EC-PDT-ISI_MOA Script

0:00
Photodynamic therapy with Photofrin is an FDA approved treatment indicated for obstructing esophageal cancer and high-grade dysplasia in Barrett's esophagus.

0:11
There are three components of photodynamic therapy.

0:15
A 630 nanometer PDT laser Photofrin (porfimer sodium) for injection.

0:32
And an optic guide, fiber optic diffuser.

0:36
Laser treatment may be repeated up to 120 hours five days after injection if residual tumor remains.

0:44
PDT with Photofrin treats visible and non-visible tumor margins along with buried lesions.

0:51
Photofrin is selectively retained in tumor cells versus healthy tissue.

0:56
PDT may cause inflammation at the site of treatment.

0:59
Photosensitivity is experienced by patients in the eyes and skin, not for patients with an existing tracheoesophageal fistula.

1:08
Barrett's esophagus is the most common precancerous condition of the esophagus.

1:13
If left untreated, Barrett's can result in the formation of esophageal cancer.

1:19
Esophageal cancer begins when healthy cells in the esophagus change and grow out of control, forming a mass called a tumor or a lesion.

1:28
This formation may be visible and non-visible within the lumen during stage 1 of photodynamic therapy.

1:36
Photofrin is administered intravenously 2 milligrams per kilogram over the course of three to 5 minutes.

1:42
While cancerous and normal tissues both initially absorb Photofrin, the drug is subsequently selectively retained in the tumor cells while being flushed out of the adjacent healthy tissue.

1:54
Stage 2 of photodynamic therapy occurs 40 to 50 hours after photo for an injection.

2:00
To begin this process, an Opti Guide fiber optic diffuser is placed down the working channel of the endoscope.

2:07
The Opti Guide fiber optic diffuser is placed in or near the tumor and a non-thermal red light is delivered.

2:20
The selectivity of Photofrin allows it to self-target tumors that are partially or completely obstructing the esophagus as well as non-visible tumors that are buried deeper into the tissue.

2:32
The energy transfer generates reactive singlet oxygen which selectively destroys the cancer cells with up to a 6mm depth of ablation in a single direction or a diameter of up to 1.2cm.

2:50
This process triggers cancer cell apoptosis to begin.

2:53
The reactive oxygen species cause cell death.

3:07
Photodynamic therapy is proven to boost anti-tumor immunity and improves tumor cell immunogenicity, essentially training the body to attack the invading cancer.

3:22
Excited states of Photofrin (porfimer sodium) for injection cause vasoconstriction which leads to vascular occlusion and additional tumor cell death.

3:34
Following photodynamic therapy, debridement may be performed if residual tumor remains.

3:41
Additional laser applications may also be given up to 120 hours post infusion because the optic guide fiber optic diffuser provides a 360° area of treatment, diffuse circumferential disease is able to be easily treated with photodynamic therapy.