist can see in real time where the seeds are going and can ensure they are covering the whole prostate. The patient then also has a scan the following day and at their follow up so he can count the seeds to ensure they have all remained in situ They do fall out occasionally and there is the possibility of doing a 'top up' if needed but this has never been required at the RBH.

Questions from the floor led to information about the cost, Andrew was unsure of the total cost but possibly about £10,000-12,000 and the fact that there are some reasons why men cannot have brachytherapy especially revolving around their urine flow. There are some men who can have a smaller operation to open the prostate before they have the brachytherapy (limited TURP).

Andrew was then thanked for a very information and interesting talk'

NEXT MEETING – THE SUMMER SOCIAL

Our annual summer social will be held in St Andrews church hall on Friday 7th July. This is a very popular and enjoyable occasion that will feature a buffet meal, quiz and raffle.

If you would like to attend this social event and have not yet reserved places, please contact Alex by email on **alexbmiles@aol.com**) and say how many places you require. Please do this as soon as possible and in any case before the 20th June, as this is the closing date for applications.

RPCSG WALKS AND COFFEE MORNINGS

The walk in June will be on the 20th June starting at 10:30 at the Barley Mow Slipway and Car Park that is just off Sprat's Hatch Lane that is on the opposite side of the road from the Barley Mow pub.

Coffee mornings are being planned and more information will be available later.

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