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REVIEW

The Management of Patients Diagnosed with Incidental Prostate Cancer: Narrative Review

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Abstract: 5–14% of patients underwent surgery for benign prostate hyperplasia harboring prostate cancer (PCa) focus. The best management of incidental prostate cancer (iPCa) has been debated. The decision "treatment or no treatment" should be determined by predictors which accurately foretell PCa progression after transurethral resection of the prostate (TURP). The purpose of this study is to review the available data that can be useful in daily clinical judgment. Transrectal ultrasound prostate biopsy (TRUSBx) did not provide further Gleason score (GS) data in most patients diagnosed with iPCa. TRUSBX may be useful before active surveillance, but not in all following radical prostatectomy. The decision "treatment or no treatment" should be dependent on the expected chance of having residual cancer and clinical progression. Prostate-specific antigen (PSA) levels before and after TURP are good predictors of residual cancer after TURP. Pathological report of T0 is most likely seen in patients with low PSA density after TURP and indistinguishable lesion on multi-parametric magnetic resonance imaging. The decision "treatment vs no treatment" is judged by life expectancy, tumor characteristic in the pathology report of TURP sample and PSA level following TURP. Active surveillance should be contemplated in patients with iPCa who have both prostate-specific antigen density ≤0.08 after TURP and indistinguishable cancer lesion on multiparametric magnetic resonance imaging. Patients who do not meet the criteria for active surveillance are candidates for radical prostatectomy or radiotherapy (RT). Radical prostatectomy could be peacefully done after TURP with somewhat greater morbidity. RT in patients who had a history of TURP could be safely done and is associated with acceptable quality of life.

Keywords: incidental prostate cancer, prostate cancer, transurethral resection of the prostate, TURP

Introduction

Transurethral resection of the prostate (TURP) is the best option for benign prostatic hyperplasia surgery.[1] The rate of iPCa between patients undergoing TURP without prior diagnosis is between 5% and 14%.[2–5]

According to the percentage of cancerous tissue resected after TURP, iPCa can be subclassified as clinical stage T1a or T1b.[6] Although most of the incidental prostate cancers are found clinically insignificant, recent studies have proposed that in some of them, the clinical course becomes aggressive.[7,8]

The best management of iPCa has been questioned for decades.[9,10] Active surveillance (AS) for every patient with incidental T1 PCa after TURP is not acceptable. The decision "treatment or no treatment" should be chosen by predictors that accurately predict PCa progression after TURP.[11] Radical prostatectomy (RP) after previous

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TURP can be technically challenging.[12,13] It is difficult to recognize those patients at high risk of cancer progression and subsequently need treatment.

In this study, we review other studies to figure out how to manage patients with iPCa after TURP.

Method

We searched the PubMed database from 1980 to 2019 using the following key words: incidental, prostate cancer, TURP. This was done in order to ensure the comprehensive inclusion of articles related to all incidental prostate cancer. The initial search resulted in 182 articles. Special emphasis was given to relevant articles reporting the management and outcomes of incidental prostate cancer (T1a or T1b). All English papers were included and non-English papers were excluded. According to the predefined inclusion and exclusion criteria, 155 articles were excluded. References from the included studies were manually retrieved to identify additional studies of interest.

Definition and Epidemiology

iPCa is described as a tumor diagnosed incidentally after surgery for benign prostate hyperplasia (without previous suspicion of PCa) or found after autopsy or detected incidentally after radical cystoprostatectomy for bladder cancer.[14]

Regarding pathology report, incidental PCa after TURP is divided into two groups (clinical T1a or T1b) dependent on the percentage of tumor in the specimen: <5% vs >5%, respectively.[6,15–17] Some study reported cut-off point of 3.8 ng/mL for PSA level to detect iPCa.[18]

Can We Predict the Possibility of Having Residual Cancer and Clinical Progression?

The decision "treatment or no treatment" should be dependent on the expected chance of having residual cancer and clinical progression.[12] Melchior et al[11] found many patients with incidental carcinoma of prostate after TURP will harbor either no residual cancer or tumors with favorable features in their RP specimens. But, at this time there is no chance to exactly foresee the absence of aggressive PCa after TURP. This dilemma of overtreatment for cancer incidentally detected following TURP versus no treatment with the possibility of tumor progression should be discussed with the patient.

Most urologists recommend transrectal ultrasound-guided needle biopsy (TRUSBx) when iPCa found after TURP to provide better assessment of residual cancer and tumor grade[2,19] but Lee et al demonstrated that TRUSBx did not provide further Gleason score (GS) data in 86% of patients. They conclude TRUSBX may be useful before AS, but not in all following RP.[19,20]

PSA levels before and after TURP are good predictors of residual cancer after TURP.[21] Umberto Capitation categorized patients into three groups based on the chance of having residual disease at RP and showed that patients with PSA after Surgery for Benign Prostate Hyperplasia (SxBPH) >1.0 ng/mL have the least probability of having T0 but patients with PSA after SxBPH <1.0 ng/mL and PSA before SxBPH <2.0 ng/mL have the highest probability of having residual cancer.[12]

Descazeaud et al[22] demonstrated that patients with iPCa after TURP who have two or more adverse following factors were significantly accompanied with cancer progression: preoperative PSA> or =10 ng/mL, postoperative PSA> or =2 ng/mL, prostate weight > or =60 g, weight of resected tissue > or =40 g, and Gleason score> or =6.

Patients who have low prostate-specific antigen density after TURP and undistinguishable lesion on multiparametric magnetic resonance imaging have the least risk of having residual cancer and should be considered for AS.[23]

PSA before and after TURP and Gleason scores were independent predictors of residual cancer at RP but Stage (T1a vs T1b) but did not predict residual cancer.[12]

Cantrell et al[24] reported that GS is a significant factor to predict clinical progression during follow-up. However, other studies showed that GS is not a good predictor for pathological outcomes after RP or clinical progression.[25,26]

Higher preoperative PSA seemed to be a predictor of iPCa after holmium laser enucleation of the prostate (HoLEP).[27,28] Diabetes may be a key factor to predict the presence of high-risk PCa in men who have undergone HoLEP.[29]

Treatments

Sebastian et al proposed an individualized approach to counsel the patient who had diagnosed with iPCa after TURP, the decision "treatment vs AS" is judged by patient's age, life expectancy, tumor characteristic in the pathology report of TURP sample and PSA level following TURP.[11]

1 – AS: should be contemplated for well-differentiated cancers in patients with limited life expectancy and low PSA levels following TURP but a low percentage of patients (up to 21%) may be at hazard for cancer progression.[22]

Patients with iPCa who have both PSA-density ≤0.08 after TURP and indistinguishable cancer lesion on

multiparametric magnetic resonance imaging seem to be considered for AS.[23]

Patients in whom PSA before surgery is less than 2 ng/mL and PSA after surgery is less than 1 ng/mL, the probability of being T0 is high[12] so AS can be proposed to this group.

According to EAU guideline AS or watchful waiting is the best option for patients with T1 PCa if GS is 6 or less and the life expectancy of the patient is less than 10 years.[30] Liu Z et al showed that the clinical result of iPCa was pleasing with the initial treatment of watchful waiting in the Chinese population.[31]

2 – RP: According to EAU guideline RP is the best option for cases with T1b cancer and a life expectancy of more than 10 years.[30] According to AUA guideline AS, brachytherapy, external beam radiotherapy, and RP are suitable options for low-risk PCa.[32]

Colombo et al demonstrated that RP could be peacefully performed after TURP with somewhat greater morbidity.[13]

RP should be recommended in patients with a long life expectancy, poorly differentiated tumors or high PSA levels after TURP.[33,34] RP provides ten-year biochemical-free survival rates as high as 79–98% and 74–88% in T1a and T1b cases, respectively.[12,35,36,37]

Matanhelia et al showed that curative treatments need to be considered for younger cases with a long life expectancy or patients with higher-risk disease.[33]

Paul et al[38] studied 52 cases with iPCa after TURP undergoing RP and showed that TURP is not an adverse predictive factor and morbidity is similar to patients who were detected by needle biopsy. Gacci et al[39] showed that Men who treated with TURP before RP presented an overall incidence of positive surgical margin (PSM) similar to those without previous TURP. However, several studies reported higher PSM rates (21.8–34.2%) in patients who underwent latent-RP (LRP) after TURP.[40,41] Katz et al noted PSM in 12 of 35 patients who underwent LRP after previous TURP[41] Jaffe et al[40] reported a greater overall PSM rate after TURP.

Yang et al[42] showed that LRP is a possible but difficult procedure following TURP. LRP necessitates longer operating times, greater blood loss, higher complication rates and worse short-term continence outcomes.[42] However, controversies occur about the influence of a laparoscopic approach on functional results. Menard et al[43] showed that laparoscopic RP is accompanied with compromised erectile function but the urinary continence rate was not troubled. In contrast, Teber et al[44] reported that the interval to total continence was deferred, with no influence on potency rates. No high level of evidence is about long-term oncologic and functional results after robot-assisted RP.

Previous TURP distorts the proper surgical plane, which increases the difficulties of later procedures. Elder et al[45] recommended doing surgery either during the first month after TURP or to wait until 4 months after TURP to achieve a satisfactory functional and oncological prognosis for patients with PCa. Zugor et al[46] proposed a time interval between TURP and RP of at least 3 months.

3 – RT: External radiotherapy is an appropriate treatment option in patient with prior history of surgical treatment for BPH and is accompanied with acceptable quality of life. The incidence of severe long-term urinary toxicities is similar to those without a history of TURP.[47] Devisetty et al reported severe GU toxicity in patients who underwent external beam radiotherapy (EBRT) after TURP, but toxicity tends not to persist.[48]

Mélanie Guilhen et al[47] reported External RT is a good option without a major hazard for urinary toxicity in a patient with a history of previous TURP. Lee et al[49] demonstrated that late urinary incontinence occurs in 2% vs 0.2% of patients after RT with or without a history of TURP, respectively. Perez et al[50,51] reported that a non-significant increase in the incontinence rate occurs. Sandhu et al[52] did not find any difference in terms of severe long-term urinary toxicity in patients treated by Three Dimensional (3D) Conformal Radiation Therapy 3DRT or Intensity Modulated Radiotherapy (IMRT) with or without a history of TURP (10 vs 9%). In a systematic review of the literature, four out of 13 studies reported a significantly higher incontinence rate in patients with history of TURP compared to patients without history of TURP. Acute severe urinary toxicity, longer follow-up time, and stage ≥T3 were shown as adverse parameters for incontinence.[53] Late urinary toxicity rate was diminished in patients treated by modern irradiation techniques such as IMRT.[47] Zapatero et al[54] demonstrated that late urinary complications with high-dose IMRT compared with 3DCRT were lower despite higher radiation dose (80.7 Gy vs 78.7 Gy, $p<0.001$).

Chevli et al[55] reported that prostate volume does not seem to be a good predictor of RT toxicity in patients with or without TURP. Polland et al[56] showed that older age or pre-TURP urinary urgency seems to be an indicator of post-TURP incontinence in patients who underwent brachytherapy or EBRT for PCa.

Conclusion

The decision "treatment vs no treatment" is judged by life expectancy, tumor characteristic in the pathology report of

TURP sample and PSA level following TURP. Active surveillance should be contemplated in patients with iPCa who have both prostate-specific antigen density ≤0.08 after TURP and indistinguishable cancer lesion on multiparametric magnetic resonance imaging. Patients who do not meet the criteria for active surveillance are candidates for radical prostatectomy or radiotherapy (RT). Radical prostatectomy could be peacefully done after TURP with somewhat greater morbidity. RT in patients who had history of TURP could be safely done and is associated with acceptable quality of life.

Disclosure

The authors report no conflicts of interest in this work.

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