



Radiotherapy and its physics

Treatment triumphs

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Surgery I think is probably the best treatment in terms of taking a cancer out...and then knowing that you've got rid of it all, because you can look at it under the microscope and see that all of the edges are clear and whether the lymph nodes in the surrounding area are clear as well. If that wasn't the case you can then offer extra treatment, insurance policy treatment, to try and prevent things from coming back, be it radiotherapy to mop up any remaining cells in the tumour bed area where it was lying, or, with chemotherapy or hormone therapy if there was a risk of things being elsewhere. So for example with, again, prostate cancer, if there was a high risk prostate cancer ah, where all our test have shown there is no evidence of any spread in the bones or the lymph nodes but various features of the histology suggested that there could be some cells there that we couldn't see, there are insurance policy treatments, agivent treatments in the form of hormone therapy, which if you take them for a period of two to three years can reduce the chance of relapse from eighty percent at five years, in the higher risk cases, down to forty percent. So that's a fifty percent reduction in the chance of relapse at five years. So, we use all these modalities together, really, to try and reduce the chance of local recurrence and systemic relapse.

The first thing to say is we can't achieve a complete cure in all cases. Once we've staged the patient we know whether we're are going to be treating radically with curative intent or palliatively to treat symptoms and, ah, we judge how well we've done by looking at the five year recurrence rates. And there are different five-year recurrence rates.

There is the five-year survival rate, how many patients are alive at five years. The five-year relapse free rate, how many people are alive without having relapsed verses those who are alive but have relapsed and require more treatment, and such things. Then there is the palliative measures and usually we review those results a month after treatment with radiotherapy. We would be treating symptoms, for example, with lung cancer we would be treating to reduce cough, and radiotherapy is eighty to ninety percent successful in reducing cough, shortness of breath, haemoptysis coughing up blood, or chest pain. And the radiotherapy people work over the course of about a four week period, and therefore we get patients back in about a month and see whether their symptom has gone and so that's a very good way of knowing how well the radiotherapy works.