

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional procedures consultation document

Intravesical microwave hyperthermia and chemotherapy for superficial bladder cancer

This procedure is used for treating early-stage bladder cancer, before or after surgery. A tube (catheter) is inserted into the bladder through the urethra (the tube that carries urine out of the body from the bladder). Chemotherapy drugs are then passed through this tube into the bladder. The catheter also gives out microwaves that heat up the bladder wall. The aim is to improve the effect of chemotherapy on the cancer cells.

The National Institute for Health and Care Excellence (NICE) is looking at of intravesical microwave hyperthermia with intravesical chemotherapy for superficial bladder cancer. NICE's interventional procedures advisory committee has considered the evidence and the views of specialist advisers, who are consultants with knowledge of the procedure.

The committee has made draft recommendations and we now want to hear your views. The committee particularly welcomes:

- comments on the draft recommendations
- information about factual inaccuracies
- additional relevant evidence, with references if possible.

This is not our final guidance on this procedure. The recommendations may change after this consultation.

After consultation ends:

- The committee will meet again to consider the original evidence and its draft recommendations in the light of the consultation comments.
- The committee will prepare a second draft, which will be the basis for NICE's guidance on using the procedure in the NHS.

For further details, see the [Interventional Procedures Programme process guide](#).

Through our guidance, we are committed to promoting race and disability equality, equality between men and women, and to eliminating all forms of discrimination. One of the ways we do this is by trying to involve as wide a range of people and interest groups as possible in developing our interventional procedures guidance. In particular, we encourage people and organisations from groups who might not normally comment on our guidance to do so.

To help us promote equality through our guidance, please consider the following question:

Are there any issues that require special attention in light of NICE's duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations between people with a characteristic protected by the equalities legislation and others?

Please note that we reserve the right to summarise and edit comments received during consultations or not to publish them at all if in the reasonable opinion of NICE, there are a lot of comments, or if publishing the comments would be unlawful or otherwise inappropriate.

Closing date for comments: 24 May 2018

Target date for publication of guidance: August 2018

1 Draft recommendations

1.1 The evidence on the safety of intravesical microwave hyperthermia and chemotherapy for superficial bladder cancer shows there are well-recognised adverse events. Current evidence on its efficacy is limited in quality. Therefore, this procedure should only be used with special arrangements for clinical governance, consent, and audit or research.

1.2 Clinicians wishing to do intravesical microwave hyperthermia with intravesical chemotherapy for superficial bladder cancer should:

- Inform the clinical governance leads in their NHS trusts.
- Ensure that patients and their carers understand the uncertainty about the procedure's safety and efficacy, alternative treatments and provide them with clear written information. In addition, the use of NICE's [information for the public](#) *[[URL to be added at publication]]* is recommended.
- Audit and review clinical outcomes of all patients having intravesical microwave hyperthermia with intravesical chemotherapy for superficial bladder cancer. NICE has identified relevant audit criteria and is developing an audit tool (which is for use at local discretion), which will be available when the guidance is published.

- 1.3 Patient selection should be by a bladder cancer multidisciplinary team. The procedure should only be done in specialist centres by clinicians who have had supervised training in the procedure.
- 1.4 NICE encourages further research into intravesical microwave hyperthermia with intravesical chemotherapy for superficial bladder cancer. Research should include randomised controlled trials, which stratify patients by risk and give adequate follow-up. They should report frequency of adverse events, patient-reported outcome measures, overall and disease-free survival and quality of life.
- 1.5 NICE may review this procedure on publication of further evidence.

2 The condition, current treatments and procedure

The condition

- 2.1 Transitional cell carcinoma is the most common form of bladder cancer. Superficial transitional cell carcinoma (not invading the muscle layer) is classified as stage Ta when the tumour is confined to the uroepithelium with no spread into the wall of the bladder or beyond. It is classified as stage T1 when there is spread into the connective tissue layer between the urothelium and the muscle wall. Superficial transitional cell carcinomas can be graded from G1 (low grade, least aggressive) to G3 (high grade, most aggressive). Carcinoma in situ is a form of tumour consisting of aggressive cancer cells which spread within the surface lining of the bladder.

Current treatments

- 2.2 Surgical interventions for superficial transitional cell carcinoma include transurethral resection, in which malignant tissue is removed with an electrocautery device during cystoscopy. Bacillus Calmette-Guérin (BCG) vaccine or chemotherapy drugs may be put directly into the bladder, either as a treatment in itself, or as adjuvant therapy after transurethral resection. Cystectomy may also be necessary in some patients.

The procedure

- 2.3 Intravesical hyperthermia combined with intravesical chemotherapy can be used as neoadjuvant therapy before transurethral resection, with the aim of eradicating tumours. Alternatively the procedure can be used after transurethral resection, as adjuvant therapy

(sometimes referred to as prophylactic treatment), aiming to prevent recurrence. Hyperthermia is believed to have a direct and immune-mediated cytotoxic effect on tumour cells and to improve the efficacy of chemotherapy drugs.

- 2.4 The procedure can be done on an outpatient basis. Using local anaesthetic urethral gel, a balloon catheter (containing an antenna and several insulated thermocouples), is inserted through the urethra into the bladder. Ultrasound is sometimes used to assess the position of the device. The antenna gives off microwaves which heat the superficial layers of the bladder wall. The thermocouples are spread out from the catheter and pushed against the bladder lining. They monitor temperature to help prevent overheating. A solution of a cytostatic agent, usually mitomycin C, is instilled into the bladder, between the bladder wall and the balloon surface. The solution is continuously pumped out of the bladder, cooled, and recirculated to prevent overheating. Treatment sessions typically last between 40 minutes and 60 minutes and are usually repeated weekly for 4 to 8 weeks, or longer for adjuvant treatment.

3 Committee considerations

The evidence

- 3.1 To inform the committee, NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 7 sources, which was discussed by the committee. The evidence included 3 literature reviews, 2 randomised controlled trials (one of which resulted in 2 publications) and 1 case series, and is presented in table 2 of the

[interventional procedures overview](#). Other relevant literature is in the appendix of the overview.

- 3.2 The specialist advisers and the committee considered the key efficacy outcomes to be: quality of life, time to disease progression and progression free survival.
- 3.3 The specialist advisers and the committee considered the key safety outcomes to be: thermal bladder damage.
- 3.4 Patient commentary was sought but none was received.
- 3.5 This guidance is a review of NICE's interventional procedures guidance on [intravesical microwave hyperthermia with intravesical chemotherapy for superficial bladder cancer](#).

Committee comments

- 3.6 Superficial bladder cancer is increasingly being diagnosed in patients where alternative more invasive treatments such as cystectomy may not be considered clinically appropriate.
- 3.7 The mechanism of action of intravesical microwave hyperthermia with intravesical chemotherapy is unclear.
- 3.8 The committee noted that the available studies used different treatment protocols, comparators and outcomes. This made interpretation of the evidence difficult.
- 3.9 The technology may be useful when treatment with Bacillus Calmette-Guérin (BCG) vaccine has been unsuccessful or when the vaccine is not available.

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March 2018