



FEP Medical Policy Manual

FEP 7.01.164 Hydrogel Spacer use During Radiotherapy for Prostate Cancer

Effective Policy Date: October 1, 2021

Original Policy Date: June 2019

Related Policies:

None

Hydrogel Spacer use During Radiotherapy for Prostate Cancer

Description

Description

For low- or intermediate-risk prostate cancer, radiation therapy is an option. Because the rectum lies in close proximity to the prostate, the risk of rectal toxicity is high.

Early localized prostate cancer can usually be treated with surgery and radiotherapy, although active surveillance may be adopted in men whose cancer is unlikely to cause major health problems during their lifespan or for whom the treatment might be dangerous. In patients with inoperable or metastatic disease, treatment consists of hormonal therapy and possibly chemotherapy. Treatment decisions are based on the anatomic extent of the lesion, the histologic grade from biopsy, and serum prostate-specific antigen level. Other factors in treatment decisions are expected outcomes, potential complications, other medical conditions, age, and comorbidities, and personal preferences. For patients with clinically localized low-risk cancer (no palpable tumor and prostate-specific antigen of 10 or less), active surveillance is an option. Definitive therapy with radical prostatectomy or radiation therapy (RT) with external beam and/or brachytherapy is also an option for low- or intermediate-risk disease. Dose escalation of RT improves cancer outcomes but also increases the risk of urinary or rectal toxicity. Image-guided RT and intensity-modulated RT may be used to limit margins and reduce toxicity, but because the rectum lies in close proximity to the prostate, the risk of rectal toxicity remains high. Hypofractionation that reduces the number of treatments, dose-escalation, and salvage RT protocols can be particularly prone to rectal toxicity.

One approach to the problem of rectal toxicity is to push the rectum away from the prostate, increasing the space between the 2 organs and reducing the radiation dose to the anterior rectal wall. A variety of biomaterials, including collagen, polyethylene glycol (PEG) hydrogels, and absorbable

balloons have been evaluated as a means to reduce rectal radiation exposure. The SpaceOAR System is the first PEG hydrogel that was cleared by the U.S. Food and Drug Administration (FDA) specifically for use during RT of the prostate. A polyethylene glycol hydrogel (SpaceOAR System) is injected between the prostate and rectum. The chemical composition of the SpaceOAR is similar to a PEG-based hydrogel that is FDA-approved as a dural sealant. Hydrodissection is achieved with saline between the retroprostatic (Denonvilliers') fascia and the anterior rectal wall using a transperineal approach. Once the needle placement is confirmed, 2 solutions in a 2-channel syringe are injected into the perirectal space. The hydrogel then polymerizes to form a soft mass. The hydrogel maintains the space for approximately 3 months, the duration of radiotherapy, and is completely absorbed by 12 months. The PEG hydrogel may be injected at the same time as the placement of fiducial markers in the prostate. The gel increases the space between the rectum and the prostate to about 12 mm. It maintains space for approximately 3 months and then is gradually absorbed and cleared.

OBJECTIVE

The objective of this evidence review is to determine whether the use of a perirectal hydrogel spacer in patients with prostate cancer who are undergoing external beam radiation therapy improves the net health outcome.

POLICY STATEMENT

Hydrogel spacer use during radiotherapy for prostate cancer is considered **investigational**.

Use of a hydrogel spacer for any other indication is **investigational**.

POLICY GUIDELINES

None

BENEFIT APPLICATION

Experimental or investigational procedures, treatments, drugs, or devices are not covered (See General Exclusion Section of brochure).

FDA REGULATORY STATUS

In October 2014, SpaceOAR™ (Augmenix, a subsidiary of Boston Scientific) was cleared by the U.S. Food and Drug Administration (FDA) through the De Novo process (DEN140030). SpaceOAR System is intended to temporarily position the anterior rectal wall away from the prostate during radiotherapy for prostate cancer and in creating this space it is the intent of SpaceOAR System to reduce the radiation dose delivered to the anterior rectum.

DuraSeal Exact (Integra) was approved by the FDA through the premarket approval process as a spine and cranial sealant (dura mater) and has been used off-label as a perirectal spacer.

RATIONALE

Summary of Evidence

For individuals who have prostate cancer and are undergoing radiation therapy who receive a hydrogel spacer, the evidence includes a pivotal randomized controlled trial (RCT) with a 3-year follow-up, observational studies, and systematic reviews of these studies. Relevant outcomes include symptoms, quality of life, and treatment-related morbidity. The combined evidence indicates that the hydrogel spacer can reduce the radiation dose to the rectum with a statistically significant decrease in Grade 1 or greater late toxicity and a number needed to treat (NNT) of 14.3. There were few events of greater than Grade 1 toxicity in either group, and the NNT for a reduction in clinically significant Grade 2 toxicity has been reported as 68. Patient-reported declines in rectal and urinary quality of life at 3 years were statistically lower in the spacer group and met the threshold for a clinically significant difference, although patients were not blinded to treatment at the longer-term follow-up. The NNT for late improvement in rectal and urinary quality of life was 6.3 to 6.7, respectively. Limitations to the study include the lack of blinding and the exclusion of patients who might be at greater risk of rectal toxicity. Evidence from observational studies is inconclusive but generally shows a decrease in radiation dose to the rectum with the insertion of a hydrogel spacer. However, the potential benefits of the hydrogel spacer must be balanced against the risks of an additional procedure. Additional study is needed to corroborate the findings of the pivotal RCT, to identify the factors that increase the risk of rectal toxicity, and to determine who is likely to benefit from the use of a spacer. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in "Supplemental Information" if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

National Comprehensive Cancer Network

The National Comprehensive Cancer Network guideline for prostate cancer (v2.2021) provides the following recommendation in principles of radiation therapy, "Overall, the panel believes that biocompatible and biodegradable perirectal spacer materials may be implanted between the prostate and rectum in patients undergoing external radiotherapy with organ-confined prostate cancer in order to displace the rectum from high radiation dose regions."²²

National Institute for Health and Care Excellence

In 2017, the National Institute for Health and Care Excellence (NICE) published guidance on the biodegradable spacer.²³ The NICE concluded that "current evidence on the safety and efficacy of insertion of a biodegradable spacer to reduce rectal toxicity during radiotherapy for prostate cancer is adequate to support the use of this procedure."

American Society of Clinical Oncology, the American Urological Association, and the American Society for Radiation Oncology

In 2018, the American Society of Clinical Oncology, the American Urological Association, and the American Society for Radiation Oncology published a joint guideline on hypofractionated radiation therapy for localized prostate cancer.²⁴ The guideline recommends that men be counseled about the small increased risk of acute gastrointestinal toxicity with hypofractionation. "Moderately fractionated EBRT has a similar risk of acute and late genitourinary and late GI toxicity compared with conventionally fractionated EBRT. However, physicians should discuss the limited follow-up beyond 5 years for most existing RCTs [randomized controlled trials] evaluating moderate hypofractionation." This was a strong recommendation based on high-quality evidence and 100% consensus.

American College of Radiology

American College of Radiology appropriateness criteria, last reviewed in 2016, for dose-volume constraints for the rectum with external beam radiotherapy are described in Table 1.

Table 1. Dose Constraints for the Rectum With External Beam Radiotherapy

| EBRT Dose-Volume | Dose | <15% | <25% | <35% | <50% |
|----------------------------|---------------------------------------|------|------|------|------|
| Conventional Fractionation | 1.8 Gy X 44 fractions (79.2 Gy total) | V75 | V70 | V65 | V60 |
| Hypofractionation | 2.5 Gy X 25 fractions (70 Gy total) | V74 | V69 | V64 | V59 |

EBRT: External beam radiotherapy; Gy: gray.

V100 = volume of structure (X%) receiving 100% of the dose

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

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POLICY HISTORY - THIS POLICY WAS APPROVED BY THE FEP® PHARMACY AND MEDICAL POLICY COMMITTEE ACCORDING TO THE HISTORY BELOW:

| Date | Action | Description |
|----------------|----------------|---|
| June 2019 | New policy | Policy created with literature review through October 31, 2018. Considered investigational. |
| March 2020 | Replace policy | Policy updated with literature review through November 24, 2019; references added. Policy statements unchanged. |
| March 2021 | Replace policy | Policy updated with literature review through November 25, 2020; references added. Policy statements unchanged. |
| September 2021 | Replace policy | Policy updated with literature review through May 12, 2021; references added. Policy statements unchanged. |

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