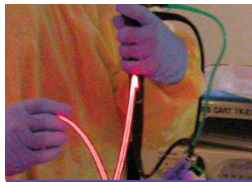




NOVEL TREATMENT OPTION FOR LUNG, ESOPHAGEAL CANCER

A MINIMALLY INVASIVE TREATMENT THAT PRECISELY TARGETS CANCER CELLS WHILE LIMITING DAMAGE TO HEALTHY TISSUE IS BEING OFFERED FOR THE FIRST TIME IN VIRGINIA BY THE UNIVERSITY OF VIRGINIA HEALTH SYSTEM.



WHAT CONDITIONS CAN PHOTODYNAMIC THERAPY TREAT?

ESOPHAGEAL CANCER

PDT can treat cancer or relieve symptoms caused by tumors totally or partially blocking the esophagus that can't be treated with esophageal dilation or traditional laser therapy.

NON-SMALL CELL LUNG CANCER

PDT can treat advanced-stage cancer and reduce obstructions in patients with completely or partially obstructing tumors. It can also be used in patients with endobronchial tumors who are not candidates for surgical therapy.

BARRETT'S ESOPHAGUS

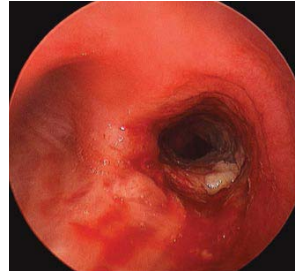
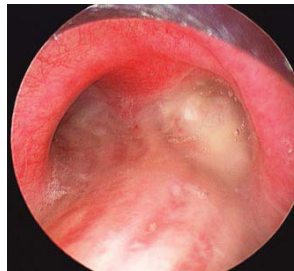
PDT is an alternative to surgery for the precancerous condition.

Patients with lung cancer, esophageal cancer, or Barrett's esophagus can benefit from photodynamic therapy (PDT), which combines a nontoxic, photosensitizing drug with a light source to pinpoint treatment.

PDT is primarily used to relieve symptoms of obstruction due to tumors from advanced stages of cancer that are inoperable and blocking an airway. Lung cancer

treatment options for relieving these symptoms have been quite limited," he says.

Photodynamic therapy is also an option for patients with early-stage lung or esophageal cancer whose medical condition makes surgery too risky, Shen says. Its primary side effect is photosensitivity – patients' skin and eyes will be very sensitive to bright light for up to 30 days following photodynamic therapy.



A rigid bronchoscopy (left) prior to photodynamic therapy shows a complete obstruction of the right main bronchus with tumor in a patient with stage 3B non-small cell lung cancer underdoing treatment with chemotherapy and radiation therapy. After treatment (right) with photodynamic therapy and rigid bronchoscopy, the right mainstem bronchus is reopened.

is the leading cancer killer among men and women in the United States, and 75 percent of newly diagnosed patients are inoperable, says Robert Shen, M.D. "There are a large number of patients with lung and esophageal cancer that develop symptoms due to tumor obstruction.

PDT is a three-step process which can be performed on an outpatient basis. First, a dose of the photosensitizing drug Photofrin is given intravenously. "The cancerous tissue retains the drug, while the healthy tissue doesn't," Shen says. There's about a two-day

wait for the second step while the healthy cells eliminate the Photofrin.

During the second step, patients are placed under general anesthesia while Shen directs a laser light at the cancer cells using a thin glass optical fiber, which is attached either to an endoscope or bronchoscope. The laser used isn't thermal, Shen says, so it doesn't get hot or burn. The laser is applied for five to eight minutes, depending on the size of the tumor. "The energy from the laser is transferred to the cancerous tissue and activates the drug, which becomes toxic to the cancerous tissue and destroys it," Shen says.

The final step takes place two or three days following the laser treatment, when patients undergo a repeat endoscopy or bronchoscopy to remove any remaining dead cancer tissue.

PDT can be repeated and combined with other therapies such as surgery, radiation or chemotherapy, Shen says.

WHO SHOULD NOT RECEIVE PHOTODYNAMIC THERAPY?

PDT IS NOT RECOMMENDED FOR PATIENTS WITH:

- ▶ A blood disease called acute intermittent porphyria
- ▶ An allergy to porphyrins
- ▶ A fistula between the windpipe and esophagus or between a bronchus and esophagus
- ▶ A tumor eroding into a major blood vessel

To refer a patient for photodynamic therapy, call UVA Physician Direct at 800-552-3723.



Clinical Trial Spotlight

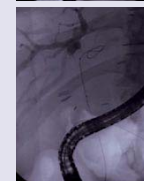
Photodynamic Therapy for Bile-Duct Cancer

The University of Virginia Health System is seeking volunteers for a clinical trial to determine if an investigational treatment called photodynamic therapy is safe and effective in treating biliary cancers.

The trial will examine how well photodynamic therapy works against non-resectable cholangiocarcinomas in the liver. Cholangiocarcinomas originate in the bile ducts or ductules and are the second-most common liver malignancy, says principal investigator Michel Kahaleh, M.D.



A cholangiocarcinoma (top photo) blocks the biliary tree. During photodynamic therapy, an endoscope with a laser fiber is inserted into the bile duct (middle photo), triggering a reaction in a light-sensitive drug retained longer in cancer cells and reducing the cholangiocarcinoma (bottom photo).



Biliary obstructions caused by cholangiocarcinomas can cause serious medical problems or death. Endoscopic biliary stenting can provide relief, but the solution is often temporary since the stents tend to become obstructed. The study will examine whether photodynamic therapy will keep the affected duct open, allowing the stent to work better.

Surgery is still the "gold standard" treatment for bile-duct cancer, Kahaleh says. But surgery isn't always an option, such as when the cancer has spread to the liver or the vessels around the bile duct.

It is believed that photodynamic therapy works the same way for bile-duct cancer as it does for esophageal and lung cancer. Photofrin, a light-sensitive drug retained longer in cancer cells than healthy cells, is injected into the bile duct 48 to 72 hours before the procedure. Then, an endoscope with a laser fiber is inserted into the bile duct, causing a reaction that kills the cancer cells while preserving the healthy tissue.

Women who aren't pregnant and men 18 and older with nonresectable cholangiocarcinomas with adequate organ and marrow function are eligible.

To refer a patient for the bile-duct cancer trial, call UVA Physician Direct at 800-552-3723.