

**GORDON**

My name is Gordon Dewald. I have a PhD in cytogenetics, and I'm currently a professor emeritus in laboratory medicine and medical genetics.

**DEWALD:**

Well, this is a study of three forms of pancreatic cancer. We used DNA probes to investigate nine different cancer genes. These genes, some of them are associated with familial cancer. Others have been implicated in the biology of acinar cell carcinoma. Still others have been associated with tumor progression in sporadic pancreatic cancer. And other genes have been linked at the molecular pathway of 5-fluorouracil. This is a drug that's often used to treat patients with pancreatic cancer.

These probes were labeled with fluorescent dyes and used with insight to hybridization in paraffin-embedded tissues so that we could visualize abnormalities of these genes in individual cells. In that way, we could characterize the percentage of abnormal cells. We could define the different kinds of chromosome abnormalities associated with these genes.

The three kinds of pancreatic cancer we have investigated were acinar cell carcinoma, ductal adenocarcinoma, and islet cell carcinoma. We were hoping to find unique abnormalities associated with each of these forms of cancer. We were then hoping to use that information to make more accurate diagnoses and so forth. What we found was that abnormalities of the beta-catenin gene on chromosome three were specifically associated with acinar cell carcinoma. The rest of the genes we studied were commonly abnormal in all three forms of pancreatic cancer but not with any specific one. So clearly, acinar cell carcinoma is a different kind of-- genetically, a different kind of malignant process than the other forms of pancreatic cancer.

Well, this method of visualizing genes in individual cells is already widely used in clinical practice in the workup of patients with hematological malignancies and some other solid tumors. So we were very optimistic, at the beginning, that this might be a good procedure for pancreatic cancer, as well. However, we didn't know for sure, because the procedure has not been used very extensively in pancreatic cancer.

And so this study was really designed as a pilot study to look at three different forms of pancreatic cancer and nine cancer-causing genes to see if the procedure would work in pancreatic cancer. And indeed, the results of the study show that the procedure works very well, and that once we identify some specific genes and some specific applications for this procedure in clinical practice, it should be very useful in the workup of patients with pancreatic cancer.

Patients want a cure for this disease now, and unfortunately, this is still a work in progress. And so a good deal more of research will have to be done before we can actually implement this procedure into clinical practice. However, for the patient, I think they should know that there are a lot of different geneticists working up the disease known as pancreatic cancer, and there is a good deal of hope that new treatments will come from those discoveries.

The next line of research for this kind of work should be very exciting. First of all, the study we did involved just a few patients. We looked at five patients with adenocarcinoma, with ductal adenocarcinoma, five patients with acinar cell carcinoma and five with islet cell. I think we need to look at many more patients to be sure that the finding we had with beta-catenin is unique to acinar cell. If it is, it's a diagnostic feature and could be used to treat-- develop new genetic treatments.

So I think we need to look at more patients. We looked at just nine, but very important, cancer-causing genes, but there are many more to look at. Simply because we don't know the genetic origin of pancreatic cancer, it will be important to look at more. So there is a good deal of more research that needs to be done, but this kind of work has great potential for patients with pancreatic cancer.

Well, pancreatic cancer comes in a variety of forms. In this study, we looked at just three, but worldwide, 200,000 patients, new patients with pancreatic cancer are discovered every year. Something over 37,000 new patients in the United States alone. Survival for some of these diseases are miserable, just a few months. Some go 30, 40 months. There are no treatments, for the most part. So there is an urgent need for research of any kind for pancreatic cancer.

This takeaway message for this study is that visualizing genes in cells of individual-- in individual cells has great potential in clinical practice and in research. And so I think it offers a good deal of hope for the future.

**SPEAKER:**

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