Current evidence for focal therapy and partial gland ablation for organ-confined prostate cancer: systematic review of literature published in the last 2 years

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Purpose of review
The shift in the diagnostic algorithm for prostate cancer to early imaging with mpMRI has resulted in many patients being diagnosed with small volume, apparently unilateral, clinically significant cancers. In these patients, a minimally invasive, nonmorbid intervention is appealing. The aim of this study was to review data reported within the last 2 years on focal therapy and partial gland ablation for organ-confined prostate cancer.

Recent findings
High-intensity focal ultrasound, focal cryotherapy, photodynamic therapy, irreversible electroporation and focal laser ablation, have been used as treatment modalities for localized prostate cancer treatment. The reported oncologic outcomes vary widely and makes comparisons challenging. All the focal therapies report low rates of complications, and high rates of continence and erectile function preservation. The most common adverse events are hematuria, urinary retention and urinary tract infections. During this period, the initial results of several new technologies including MRI-guided transurethral ultrasound ablation were published.

Summary
Focal therapy and partial gland ablation for organ-confined prostate cancer is an option for patients with intermediate-risk disease because of its low complication profile and preservation of QOL. Trials comparing the outcome of different focal therapy technologies have not been carried out, and the existing evidence does not point to one approach being clearly superior to others. Long-term oncologic outcome is lacking. Despite this, for men with unilateral intermediate-risk prostate cancer whose disease is often relatively indolent, focal therapy is an appealing option.

Keywords
focal cryotherapy, focal laser ablation, focal therapy, high-intensity focused ultrasound, irreversible electroporation, MRI-guided transurethral ultrasound ablation, photodynamic therapy, review

INTRODUCTION

It is estimated that, in the United States, 191 930 men will be diagnosed with prostate cancer (PCa), and 33 300 will die of the disease [1]. Prostate-specific antigen (PSA) screening led to a rapid increase in the detection of clinically localized prostate cancer. More appropriate use of PSA for early detection of clinically significant prostate cancer and widespread adoption of active surveillance has decreased the risk of overdetection and overtreatment [2,3].

The shift in the diagnostic algorithm for prostate cancer to early imaging with mpMRI [4▪▪] has resulted in many patients being diagnosed with small volume, apparently unilateral, clinically significant cancers. In these patients, a minimally invasive, nonmorbid intervention is appealing.

The standard treatment for clinically significant cancer is either radical prostatectomy or radiation

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KEY POINTS

- The increased reliance on MR imaging prior to or following biopsy has resulted in an increase in men diagnosed with apparently unilateral solitary clinically significant prostate cancer.
- In these men, a focal approach, analogous to lumpectomy for localized breast cancer, results in improved functional outcome and quality of life compared with radical whole gland treatment.
- The comparative effectiveness of the multiple techniques for administering focal therapy is unknown, and oncologic results vary widely, making comparisons difficult.
- Which therapy will prove to be superior will be a function of precision of the treatment modality and a combination of efficacy, efficiency, cost and complexity.
- Ultimately several modalities with comparable outcomes and differing trade-offs may co-exist.

therapy. These treatments provide excellent disease control but have associated quality of life effects [5,6].

Focal therapy and partial gland ablation (PGA) are based on the concept that the index lesion is the driver for metastatic disease [7]. It is targeted in the effort to eliminate potentially aggressive cancers while preserving tissue. It aims to preserve function and minimize treatment toxicity while achieving a similar oncological outcome to whole gland therapy. The term focal therapy is meant to describe guided ablation of an image-defined, biopsy-confirmed, cancerous lesion with a safety margin surrounding the targeted lesion. PGA implies a broader zone of therapy, relying on anatomic boundaries as well as lesion targeting. The intent of both is similar; to preserve organ function while achieving complete tumor treatment [8▪].

Many different energy sources can be utilized for focal therapy and PGA. This include high-intensity focused ultrasound (HIFU), MRI-guided transurethral ultrasound ablation (TULSA), cryotherapy, vascular-targeted photodynamic therapy (VTP), irreversible electroporation (IRE) and focal laser ablation (FLA). The prostate can be accessed for ablation via both a transrectal, transperineal, or transurethral approach.

The following is a brief summary of the available technologies for focal therapy. HIFU uses multiples bursts of ultrasound energy delivered through a transrectal probe guided by mpMRI and transrectal ultrasound. The absorption of energy by tissue is results in heating and cavitation leading to coagulative necrosis and tissue destruction. It was initially used as an alternative for radical treatments with whole-gland ablation and recently has been used as focal therapy [9].

TULSA is planned and delivered under real-time MRI visualization and closed loop MRI thermometry feedback and guidance. It utilizes high-intensity directional ultrasound, which has a distinct pattern of thermal dose and temperature deposition. The use of real-time thermometry mapping allows for more accurate monitoring of tissue injury [10].

Cryotherapy was initially developed for whole gland ablation and recently has been adopted for focal therapy [11]. This technique ablates prostate tissue through rapidly freezing optimally below −40°C followed by slow thawing in repetitive cycles, causing cellular rupture and death [12]. Needles are placed into the prostate via a transperineal approach. Monitoring probes are used to ensure thermal control, and a urethral warming catheter is used during the procedure to avoid urethral damage.

VTP uses three components to cause focal cellular damage and death. A chemical photosensitizer is administered that is taken up selectively by epithelial cells (e.g. WST11 Tookad Soluble). Then visible light activates the photosensitizer to release free oxygen radicals [13].

IRE uses pulses of direct current electricity to cause tissue ablation. Electrodes are placed in the prostate transperineally under ultrasound or MRI guidance, and short pulses of direct current electricity are applied in the treatment zone [14].

FLA is performed by inserting small laser fibres into the tumor via a transperineal or transrectal approach. Thermal energy discharged through the laser fibre rapidly heats the lesion, creating a homogenous, spherical area of coagulative necrosis with well defined borders [15].

In this review, we summarize published data from the last 2 years regarding focal therapy and PGA for localized prostate cancer.

MATERIALS AND METHODS

We performed a systematic review of the last 2 years of the current evidence in focal therapy for localized PCa. We included randomized clinical trials, prospective clinical trials, retrospective cohorts in English that presented data of patients with localized PCa treated with one of the following focal therapy interventions: HIFU, MRI-guided transurethral ultrasound ablation TULSA, cryotherapy, VTP, IRE and FLA. Congress abstracts, correspondences, nonhuman studies, study protocols, reviews and case reports were excluded.

The primary outcome was oncological outcome. Secondary outcomes included complication rates and functional outcomes (incontinence and erectile disfunction). We also describe study characteristics (study design, energy applied, preablation Gleason scores, follow-up, postablation biopsy rate and failure criteria).

The search strategy in Medline database included the terms: (((Focal therapy) OR (Focal ablation)) AND (Prostate cancer)) AND (('2018/07/01'[Date - Publication]: '2020/07/01'[Date – Publication])).

Data management, extraction and analysis, was performed by P.K. and L.K. using Review Manager (RevMan) 5.4 [3].

RESULTS

Figure 1 shows the PRISMA study flow diagram. To evaluate the primary outcome analysis, we included the following: focal HIFU (n = 12; 2505 patients) [16,17▪,18,19▪,20–27], TULSA (n = 3; 130 patients) [28,29,30▪], cryotherapy (n = 3; 299 patients) [31–33], VTP (n = 1; 68 patients) [34], IRE (n = 6; 722 patients) [35–40], FLA (n = 3; 184 patients) [41–43]. Qualitative analysis of the secondary outcomes were made in focal HIFU (n = 10) [16,17▪,19▪,20,21,23,25–27,44], TULSA (n = 4) [28,29,30▪,45], cryotherapy (n = 3) [31–33], VTP (n = 1) [34], IRE (n = 5) [35,36,38–40], FLA (n = 3) [41–43].

Characteristics of the studies

Table 1 describes the characteristics and oncologic outcomes of the studies. All studies were nonrandomized cohort studies, either retrospective or prospective. The number of patients in studies varied widely from 6 to 1032.

Focal ablation's primary role currently is in the management of intermediate-risk (GG2–3) PCa

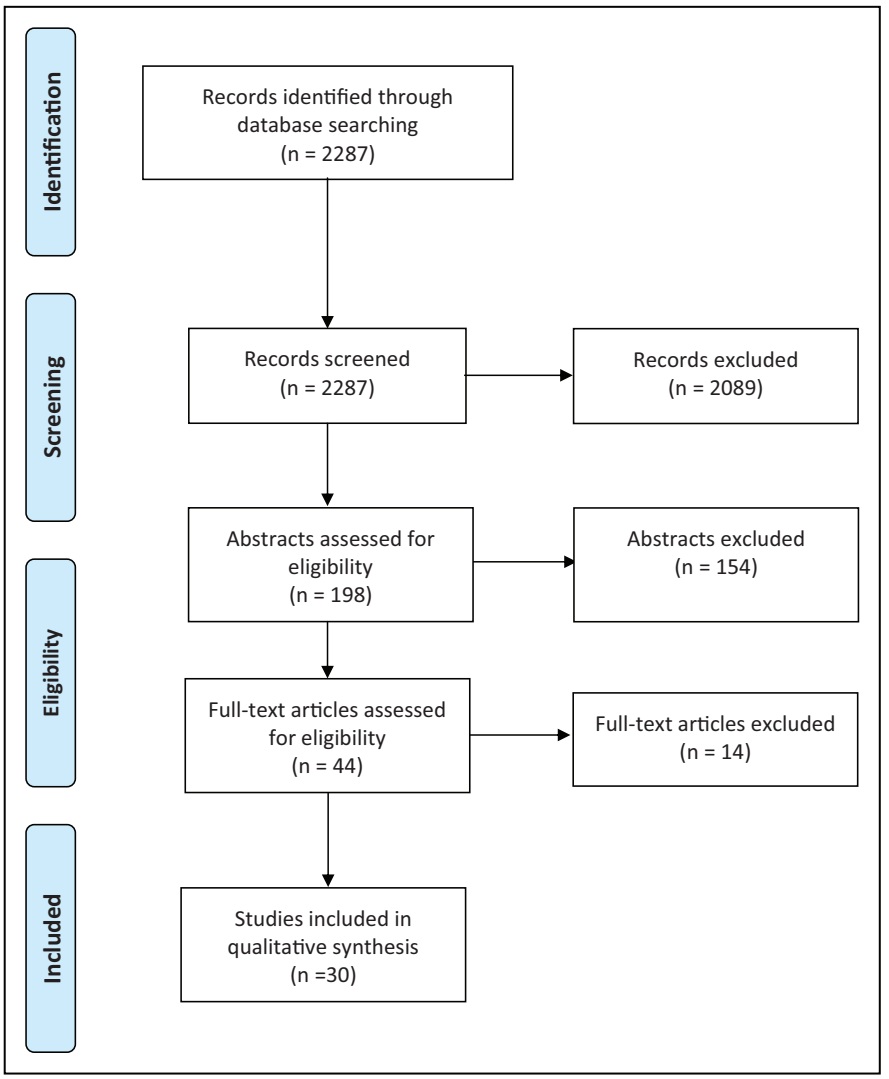

FIGURE 1. PRISMA study flow diagram.

Table 1. Oncologic outcomes of focal prostate ablation

Reference	Energy sources	Study design	*N*	Pre-ablation Gleason score	Follow-up	Postablation biopsy (%)	Failure criteria	In-field recurrence (%)	Out-of-field recurrence (%)	Freedom from csPCa biopsy	Freedom from radical treatment
Shoji *et al.* [16]	HIFU	Prospective cohort	90	6: 51% 3 + 4: 20% 4 + 3: 16% 4 + 4: 13%	6 months	100%	csPCa biopsy	–	8.90%		97%
Bass *et al.* [17▪]	HIFU	Retrospective cohort	150	6: 11.5% 3 + 4: 53.6% 4 + 3: 25.9% 4 + 4: 7.2% 4+5: 1.2%	24.3 months ± 14.4; mean ± SD	52.40%	csPCa biopsy	51.3%	43.2%	39.4%	75.40%
Stabile *et al.* [18]	HIFU	Retrospective cohort	1032	6: 20% 3 + 4: 63% 4 + 3: 15% 4 + 4: 1.6%	36 months (14–64); median (IQR)	41%	csPCa biopsy Retreatment Radical treatment	–	–	54%	46%
Rosenhammer *et al.* [19▪]	HIFU	Prospective cohort	21	6: 71.3% 3 + 4: 9.4% 4 + 3: 19.3%	11.7 months (8–15); median (IQR)	100%		19%	33%	95.20%	81%
Johnston *et al.* [20]	HIFU	Retrospective cohort	107	6: 30% 3 + 4: 55% 4 + 3: 13% 4 + 4: 0.9%	30 months (12–108); median (range)	63%	BCR (Stuttgart)	–	–	93%	88.79%
Tourinho-Barbosa *et al.* [21]	HIFU/ cryotherapy	Retrospective cohort	309	6: 72% 3 + 4: 27% 4 + 3: 1.3%	45 months; median	92%	csPCa biopsy Retreatment Radical treatment	65%	18%	78%	67%
Glybochko *et al.* [22]	HIFU	Retrospective cohort	35	–	12 months	100%	–	0%	11.40%	–	–
Mortezavi *et al.* [23]	HIFU	Prospective development cohort	75	6: 8% 3 + 4: 71% 4 + 3: 21%	6 months	91%	csPCa biopsy	21%	50%	59%	74.66%
Annoot *et al.* [24]	HIFU	Retrospective cohort	55	6: 44% 3 + 4: 43% 4 + 3: 11% 4 + 4: 2%	30 months (17–49); mean ± SD	100%	–	–	–	73%%	77.00%
Ghai *et al.* [25]	HIFU	Prospective development cohort	8	6: 75% 3 + 4: 25% 4 + 3: 25%	6 months	100%	–	50%	75%	87.50%	87.50%
Guillaumier *et al.* [26]	HIFU	Retrospective cohort	599	6: 28% 3 + 4: 55% 4 + 3: 14% ≥ 8: 2%	56 months (35–70); median (IQR)	37%	Radical treatment	6.70%	4.50%	–	88%
von Hardenberg *et al.* [27]	HIFU	Prospective development cohort	24	6=71% 3 + 4: 29%	18 months ± 5.8; mean ± SD	83%	In-field positive biopsies	17%	4.20%	79%	79%
Sundaram *et al.* [28]	TULSA	Prospective development cohort	9	6=33% 3 + 4: 67%	12 months	100%	csPCa biopsy	–	–	100.00%	–
Anttinen *et al.* [29]	TULSA	Prospective development cohort	6	6: 17% 3 + 4: 33% 4 + 3: 33% ≥ 8: 17%	3 weeks	100% (RALP)	In-field positive recurrence	0%	–	–	–
Klotz *et al.* [30▪]	TULSA	Prospective development cohort	115	6: 38% 3 + 4: 60% 4 + 3: 3%	12 months	97%		–	–	79%	93%
Sze *et al.* [31]	Cryotherapy	Retrospective cohort	17	6=71% 3 + 4: 29%	15 months (13–17); median (IQR)	59%	In-field positive recurrence	0%	12%	100%	100%
Oishi *et al.* [32]	Cryotherapy	Retrospective cohort	160	6: 24% 3 + 4: 34% 4 + 3: 28% > 8: 14%	40 months (20–59); median (IQR)	65%	BCR csPCa biopsy Radical treatment	–	–	70%	89%

Table 1 (*Continued*)

Reference	Energy sources	Study design	*N*	Pre-ablation Gleason score	Follow-up	Postablation biopsy (%)	Failure criteria	In-field recurrence (%)	Out-of-field recurrence (%)	Freedom from csPCa biopsy	Freedom from radical treatment
Shah *et al.* [33]	Cryotherapy	Prospective analysis	122	6: 10% 3 + 4: 73% 4 + 3: 16% 4 + 4: 1.6%	28 months (20–37); median (IQR)	24%	Radical treatment	10%	10%	84%	90%
Noweski *et al.* [34]	VTP	Prospective development cohort	68	6: 100%	42 months	98.50%	Any positive biopsy	25%	25%	90%	88%
Scheltema *et al.* [35]	IRE	Retrospective cohort	60	6: 13% 3 + 4: 67% 4 + 3: 17% 4 + 4 or higher: 3%	12 months	–	–	12%	–	–	87%
Giganti *et al.* [37]	IRE	Retrospective cohort	30	6: 23% 3 + 4: 67% 4 + 3: 10%	16 months (6–24); median (IQR)	17.00%	PI-RADS>3	–	–		
Collettini *et al.* [36]	IRE	Prospective development cohort	30	6: 23% 3 + 4: 77%	20 months (14–29); median (IQR)	93%	Retreatment Radical treatment	17%	7%	87%	83%
Guenther *et al.* [38]	IRE	Retrospective cohort	429	6: 10% 3+4: 52% 4 + 4 or higher: 26%	72 months		Local tu monthsr control or recurrence-free survival	6.00%	5%		–
Blazevski *et al.* [39]	IRE	Prospective development cohort	123	6: 9.8% 3 + 4: 72% 4 + 3: 19%	36 months (24–52)	83%	Radical treatment	9.80%	13%	78%	97%
Blazevski *et al.* [40]	IRE	Prospective cohort	50	6: 10% 3 + 4: 74% 4 + 3: 12% 4 + 4: 4%	44 months (30–60); median (IQR)	80%	csPCa biopsy Retreatment Radical treatment	2.50%	20%	78%	90%
Al-Hakeem *et al.* [41]	FLA	Prospective cohort	49	6: 26% 3 + 4: 59% 4 + 3: 14%	18 months	100%	csPCa biopsy	20%	18%	80%	86%
Walser *et al.* [42]	FLA	Prospective cohort	120	6: 31% 3 + 4: 47% 4 + 3: 23%	34 months (17– 55); mean (range)	36%	Retreatment	–	–	85%	98.00%
Rastinehad *et al.* [43]	FLA with gold nanoshell	Prospective development cohort	15	6: 40% 3 + 4: 47% 4 + 3: 13%	12 months	100%		7%	–	87.50%	–

FLA, focal laser ablation; HIFU, high-intensity focused ultrasound; IQR, interquartile range; IRE, irreversible electroporation; TULSA, transurethral ultrasound ablation; VTP, vascular-targeted photodynamic therapy.

[46]. Amongst GG1 patients, focal therapy may have a role for very selected men diagnosed with large-volume low-grade cancer at a young age, or those who adamantly refuse to accept conservative management. All studies included low-risk and intermediate-risk PCa, and only the VTP study [34] applied focal therapy solely for low-risk patient. The use of focal therapy for a small-volume high-grade cancer (GG 4 or 5) may be attractive for some patients anxious to avoid radical treatment. The limitation is that patients with high-grade cancer are more likely to harbor multifocal high-grade cancers elsewhere in the prostate, and if untreated these may lead to metastatic disease [47]. Given the current state of the art, and the limitations in identifying small high-grade co-existent cancers, the role for focal treatment in this setting is minimal. Most studies included only a small amount of high-risk PCa ranging from 1.6 to 26%. An exception is the Guenther study of IRE where 26% of the cohort was high risk.

Surveillance after focal therapy

Lebastchi *et al.* [8▪] described an international multidisciplinary consensus about nomenclature and surveillance methodologies after focal therapy. PSA monitoring is recommended but alone is insufficient to determine oncological success. The use of imaging follow-up is recommended and multiparametric MRI is the preferred image modality [48] but this is an evolving field and alternative modalities may prove beneficial [49▪]. The first image-guided target and systematic biopsy should be obtained within the first year after focal therapy to assess in-field and out-of-field disease. In this review, the range of postablation biopsy ranged from 17 to 100%, showing that many groups are not complying with current recommendations.

The definition of success and failure of focal therapy is controversial. A key distinction is the difference between the success of the strategy of focal therapy (durable disease control and absence of requirement for further treatment) and the success of the technical intervention (negative biopsy in the treatment zone). Thus, recurrence of significant cancer (GG >2) outside the treatment zone may be considered a failure of the strategy but not of the technique itself. As shown in Table 1, most authors defined failure as the presence of csPCa and/or need for retreatment or radical treatment. This broad definition of failure means that the failure rate may overstate the limitations of the treatment. For example, some centres have a treatment approach that mandates several rounds of treatment. A patient with csPCa who has residual disease after an initial treatment and no disease after the second round of focal therapy is not a 'failure' in the traditional sense. Most would view this as success.

Oncologic outcomes

In Table 1, we also described the oncologic outcomes of the recent published data.

HIFU-treated patients presented with in-field recurrence ranging from 0 to 65% and out-of-field from 4.2 to 75%. Classification of recurrence was different between studies (i.e. any cancer or only csPCa). Cryotherapy-treated patients presented with in-field and out-of-field recurrence ranging from 0 to 10% and 10 to 12%, respectively. The only VTP study presented 25% of in-field and the same 25% out-of-field recurrence. IRE-treated patients presented with in-field and out-of-field recurrence ranging from 2.5 to 17% and 5 to 20%, respectively. FLA-treated patients presented with in-field recurrence ranging from 7 to 20% and out-of-field of 18%. There is no recent study directly comparing the oncologic outcomes between energy sources. Therefore, no firm conclusion can be drawn between differences in the rates of recurrence for each energy source.

Table 1 also reports freedom from csPCa biopsy and freedom from radical treatment at the time of follow-up. The majority of studies presented data regarding these two outcomes.

HIFU freedom from csPCA biopsy rate ranged from 39.4 to 95.2% and freedom from radical treatment ranged from 46 to 97%.

TULSA freedom from csPCA biopsy rate and freedom from radical treatment ranged from 79 to 100 and 93%, respectively. Cryotherapy freedom from csPCA biopsy rate and freedom from radical treatment ranged from 70 to 100 and 89 to 100%, respectively. The only VTP study freedom from csPCA biopsy rate and freedom from radical treatment was 90 and 88%, respectively. IRE freedom from csPCA biopsy rate and freedom from radical treatment ranged from 78 to 87 and 83 to 97%, respectively. Finally, FLA freedom from csPCA biopsy rate and freedom from radical treatment ranged from 80 to 87.5% and 86 to 98%, respectively.

Complications and function outcomes

In Table 2, we present the complication rates and functional outcomes. For all sources of energy, the rate of severe complications was low. Clavien–Dindo above 2 rates ranged from 0 to 10%. No Clavien–Dindo above 3 was reported. HIFU studies reported UTI, hematuria, retention and fistula rates

Table 2. Complication rates and functional outcomes

Reference	Energy sources	Follow-up	No complications	Clavien± Dindo ≤2	Clavien± Dindo >2	Incontinence	Erectile dysfunction	UTI	Fistula	Retention	Hematuria
Shoji *et al.* [16]	HIFU	6 months	–	1.10%	6.60%	0	86	–	0	–	–
Schmid *et al.* [44]	HIFU		64.20%	35.70%	–	–	–	15%	–	24%	–
Bass *et al.* [17▪]	HIFU	24.3 months ± 14.4; mean ± SD	66.70%	31%	2.60%	1.40%	13.50%	–	2.6%	13%	–
Rosenhammer *et al.* [19▪]	HIFU	11.7 months(8–15); median (IQR)	–	–	4.80%	–	–	–	0%	14%	0%
Johnston *et al.* [20]	HIFU	30 months (12–108); median (range)	–	–	2.80%	1%	14%	–	–	–	–
Tourinho-Barbosa *et al.* [21]	HIFU/cryotherapy	45 months; median	–	–	–	7%	–	–	0.3%	0.6%	–
Mortezavi *et al.* [23]	HIFU	6 months	–	–	–	2%	31.10%	–	–	–	–
Ghai *et al.* [25]	HIFU	6 months	87.5	12.5	0.00%	0%	–	12.5%	–	–	–
Guillaumier *et al.* [26]	HIFU	56 months (35–70); median (IQR)	79%	10.40%	10.00%	0%	–	8.5%	0.3%	–	–
von Hardenberg *et al.* [27]	HIFU	18 months ± 5.8; mean ± SD	50%	42%	4.20%	4%	20%	17%	–	13%	8%
Anttinen *et al.* [29]	TULSA	3 weeks	100%	–	–	0%	0%	–	–	–	–
Hatiboglu *et al.* [45]	TULSA	6 months	20.68%	72.41%	6.80%	–	62%	55%	0	27.5%	17%
Sundaram *et al.* [28]	TULSA	12 months	–	–	–	11%	0%	–	0	–	–
Klotz *et al.* [30▪]	TULSA	12 months	–	–	8%	3%	23%	29%	0%	9%	37%
Sze *et al.* [31]	Cryotherapy	15 months (13–17); median (IQR)	0%	–	–	0%	–	–	–	–	–
Oishi *et al.* [32]	Cryotherapy	40 months (20–59); median (IQR)	52%	43.10%	4.90%	3%	27%	–	–	–	–
Shah *et al.* [33]	Cryotherapy	28 months (20–37); median (IQR)	72%	26.40%	1.60%	0%	16.10%	9%	0%	4.1%	–
Noweski *et al.* [34]	VTP	42 months	52%	95.00%	5.00%	–	16%	3%	–	–	2%
Scheltema *et al.* [35]	IRE	12 months	–	–	–	0%	32%	–	–	–	–
Collettini *et al.* [36]	IRE	20 months (14–29); median (IQR)	80%	–	3.30%	3%	4%	–	–	–	–
Guenther *et al.* [38]	IRE		–	23%	1.40%	0%	11.30%	2.5%	0.2%	10%	3.8%
Blazevski *et al.* [39]	IRE	36 months (24–52); mean (range)	69%	31%	0.00%	6.70%	7%	–	–	–	–
Blazevski *et al.* [40]	IRE		–	38%	0.00%	5%	6%	–	–	–	–
Al-Hakeem *et al.* [41]	FLA	18 months	–	–	0%	0%	18.40%	0	0	10%	29%
Walser *et al.* [42]	FLA	34 months (17– 55); mean (range)	87%	–	0.80%	–	8%	4.1%	1.7%	4.9%	8.2%
Rastinehad *et al,* [43]	FLA with gold nanoshell	12 months	–	100%	0.00%	–	–	–	–	27%	100

FLA, focal laser ablation; HIFU, high-intensity focused ultrasound; IQR, interquartile range; IRE, irreversible electroporation; TULSA, transurethral ultrasound ablation; VTP, vascular-targeted photodynamic therapy.

ranging from 8.5 to 17, 0 to 8, 0.6 to 24 and 0 to 2.6%. TULSA studies presented UTI, hematuria, retention and fistula rates ranging from 29 to 55, 17 to 37, 9 to 27.5 and 0%. Only one cryotherapy study [33] presented details on complications. Reported rates of UTI, retention and fistula were 9, 4.1 and 0%. With VTP, the UTI and hematuria rates were 3 and 2%. One IRE study [38] presented details on its complications. UTI, hematuria, retention and fistula rates were 2.5, 3.8, 10 and 0.2%. FLA studies reported UTI, hematuria, retention and fistula rates ranging from 0 to 4.1, 8.2 to 100, 4.9 to 27 and 0 to 1.7%. Incontinence rates in all treatment modalities ranging from 0 to 11%. Erectile dysfunction rates varied widely, from 0 to 86%.

CONCLUSION

Multiple energy sources are now available for focal therapy and PGA, and new techniques look promising. All of the described techniques are image-guided and facilitate avoidance of injury to the neurovascular bundle and rectal wall. Severe complications are rare. Long-term data regarding oncological outcomes is lacking.

The published data is of modest quality. Most are cohort studies and often retrospective. Comprehensive post-treatment biopsies are often not performed in most series. Recently published guidelines on nomenclature, selection of patients and follow-up should be incorporated into the management of men being treated with a focal therapy approach.

Direct comparative trials of different focal therapy technologies have not been carried out, and the existing data does not support identifying one technology above others as clearly superior. Ultimately, which therapy will prove to be superior will be a function of precision of the treatment modality and a combination of efficacy, efficiency, cost, and complexity. In the long run, given the challenges of demonstrating superiority in the management of early prostate cancer, several modalities with comparable outcomes and differing trade-offs may coexist.

Focal therapy and partial gland ablation for organ-confined prostate cancer is an appealing option for patients with unilateral intermediate-risk disease because of its low complication profile and preservation of QOL. Long-term oncologic outcome is lacking. Despite this, for these men, whose disease course is often relatively indolent, focal therapy is an appealing option.

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Conflicts of interest

There are no conflicts of interest.

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- ■■ of outstanding interest

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