

HBOT in radiation-induced cystitis and proctitis: Two-year follow-up of a prospective cohort study on patient-perceived quality of recovery

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Background

The urinary bladder and the rectum are two major organs commonly affected following radiation to the pelvic region. Urgency and frequent micturition and/or defecation, pain, discomfort and incontinence are common symptoms. The severity of symptoms often results in restrictions of the patient's lifestyle, leading to a drastic decrease in quality of life.

The use of hyperbaric oxygen treatment (HBOT) as a therapy modality of radiation-induced proctitis and cystitis is not new. Several studies have reported a positive effect of HBOT. Most studies have focused on hemorrhage and with a few exceptions, the studies are small, retrospective, lack control group and are not randomized.

Purpose

The objective of this prospective cohort study was to assess whether HBOT could reduce patient perceived symptoms of radiation-induced cystitis and proctitis, focusing on other symptoms than hemorrhage.

Method

39 patients were included in the original study [1]. They had all been treated for cancer with radiation therapy using external beam radiation. Patients with haematuria requiring blood transfusion were excluded.

We used Expanded Prostate Cancer Index Composite (EPIC) scores as a primary variable for evaluation. EPIC is a validated instrument used to evaluate patient function and symptoms after prostate cancer treatment. For homogeneity, and due to lack of other equivalent validated tools, patients were evaluated with EPIC regardless of cancer diagnosis. We used two of the subsets in EPIC: bowel and urinary.

The HBOT was delivered with 100% oxygen for 90 minutes at 200-240 kPa. Mean number of treatments was 36 (28-40). Symptoms were prospectively assessed using EPIC before, directly after, 12 and 24 months after HBOT.

Number of patients	39
Age	71 (35-84)
Male	35
Female	4
Prostate cancer	34
Rectal cancer	3
Cervix cancer	2
Time from symptoms to HBOT (months)	60 (13-248)
Time from radiation to symptoms (months)	16 (0-120)

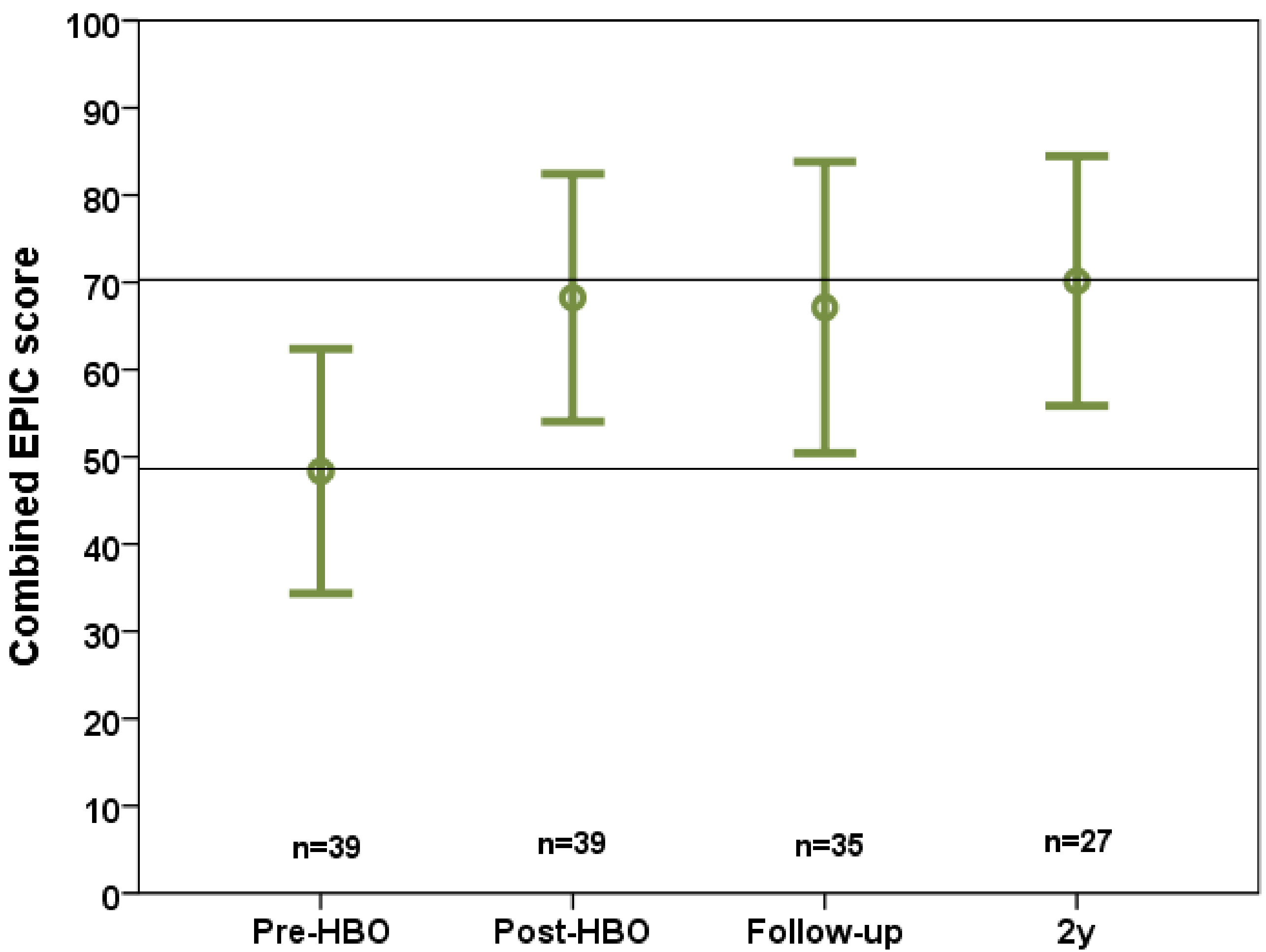
Results

The original symptom reduction, demonstrated by an increase in EPIC score, was sustained at the two-year follow-up. Seven patients were lost to follow-up (five patients had deceased of causes not related to HBOT and two were unreachable). Five patients deteriorated to such a degree that they required surgical intervention with stoma (n=3) and/or urinal deviation (n=3).

Symptoms were alleviated in 76% (cystitis), 89% (proctitis), and 88% (combined).

EPIC score increased in the urinary domain from 50 ± 16 to 66 ± 20 after treatment ($P < .001$) and 70 ± 18 after 2 years.

EPIC score increased in the bowel domain from 48 ± 18 to 68 ± 18 after treatment ($P < .001$) and 70 ± 16 after 2 years.



Conclusions

In this prospective cohort study, the effects of HBOT on patient-perceived symptoms of late radiation-induced cystitis and proctitis were assessed. In the majority (> 75%) of patients, HBOT alleviated symptoms, an improvement which was sustained for at least 24 months. 20-30% of the patients reported only trivial symptoms after HBOT.

Take home message

HBOT remains a promising treatment alternative for post-radiation proctitis and cystitis even with other symptoms than bleeding.

A randomized, controlled multi-center study is currently recruiting patients, RICH-ART.

1. Hyperbaric Oxygen Treatment in Radiation-Induced Cystitis and Proctitis: A Prospective Cohort Study on Patient-Perceived Quality of Recovery, Nicklas Oscarsson et al. Int J Radiation Oncol Biol Phys, Vol. 87, No. 4, pp. 670-675, 2013

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