

The latest cancer treatments ...

We are moving **FORWARD FAST**

by N. Simon Tchekmedyan, M.D.

There are many new cancer treatments being tested and some show great promise. Our patients want to know what is available now and what will be available really soon. Here are some answers.

Iressa® is a new medication given by mouth, already approved and available at the pharmacy for the treatment of lung cancer. It is one of a new generation of medications that target specifically certain cancer cells by blocking their ability to divide. It can cause diarrhea and a rash in some patients, but overall it is well tolerated. Rarely it can cause, ironically, inflammation of the lungs and shortness of breath. Less than half of patients will have a major improvement with Iressa®, but it is still worth a try, as it offers some hope when other treatments, including chemotherapy have failed. Iressa® is not a cure, but a good step towards controlling lung cancer. Our program has one of the largest worldwide experiences with Iressa® as we treated over 150 patients with lung cancer with this medication on clinical trials.

Chemotherapy was recently found to improve the chance of surviving after surgery for lung cancer. More patients were alive and free of cancer five years after surgery when given chemotherapy when compared to patients who had surgery only. These important new results were presented at the recent American Society of Clinical Oncology annual meetings in May and June of 2003 in Chicago.

Cetuximab, also known as C225, is not approved yet, but may be approved and become available in the near future. Cetuximab is a monoclonal antibody and has to be given by vein. Monoclonal antibodies are proteins made by the immune system and are quite specific. In this case, the antibody Cetuximab binds to vital components on the surface of cancer cells, and this leads to an anticancer effect. Cetuximab has been found to work in some patients with colorectal cancer. Occasionally, the patient may be allergic to it; it can also cause a skin rash and diarrhea. We have participated and continue to participate in clinical trials with Cetuximab. Other antibodies for lung and breast cancer with similar targets are in the "pipeline," giving this front on the attack on cancer additional momentum.

Cancer cells need nutrition just like any other cell in the body. We are now finding ways of cutting off their supplies. This field of research, also known as angiogenesis inhibition (inhibition of new tumor-feeding blood vessels) is advancing rapidly. One main target is the vascular endothelial growth factor (also known as VEGF), a protein in-

vessels in tumors. We are participating in clinical trials testing it in combination with the currently best available chemotherapy to treat patients with colorectal cancer.

We are also getting better at understanding the genes that control how cancer cells behave. The human genome

project has identified over 52,000 unique human genes, but the truth is we do not know what most of these genes actually do. New methodologies are allowing us to determine gene expression patterns in tens of thousands of genes in a single experiment. The technology also known as DNA micro arrays is becoming a reality rather quickly, and it has already been shown to allow doctors to distinguish cancers with poor prognosis from cancers with good prognosis based on the cancer's molecular signature. This faster pace in molecular level diagnosis and treatment is being fueled by the new field of nanotechnology, engineering that allows scientists to work with things that are really, really very small. A nanometer is a billionth of a meter. Stay tuned, as you will hear more about this as the technology evolves.

Multiple myeloma is a cancer of the bone marrow that can cause bone pain, fractures, anemia, and severe weakness. Velcade™ was recently approved and is now available for treatment of multiple myeloma. It is given by intravenous injection,

and it has a new and unique mechanism of action. It blocks certain "housekeeping" enzymes within the cells, and the cells become disabled and die. Velcade™ has been effective in some patients where no other treatment was able to control the myeloma. Side effects include numbness because of nerve damage, lowering of blood pressure, nausea, and low platelet counts.

The drug Thalidomide, who many remember was banned many years ago because it caused birth defects, has also been shown to work in multiple myeloma. Importantly, newer thalidomide-like drugs or analogs are now in clinical testing and offer significant promise in the treatment of myeloma. One such analog is Revimid® and this is an oral investigational medication currently in clinical trials for multiple myeloma and other malignancies such as malignant melanoma. This drug seems to have a variety of mechanisms of action, and it is hoped that it will have fewer side effects than thalidomide.



Oncologists K. Ucar, M.D. and S. Tchekmedyan, M.D. review malignant melanoma treatment results.

involved in cancer blood vessel growth. Avastin™ is an angiogenesis inhibitor which has shown marked benefit, including improvement in the length of life, when used together with chemotherapy in colorectal cancer. Avastin™ is a monoclonal antibody; it targets VEGF and is given by vein. Additional studies are in progress to determine in what other cancers it can be effective. Avastin™ is being reviewed by the FDA and may become available in the near future. We are quite excited about it, as we have participated in the clinical trials of Avastin™.

In patients with colorectal cancer, the use of the new chemotherapy agent Oxaliplatin in combination with other standard treatments offers improved results. Oxaliplatin is given by intravenous infusion and is now commercially available in the treatment of colorectal cancer.

Another novel treatment which inhibits VEGF and tumor blood vessels is currently undergoing testing and is so far known as PTK787/ZK 222584. This new investigational drug is given orally, and it reduces the number of blood

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