World Journal of Clinical Oncology

Submit a Manuscript: https://www.f6publishing.com

World J Clin Oncol 2025 October 24; 16(10): 109247

DOI: 10.5306/wjco.v16.i10.109247

ISSN 2218-4333 (online)

MINIREVIEWS

Radiotherapy treatment time delay evidence, part I: Update on cervical, anal, prostate, and head and neck cancers

Jose Antonio González Ferreira, Castalia Fernandez, Daniela Gonsalves, Imanol Paguey, Felipe Couñago

Specialty type: Oncology

Provenance and peer review: Invited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's classification

Scientific Quality: Grade C
Novelty: Grade D
Creativity or Innovation: Grade C
Scientific Significance: Grade C

P-Reviewer: Jiang J, Associate Professor, China

Received: May 6, 2025
Revised: June 4, 2025
Accepted: September 5, 2025
Published online: October 24, 2025
Processing time: 172 Days and 17.9 Hours

Jose Antonio González Ferreira, Department of Radiation Oncology, Genesis Care-Spain, Sevilla 41092, Spain

Castalia Fernandez, Daniela Gonsalves, Felipe Couñago, Department of Radiation Oncology, Genesis Care-San Francisco de Asís University Hospital, Madrid 28002, Spain

Castalia Fernandez, Daniela Gonsalves, Felipe Couñago, Department of Radiation Oncology, Genesis Care-La Milagrosa University Hospital Madrid, Madrid 28010, Spain

Daniela Gonsalves, Felipe Couñago, Division of Radiation Oncology, Department of Medicine, Faculty of Medicine, Health and Sport Sciences, Universidad Europea de Madrid, Madrid 28670, Spain

Imanol Paguey, Department of Radiation Oncology, Genesis Care-Cordoba, Cordoba 14012, Andalusia, Spain

Corresponding author: Jose Antonio González Ferreira, MD, Department of Radiation Oncology, Genesis Care-Spain, Américo Vespucio Street 31-33, Sevilla 41092, Spain. jose.gonzalez@genesiscare.es

Abstract

Treatment delays during radiotherapy for head and neck cancer (HNC) are a well-established factor negatively affecting clinical outcomes, with similar trends observed in other cancers. In this first part of a two-part review, we assessed the impact of overall treatment time (OTT) prolongation on locoregional control (LRC) and survival (SV) in cervical cancer (CC), prostate cancer (PC), and anal cancer (AC), while updating evidence for HNC. A comprehensive literature search was performed in evidence-based databases, including MEDLINE, identifying studies evaluating the relationship between OTT prolongation and outcomes. Particular attention was paid to the strength of evidence, distinguishing univariate analysis from multivariate analysis (MV-An). For CC, 37 articles were identified, with 88.8% reporting a detrimental impact on LRC and/or SV, mostly supported by MV-An. In AC, 15 studies were found, with 33.3% showing negative impacts, although with weaker evidence. For PC, 12 articles were reviewed, with 66.6% demonstrating detrimental effects mainly on LRC or biochemical control, and occasional associations with cancer-specific SV. Recent studies in HNC reinforced prior findings. When available, radiobiological parameters and practical recommendations are provided. In conclusion, strong evidence confirms that prolonged OTT worsens outcomes in HNC and CC, with less consistent but

relevant effects in PC and AC.

Key Words: Radiotherapy; Overall treatment time; Delays; Locoregional control; Survival; Cervix; Anal; Prostate; Head and neck cancer

Core Tip: Prolongation of overall treatment time (OTT) during radiotherapy significantly impacts locoregional control and survival outcomes across several tumor types. This mini-review highlights strong evidence supporting the detrimental effect of OTT delays in head and neck and cervical cancers, with moderate evidence for prostate cancer and emerging concern in anal cancer. Recognizing the critical role of maintaining planned treatment schedules, we emphasize the need for proactive management of interruptions and suggest practical recommendations based on current evidence. Early identification and mitigation of treatment delays can substantially improve oncological outcomes across multiple malignancies.

Citation: González Ferreira JA, Fernandez C, Gonsalves D, Paguey I, Couñago F. Radiotherapy treatment time delay evidence, part I: Update on cervical, anal, prostate, and head and neck cancers. *World J Clin Oncol* 2025; 16(10): 109247
URL: https://www.wjgnet.com/2218-4333/full/v16/i10/109247.htm
DOI: https://dx.doi.org/10.5306/wjco.v16.i10.109247

INTRODUCTION

The time factor has long been recognized as a critical component in radiation oncology[1]. In particular, the detrimental effects of overall treatment time (OTT) prolongation during radiotherapy (RT), and the necessity of implementing compensation strategies, have been increasingly emphasized over the past decades[2]. Accelerated tumor cell repopulation is widely regarded as the main biological mechanism underlying the adverse impact of extended OTT on locoregional control (LRC) and various survival (SV) outcomes across multiple tumor types[3].

Due to ethical and logistical constraints, randomized clinical trials specifically designed to address the consequences of OTT prolongation are rarely feasible, resulting in a limited availability of high-level evidence. Consequently, comprehensive literature reviews remain the most effective tool for synthesizing existing data and guiding clinical practice.

In 2015, we published an extensive review focused on head and neck cancer (HNC), a disease site for which the most robust evidence on OTT effects exists, analyzing 62 studies and confirming a significant negative impact of treatment delays on both LRC and SV[4].

This manuscript represents the first installment of a two-part review series. Here, we examine the clinical consequences of OTT prolongation in cervical cancer (CC), anal cancer (AC), and prostate cancer (PC). Additionally, we provide an updated analysis of the HNC literature by incorporating studies published since our original review.

Based on our findings, we propose practical, evidence-informed recommendations for mitigating treatment delays in each of the aforementioned tumor types. The second manuscript will expand this investigation to additional malignancies and present broader strategies for minimizing the negative effects of prolonged treatment duration.

SEARCH STRATEGY

An extensive bibliographic search was conducted to evaluate the potential relationship between OTT prolongation and LRC and/or SV outcomes in the four tumor types previously mentioned.

Studies were classified as "negative" if they demonstrated a statistically significant detrimental association between OTT prolongation and either LRC or SV (or both), even if the impact was limited to local or regional control, or to any SV endpoint. Conversely, studies showing no significant adverse association were categorized as "non-significant" (NS).

We searched evidence-based databases using a comprehensive strategy that combined free-text terms and Medical Subject Headings in the title/abstract fields. The following search terms were employed: (1) Tumoral repopulation; (2) Radiotherapy delays; (3) Treatment interruptions; (4) Overall treatment time; (5) Time factor; (6) Compensation maneuvers; and (7) Time relationship. In addition to screening original full-text articles, we performed reference list reviews of selected publications to identify additional relevant studies.

Given the predominance of retrospective data in the available literature, particular attention was paid to study quality. We classified studies based on whether their conclusions were supported by univariate analysis (UV-An) or multivariate An (MV-An). A study was classified as MV-An if MV-An was explicitly stated by the authors or could be clearly inferred from the methodology or results; otherwise, it was categorized as UV-An.

Several studies also attempted to quantify the additional daily dose required to offset LRC loss resulting from OTT prolongation. Despite methodological heterogeneity, we grouped these dose-compensation estimates under the term "k factor". Similarly, when studies estimated the time point at which accelerated tumor repopulation begins after RT

initiation, we referred to this parameter as "Tk".

RESULTS BY CANCER TYPE

Result of HNC

Our previous review[4] encompassed 62 studies, with the larynx being the most frequently reported anatomical site (26/62, 41.9%), followed by studies involving mixed head and neck subsites (24/62, 38.7%). In the current update, we identified 8 additional studies[5-12], increasing the total to 70. Among these, mixed-site reports predominated (6 of 8).

Of the newly included studies, three of six demonstrated a statistically significant negative impact of OTT prolongation on LRC[5,7,8], while one showed significance in UV-An but not in MV-An[11]. Regarding SV outcomes, four of seven studies reported a significant negative association-all based on MV-An[7,8,10,12]-and one study approached significance in MV-An (P = 0.052)[11].

Most studies showing a negative effect involved patients treated with curative intent. Among three studies that included patients receiving adjuvant RT, only one reported a negative impact[8]. Additionally, studies showing adverse OTT effects often involved patients receiving chemotherapy (QT)-either neoadjuvant or concomitant[7,8,10,12]-suggesting that QT does not fully compensate for the detrimental consequences of treatment prolongation, as previously observed[4].

The negative impact of prolonged OTT was typically observed with delays exceeding 2 days or when total treatment duration surpassed 45-49 days, particularly in stage II-IV disease[7,8,10], though early-stage disease may also be affected [4].

One study specifically evaluated the day of the week on which RT was initiated in nasopharyngeal cancer and found no difference in SV, including for Friday starts, provided OTT was not significantly prolonged[12].

Result of CC

Among 37 studies[13-49] assessing OTT prolongation during radical RT for CC, 32 (88.8%) reported a significant negative impact on LRC and/or SV[13-25,27-33,35-37,39-43,46-49], while 5 were NS[26,34,38,44,45]. The detrimental effect was more pronounced in stage IIB-IV disease[14,31,37], with variable significance in stage IB-IIA[32,38], and limited evidence for stage IA[33].

Most studies with negative findings conducted MV-An. Lin *et al*[24], in a cohort of 2594 patients, identified OTT as an independent predictor of worse cancer-specific SV (CSS) and overall SV (OS).

Several studies estimated daily LRC loss of 0.7%-1.6% per day of delay[27,28,30]. Chen *et al*[25] reported 5-year LRC rates of 88% *vs* 67% for OTT ≤ 56 *vs* > 56 days in patients treated with chemoradiotherapy (CRT) (P = 0.04). Huang *et al* [49] demonstrated a drop in tumor control probability from 100% (at 38 days) to 33% (at 54 days).

While some studies (Shaverdian *et al*[15] and Tergas *et al*[20]) suggested that OTT up to 10-12 weeks may not significantly affect SV when concurrent CRT is used, others (Hong *et al*[43]) observed a loss in OS when OTT exceeded 64 days, indicating that QT may only mitigate repopulation if delays are limited to < 7 days.

Two studies reported a Tk value of 19 days[33,49], and a potential doubling time (Tpot) of 4-5 days has been described, supporting strict OTT thresholds between 56-64 days[32].

The most widely accepted recommendation based on 11 studies is to complete external beam RT (EBRT) plus brachytherapy (BT) within 8 weeks (56 days)[15-22,25,42], or within a maximum of 9 weeks (63 days) when using low-dose-rate (LDR) BT[33]. Tanderup *et al*[21] proposed completing OTT within 7 weeks, with total doses ≥ 85 Gy for achieving > 94% LRC in small tumors.

The EBRT-BT interval should ideally be < 7-10 days[17,18,30], though not all authors concur[19].

Prolonged OTT (> 56 days) has also been associated with increased toxicity, including grade 3-4 proctitis[16,19].

While most data focus on squamous cell carcinoma, evidence on adenocarcinoma remains limited[24,44].

Result of AC

Among 15 identified studies[50-64], only 5 reported a significant negative effect of OTT prolongation on LRC and/or SV [50-54], while the remaining 10 were NS[55-64].

Five studies employed split-course schedules[50-52,62,63], with only two demonstrating a negative impact[52,62].

In continuous RT using conventional fractionation, evidence remains limited, with small sample sizes and a lack of robust MV-An data. Negative impacts on LRC have been suggested when OTT exceeded 40-41 days for doses of 45-50 Gy, and 53 days (or delays > 8 days) for higher doses (up to 60 Gy), particularly in T3-T4 tumors[51-53].

A post hoc analysis of the ACT II trial (CRT, 50.4 Gy, 1.8 Gy/fraction, 28 fractions) found that progression-free SV worsened when OTT exceeded 42 days, based on UV-An[54].

Short treatment interruptions (< 7 days), especially in T1-T2 tumors, may be mitigated by QT[51]. Interestingly, one retrospective study (abstract only) reported improved LRC and OS with short QT-related interruptions (< 6 days)[57].

Result of PC

Of 12 studies on PC[65-76], 8 demonstrated a negative effect of OTT prolongation[65-72], while 4 were NS[73-76]. All data pertain to conventional fractionation; the impact in hypofractionation (HypoFx) remains uncertain but should not be overlooked[65,66].

OTT prolongation primarily affected LRC and biochemical (BQ) control, with occasional associations with CSS[67], mainly in MV-An studies.

Earlier studies suggested that high doses (> 72-74 Gy) might offset OTT prolongation[67]; however, more recent findings indicate that even doses of 76-80 Gy are vulnerable to delays > 3-4 days[65].

An OTT exceeding 8-9 weeks (or > 52-58 days) was generally associated with worse outcomes[69].

Delays of > 5-7 days were more harmful in patients not receiving concurrent hormone therapy, although this effect is less clear when hormones are used[66].

The detrimental impact appeared more pronounced in low-risk/Low histologic grade tumors and less consistent in intermediate risk/grade, with minimal or no effect in high risk/grade groups[65,69,70].

Reported Tk values: (1) By T stage: Mean Tk 34 days (30 days in T1c, 35 days in T2 and 69 days in T3[68]; and (2) By risk group: Mean Tk 31 days (33 days in low risk, 35 days in intermediate and 37 in high risk)[71].

Reported k-factors included: (1) 0.24 Gy/day[69]; (2) 0.52 Gy/day[71]; and (3) 0.21 Gy/day[72].

DISCUSSION AND COMPENSATION TIPS BY CANCER TYPE

As stated in our previous work[4], this remains the largest and most comprehensive bibliographic review to date addressing the negative impact of OTT prolongation on outcomes for patients with HNC, CC, AC, and PC treated with RT. Our review highlights not only the quantity but also the quality of available evidence, with particular attention to LRC and SV endpoints.

Table 1 summarizes practical recommendations for mitigating treatment delays across these tumor types. In general, we endorse the principle advocated by the Royal College of Radiologists (United Kingdom)[2]: Treatments should adhere to the As Short As Reasonably Achievable principle[77].

HNC

Combining findings from our previous review[4] with updated data, we confirm a strong and statistically significant association between OTT delays and reduced LRC (53/64 studies, 82.8%) and SV (19/28 studies, 67.8%), with most studies incorporating MV-An. When excluding studies based on accelerated fractionation, these numbers improve to 50/58 (86.2%) for LRC and 18/21 (85.7%) for SV. The better outcomes may reflect excess RT-related mortality reported in some accelerated regimens[4].

Delays lead to an average LRC loss of 1.2% per day, translating into 12%-14% per week, and typically require dose escalation of 0.6-0.8 Gy/day to compensate. Accelerated tumor repopulation generally begins after a lag phase of 3-4 weeks[4].

Total days of OTT delay seems to be what really matters; gap position and the number of missed consecutive treatment days seem to have no prognostic significance, except, perhaps, in longer extensions (≥ 1 week); and prolongations ≥ 3 days or ≥ 45-49 total days should be discouraged regardless of their timing[4].

The detrimental effect of OTT prolongation is most pronounced in radical-intent treatment and advanced-stage disease but remains evident across all disease stages[4,8,10]. Tumor differentiation may also influence sensitivity to delays: Well- and moderately-differentiated tumors are more vulnerable than poorly differentiated ones, and mainly depending on the primary tumor (not for lymph node metastases). It's has been suggested as biological mechanism to explain this observation that the tumor needs to have a functional mechanism capable of regeneration, which most likely happens in well-differentiated tumors, while poor-differentiated ones would lost the ability for repopulation[4,5].

Although QT is frequently used, current evidence suggests it does not consistently neutralize the negative effects of OTT prolongation[4,10].

CC

Although the number of studies is smaller than in HNC, the trend is similar: 86.1% of studies using MV-An report a significant negative impact of OTT prolongation on LRC and/or SV. Mid-to-advanced stages (IIB-IV)[14] are more sensitive to delays, though early-stage disease is also affected[31-33,37,38].

Reported data[27,28,30,32,33] include: (1) LRC losses of 0.7%-1.6% per day; (2) Tpot of 4-5 days; and (3) Tk around 19 days[49].

In contrast to HNC, concurrent QT appears to offer partial protection against OTT prolongations of up to one week[15,20,43].

Best practices (12 studies) include completing EBRT and BT within 8-9 weeks, with an EBRT-BT gap ≤ 7-10 days[15-22,25,30,33,42].

Most data focus on squamous cell carcinoma, and while evidence for adenocarcinoma is limited, the potential impact of delays should not be overlooked.

AC

AC highlights the importance of comprehensive literature reviews. While guidelines such as those from the Royal College of Radiologists[2] classify AC among tumors most sensitive to OTT prolongation (based on a few reports from the literature), our broader review shows that only 5 of 15 studies (33.3%) demonstrated a significant negative effect.

Notably, of five studies using split-course schedules-which typically amplify delay-related risks-only two showed detrimental effects.

Table 1 Resume and basic recommendations to deal with delays

Localization (number of articles negative/published)	LRC and/or SV lost	RT intention	Stages	Recommendations
Head and neck cancer (59/70, 84.3%)	Yes, both	Radical and adjuvant	All	Avoid/compensate if delays ≥ 3-5 days (3, preferable; 5, obligatory), especially if G1 (or even G-2) histological grade. Do so for every pathological stage and RT intention (especially in II-IV stages and radical intention) and regardless if QT is used
Cervix cancer (32/37, 88.8%)	Yes, both	Radical	≥ II-B, and maybe in I-B/II-A, at least	Complete EBRT + BT in < 8-9 weeks (8, preferable), although if chemoradiotherapy the limit could be up to 9-10 weeks. Timing EBRT/BT: Keep on ≤ 10 days (7, if possible). Pelvic adjuvant EBRT: For precaution, in treatments of 45-50 Gy in 5-5.5 weeks, avoid/compensate delays > 5-7 days
Anal cancer (5/15, 33.3%)	LRC: Probable, yes. SV: No, except, maybe, CSS and free-progresion survival	Radical	Likely more important in T3-4 and more dubious in T1-2	In continuous RT schemes at usual doses of 45-60 Gy, avoid/compensate OTT > 40-42 days for lower doses and OTT > 53 days (or delays > 8 days) for higher doses. QT could inhibit repopulation if delays < 7 days, especially in T1 and T2
Prostate cancer (8/12, 66.6%)	LRC: Yes, and biochemical control, too. SV: No, except, maybe, CSS	Radical	Likely more important in localized stages/Low risk groups, more dubious in intermediates and less likely in advanced/high risk	Avoid/compensate especially in localized stages/Low risk groups, more dubious in intermediates. Avoid/compensate if delays ≥ 5-7 days in patients without concurrent hormonotherapy. Normofx: Avoid/compensate if OTT > 8-9 weeks (> 52-58 days). MHipofx (about 2.5 Gy/day): Avoid/compensate on precaution delays > 4-7 days, especially if concur at least one of the first two points. MHipofx (around 3 Gy/day): Avoid/compensate on precaution delays ≥ 7-10 days, especially if concur at least one of the first two points. Adjuvant RT (Normofx and MHipofx, 1.8-3 Gy/day): Avoid/compensate on precaution delays ≥ 7-10 days, especially if concur at least one of the first two points

BT: Brachytherapy; CSS: Cancer-specific survival; EBRT: External beam radiotherapy; LRC: Locoregional control; MHipofx: Moderate hipofraccionation; Normofx: Normofraccionation; OTT: Overall treatment time; QT: Chemotherapy; RT: Radiotherapy; SV: Survival.

This suggests AC may be less sensitive to OTT prolongation compared to HNC or CC. However, a 33% rate of negative studies still justifies clinical caution.

Similar to CC, QT appears to mitigate the impact of short interruptions (< 7 days)[51]. No data were identified regarding the adjuvant setting.

PC

Traditionally considered a slow-growing tumor with low sensitivity to OTT delays, PC nonetheless showed a 66% rate of studies reporting negative effects, primarily on LRC and BQ control, rather than SV.

All reviewed data are based on conventional fractionation regimens (up to 80 Gy). Delays of 4-7 days were associated with worse outcomes, and on-current hormone therapy may offer a protective effect, (similar to QT in CC and AC)[65,66,69]. The negative effect of OTT prolongation was most pronounced in low-risk and intermediate-risk patients, with little or no impact in high-risk groups-similar to patterns observed in HNC[65,69,70]. However, no biological mechanism to explain this has been suggested by the authors and we found the explanation given in HNC possible for PS, too.

While no studies have specifically assessed Hypofx regimens, the reported k-factor of 0.52 Gy/day[71] implies that even in moderate Hypofx, OTT delays of 4-7 days (equating to 2.6 Gy loss, which is in the range of these schemes) may be clinically significant and should be avoided.

Evidence from adjuvant settings is lacking, but delays exceeding 7 days should generally be prevented.

Limitations and future directions

Our review is subject to inherent limitations, primarily due to its reliance on retrospective data. Approximately 60% of the literature cited was published before/equal 2010, limiting our ability to evaluate emerging factors such as targeted therapies, immunotherapy, tumor genetics/mutations, biomarker expression, advances in imaging (*e.g.*, positron emission tomography-computed tomography), or artificial intelligence (AI) and machine learning in prognostic modeling. These variables were not addressed even in the more recent studies in our review.

Finally, optimizing management of RT delays requires interdisciplinary collaboration. It is the responsibility of radiation oncologists to communicate the clinical significance of OTT prolongation to colleagues in medical oncology, pathology, radiology, and other specialties. Enhancing mutual understanding is crucial to improving treatment efficiency and outcomes across the cancer care continuum.

CONCLUSION

This comprehensive review confirms a substantial detrimental effect of OTT prolongation on outcomes in HNC and CC-the two tumor types with the most robust and consistent evidence. Over 80% of studies, primarily incorporating MV-An, demonstrate that OTT prolongation negatively affects both LRC and SV. The principal clinical recommendation is clear: Avoid OTT prolongations whenever possible, and when delays are unavoidable, implement appropriate compensatory measures (*e.g.*, dose escalation or treatment acceleration).

For AC, although the level of evidence is less consistent-only 33% of studies reported negative outcomes, many of which relied on UV-An-OTT minimization remains advisable given the potential clinical impact.

PC occupies an intermediate position: 66% of reviewed studies still reported a negative effect of OTT prolongation, particularly on LRC and BQ. This is especially relevant in conventional fractionation schedules, although it must be recommended in moderate Hipofx schemes, too.

An important observation is the differential effect of concurrent systemic therapies: (1) In HNC, concurrent QT does not appear to fully mitigate the adverse impact of delays; (2) In CC and AC, concurrent QT may offer some protective effect, particularly for short interruptions; and (3) In PC, concurrent hormonal therapy appears to provide a buffering effect, reducing the harm of brief delays.

Future studies should expand this analysis to additional tumor types where preliminary evidence exists, and explore, if possible, the role of emerging therapeutic modalities, biomarkers, and advanced analytics (*e.g.*, AI, radiomics) in predicting and managing the impact of OTT prolongation.

FOOTNOTES

Author contributions: González Ferreira JA contributed to the conception and design of the study; González Ferreira JA, Fernandez C, Gonsalves D, and Paguey I contributed to the data acquisition; All authors contributed to the analysis and interpretation of the data, contributed to drafting the manuscript, made critical revisions related to important intellectual content, and gave final approval of the version to be published.

Conflict-of-interest statement: The authors have no conflicts of interest to declare.

Country of origin: Spain

ORCID number: Jose Antonio González Ferreira 0000-0003-0812-9936; Castalia Fernandez 0000-0002-6005-3521; Daniela Gonsalves 0009-0009-7757-7653; Imanol Paguey 0009-0006-1364-2071; Felipe Couñago 0000-0001-7233-0234.

S-Editor: Luo ML
L-Editor: Filipodia
P-Editor: Zhao YQ

REFERENCES

1 **Baumann M**, Krause M, Grégoire V. Modified fractionation. In: Joiner MC, van der Kogel AJ, editors. Basic Clinical Radiobiology. 5th edition. Boca Raton, PA: Taylor and Francis Group, LLC, 2019: 125-135 [DOI: 10.1201/9780429490606-11] [FullText]

2 **The Royal College of Radiologists**. The timely delivery of radical RT: Guidelines for the management of unscheduled treatment interruptions. 4th edition. 2019 [accessed 17th April 2013]. Available at: https://www.rcr.ac.uk/our-services/all-our-publications/clinical-oncology-publications/timely-delivery-of-radical-radiotherapy-guidelines-for-the-management-of-unscheduled-treatment-interruptions-fourth-edition/

3 **Tubiana M**. Repopulation in human tumors. A biological background for fractionation in radiotherapy. *Acta Oncol* 1988; **27**: 83-88 [*RCA*] [PMID: 3291903 DOI: 10.3109/02841868809090328] [FullText]

4 **González Ferreira JA**, Jaén Olasolo J, Azinovic I, Jeremic B. Effect of radiotherapy delay in overall treatment time on local control and survival in head and neck cancer: Review of the literature. *Rep Pract Oncol Radiother* 2015; **20**: 328-339 [*RCA*] [PMID: 26549990 DOI: 10.1016/j.rpor.2015.05.010] [FullText]

5 **Overgaard J**, Hansen O, Sand Hansen H, Overgaard M, Jorgensen K, Bastholt L, Berthelsen A. 44 The importance of overall treatment time for the outcome of radiotherapy of advanced head and neck carcinoma is dependent on tumor differentiation. *Int J Radiat Oncol Biol Phys* 1995; **32**: 163 [*RCA*] [DOI: 10.1016/0360-3016(95)97709-a] [FullText]

6 **Robertson G**, Parmar M, Foy C, Griffiths G, Saunders M, Dische S. Overall treatment time and the conventional arm of the CHART trial in the radiotherapy of head and neck cancer. *Radiother Oncol* 1999; **50**: 25-28 [*RCA*] [PMID: 10225553 DOI: 10.1016/s0167-8140(98)00116-9] [FullText]

7 **Cannon DM**, Geye HM, Hartig GK, Traynor AM, Hoang T, McCulloch TM, Wiederholt PA, Chappell RJ, Harari PM. Increased local failure risk with prolonged radiation treatment time in head and neck cancer treated with concurrent chemotherapy. *Head Neck* 2014; **36**: 1120-1125

[*RCA*] [PMID: 23804248 DOI: 10.1002/hed.23419] [FullText]

8 **Ferreira BC**, Sá-Couto P, Lopes MC, Khouri L. Compliance to radiation therapy of head and neck cancer patients and impact on treatment outcome. *Clin Transl Oncol* 2016; **18**: 677-684 [*RCA*] [PMID: 26459252 DOI: 10.1007/s12094-015-1417-5] [FullText]

9 **Stoker SD**, Fles R, Herdini C, Rijntjes FJ, Tjokronagoro M, Dwidanarti SR, Sikorska K, Leemans CR, Schmidt MK, Al-Mamgani A, Wildeman MA, Haryana SM, Indrasari SR, Tan IB. The Impact of the Overall Radiotherapy Time on Clinical Outcome of Patients with Nasopharyngeal Carcinoma; A Retrospective Study. *PLoS One* 2016; **11**: e0151899 [*RCA*] [PMID: 27030990 DOI: 10.1371/journal.pone.0151899] [FullText] [Full Text(PDF)]

10 **Shaikh T**, Handorf EA, Murphy CT, Mehra R, Ridge JA, Galloway TJ. The Impact of Radiation Treatment Time on Survival in Patients With Head and Neck Cancer. *Int J Radiat Oncol Biol Phys* 2016; **96**: 967-975 [*RCA*] [PMID: 27869097 DOI: 10.1016/j.ijrobp.2016.08.046] [Full Text]

11 **Roman J**, Dissaux G, Gouillou M, Gobel Y, Potard G, Leclere JC, Conan-Charlet V, Gujral D, Abgral R, Guibourg B, Pradier O, Schick U. Prolonged Overall Treatment Time and Lack of Skin Rash Negatively Impact Overall Survival in Locally Advanced Head and Neck Cancer Patients Treated with Radiotherapy and Concomitant Cetuximab. *Target Oncol* 2017; **12**: 505-512 [*RCA*] [PMID: 28580506 DOI: 10.1007/s11523-017-0499-0] [FullText]

12 **Mo Y**, Zhang B, Pan Y, Qin Q, Ye Y, Li X, Huang L, Jiang W. Impact of the weekday of the first intensity-modulated radiotherapy treatment on the survival outcomes of patients with nasopharyngeal carcinoma: A multicenter cohort study. *Oral Oncol* 2021; **116**: 105258 [*RCA*] [PMID: 33706048 DOI: 10.1016/j.oraloncology.2021.105258] [FullText]

13 **Pedersen D**, Søgaard H, Overgaard J, Bentzen SM. Prognostic value of pretreatment factors in patients with locally advanced carcinoma of the uterine cervix treated by radiotherapy alone. *Acta Oncol* 1995; **34**: 787-795 [*RCA*] [PMID: 7576747 DOI: 10.3109/02841869509127188] [Full Text]

14 **Karolewski K**, Korzeniowski S, Sokołowski A, Urbański K, Kojs Z. Prognostic significance of pretherapeutic and therapeutic factors in patients with advanced cancer of the uterine cervix treated with radical radiotherapy alone. *Acta Oncol* 1999; **38**: 461-468 [*RCA*] [PMID: 10418713 DOI: 10.1080/028418699431997] [FullText]

15 **Shaverdian N**, Gondi V, Sklenar KL, Dunn EF, Petereit DG, Straub MR, Bradley KA. Effects of treatment duration during concomitant chemoradiation therapy for cervical cancer. *Int J Radiat Oncol Biol Phys* 2013; **86**: 562-568 [*RCA*] [PMID: 23561652 DOI: 10.1016/j.ijrobp.2013.01.037] [FullText]

16 **Song S**, Rudra S, Hasselle MD, Dorn PL, Mell LK, Mundt AJ, Yamada SD, Lee NK, Hasan Y. The effect of treatment time in locally advanced cervical cancer in the era of concurrent chemoradiotherapy. *Cancer* 2013; **119**: 325-331 [*RCA*] [PMID: 22806897 DOI: 10.1002/cncr.27652] [FullText]

17 **Krusun S**, Pesee M, Supakalin N, Thamronganantasakul K, Supaadirek C, Padoongcharoen P. Treatment interruption during concurrent chemoradiotherapy of uterine cervical cancer; analysis of factors and outcomes. *Asian Pac J Cancer Prev* 2014; **15**: 5653-5657 [*RCA*] [PMID: 25081681 DOI: 10.7314/apjcp.2014.15.14.5653] [FullText]

18 **Mazeron R**, Castelnau-Marchand P, Dumas I, del Campo ER, Kom LK, Martinetti F, Farha G, Tailleur A, Morice P, Chargari C, Lefkopoulos D, Haie-Meder C. Impact of treatment time and dose escalation on local control in locally advanced cervical cancer treated by chemoradiation and image-guided pulsed-dose rate adaptive brachytherapy. *Radiother Oncol* 2015; **114**: 257-263 [*RCA*] [PMID: 25497872 DOI: 10.1016/j.radonc.2014.11.045] [FullText]

19 **Huang EY**, Lin H, Wang CJ, Chanchien CC, Ou YC. Impact of treatment time-related factors on prognoses and radiation proctitis after definitive chemoradiotherapy for cervical cancer. *Cancer Med* 2016; **5**: 2205-2212 [*RCA*] [PMID: 27416796 DOI: 10.1002/cam4.794] [Full Text] [Full Text(PDF)]

20 **Tergas AI**, Neugut AI, Chen L, Burke WM, Hershman DL, Wright JD. Radiation Duration in Women with Cervical Cancer Treated with Primary Chemoradiation: A Population-Based Analysis. *Cancer Invest* 2016; **34**: 137-147 [*RCA*] [PMID: 26986809 DOI: 10.3109/07357907.2015.1131291] [FullText]

21 **Tanderup K**, Fokdal LU, Sturdza A, Haie-Meder C, Mazeron R, van Limbergen E, Jürgenliemk-Schulz I, Petric P, Hoskin P, Dörr W, Bentzen SM, Kirisits C, Lindegaard JC, Pötter R. Effect of tumor dose, volume and overall treatment time on local control after radiochemotherapy including MRI guided brachytherapy of locally advanced cervical cancer. *Radiother Oncol* 2016; **120**: 441-446 [*RCA*] [PMID: 27350396 DOI: 10.1016/j.radonc.2016.05.014] [FullText]

22 **Bixel K**, Marsh L, Denlinger N, Hays JL, Quick A, Salani R. Timely delivery of primary chemoradiation for the treatment of locally advanced cervical cancer: are we meeting this quality measure? *J Radiat Oncol* 2017; **6**: 189-195 [DOI: 10.1007/s13566-017-0311-x] [FullText]

23 **Jhawar S**, Hathout L, Elshaikh MA, Beriwal S, Small W Jr, Mahmoud O. Adjuvant Chemoradiation Therapy for Cervical Cancer and Effect of Timing and Duration on Treatment Outcome. *Int J Radiat Oncol Biol Phys* 2017; **98**: 1132-1141 [*RCA*] [PMID: 28721897 DOI: 10.1016/j.ijrobp.2017.03.045] [FullText]

24 **Lin SM**, Ku HY, Chang TC, Liu TW, Hong JH. The prognostic impact of overall treatment time on disease outcome in uterine cervical cancer patients treated primarily with concomitant chemoradiotherapy: a nationwide Taiwanese cohort study. *Oncotarget* 2017; **8**: 85203-85213 [*RCA*] [PMID: 29156713 DOI: 10.18632/oncotarget.19617] [FullText] [Full Text(PDF)]

25 **Chen TW**, Wandrey NE, Ha CS, Eng TY. The effects of treatment duration on outcomes of radiation treatment with high-dose-rate brachytherapy in the era of concurrent chemoradiation for cervical carcinoma. *J Radiat Oncol* 2018; **7**: 265-274 [DOI: 10.1007/s13566-018-0357-4] [FullText]

26 **Vitzthum L**, Yuan J, Jones D, Boldt A, Dusenbery K. Reducing prolonged chemoradiation treatment times for cervical cancer. *BMJ Open Qual* 2019; **8**: e000516 [*RCA*] [PMID: 31637317 DOI: 10.1136/bmjoq-2018-000516] [FullText] [Full Text(PDF)]

27 **Keane T**, Fyles A, O'sullivan B, Barton M, Maki E, Simm J. The effect of treatment duration on local control of squamous carcinoma of the tonsil and carcinoma of the cervix. *Semin Radiat Oncol* 1992; **2**: 26-28 [*RCA*] [DOI: 10.1016/s1053-4296(05)80047-5] [FullText]

28 **Fyles A**, Keane TJ, Barton M, Simm J. The effect of treatment duration in the local control of cervix cancer. *Radiother Oncol* 1992; **25**: 273-279 [*RCA*] [PMID: 1480773 DOI: 10.1016/0167-8140(92)90247-r] [FullText]

29 **Lanciano RM**, Pajak TF, Martz K, Hanks GE. The influence of treatment time on outcome for squamous cell cancer of the uterine cervix treated with radiation: a patterns-of-care study. *Int J Radiat Oncol Biol Phys* 1993; **25**: 391-397 [*RCA*] [PMID: 8436516 DOI: 10.1016/0360-3016(93)90058-4] [FullText]

30 **Girinsky T**, Rey A, Roche B, Haie C, Gerbaulet A, Randrianarivello H, Chassagne D. Overall treatment time in advanced cervical carcinomas: a critical parameter in treatment outcome. *Int J Radiat Oncol Biol Phys* 1993; **27**: 1051-1056 [*RCA*] [PMID: 8262826 DOI:

10.1016/0360-3016(93)90522-w] [FullText]
31 **Fyles AW**, Pintilie M, Kirkbride P, Levin W, Manchul LA, Rawlings GA. Prognostic factors in patients with cervix cancer treated by radiation therapy: results of a multiple regression analysis. *Radiother Oncol* 1995; **35**: 107-117 [*RCA*] [PMID: 7569018 DOI: 10.1016/0167-8140(95)01535-o] [FullText]
32 **Petereit DG**, Sarkaria JN, Chappell R, Fowler JF, Hartmann TJ, Kinsella TJ, Stitt JA, Thomadsen BR, Buchler DA. The adverse effect of treatment prolongation in cervical carcinoma. *Int J Radiat Oncol Biol Phys* 1995; **32**: 1301-1307 [*RCA*] [PMID: 7635769 DOI: 10.1016/0360-3016(94)00635-X] [FullText]
33 **Perez CA**, Grigsby PW, Castro-Vita H, Lockett MA. Carcinoma of the uterine cervix. I. Impact of prolongation of overall treatment time and timing of brachytherapy on outcome of radiation therapy. *Int J Radiat Oncol Biol Phys* 1995; **32**: 1275-1288 [*RCA*] [PMID: 7635767 DOI: 10.1016/0360-3016(95)00220-S] [FullText]
34 **Eifel PJ**, Thames HD. Has the influence of treatment duration on local control of carcinoma of the cervix been defined? *Int J Radiat Oncol Biol Phys* 1995; **32**: 1527-1529 [*RCA*] [PMID: 7635797 DOI: 10.1016/0360-3016(95)00264-Y] [FullText]
35 **Delaloye JF**, Coucke PA, Pampallona S, De Grandi P. Effect of total treatment of time on event-free survival in carcinoma of the cervix. *Gynecol Oncol* 1996; **60**: 42-48 [*RCA*] [PMID: 8557226 DOI: 10.1006/gyno.1996.0009] [FullText]
36 **Delaloye JF**, Coucke PA, Pampallona S, Peltecu G, De Grandi P. Radiation therapy duration influences overall survival in patients with cervical carcinoma. *Int J Gynaecol Obstet* 1997; **57**: 295-303 [*RCA*] [PMID: 9215493 DOI: 10.1016/s0020-7292(97)02888-9] [FullText]
37 **Chatani M**, Matayoshi Y, Masaki N, Inoue T. High-dose rate intracavitary irradiation for carcinoma of the uterine cervix. The adverse effect of treatment prolongation. *Strahlenther Onkol* 1997; **173**: 379-384 [*RCA*] [PMID: 9236934 DOI: 10.1007/BF03038241] [FullText]
38 **Tan LT**, Jones B, Gee A, Kingston RE. An audit of the treatment of carcinoma of the uterine cervix using external beam radiotherapy and a single line source brachytherapy technique. *Br J Radiol* 1997; **70**: 1259-1269 [*RCA*] [PMID: 9505845 DOI: 10.1259/bjr.70.840.9505845] [FullText]
39 **Kapp KS**, Stuecklschweiger GF, Kapp DS, Poschauko J, Pickel H, Lahousen M, Hackl A. Prognostic factors in patients with carcinoma of the uterine cervix treated with external beam irradiation and IR-192 high-dose-rate brachytherapy. *Int J Radiat Oncol Biol Phys* 1998; **42**: 531-540 [*RCA*] [PMID: 9806511 DOI: 10.1016/s0360-3016(98)00255-7] [FullText]
40 **Chen SW**, Liang JA, Yang SN, Ko HL, Lin FJ. The adverse effect of treatment prolongation in cervical cancer by high-dose-rate intracavitary brachytherapy. *Radiother Oncol* 2003; **67**: 69-76 [*RCA*] [PMID: 12758242 DOI: 10.1016/s0167-8140(02)00439-5] [FullText]
41 **Coles CE**, Burgess L, Tan LT. An audit of delays before and during radical radiotherapy for cervical cancer--effect on tumour cure probability. *Clin Oncol (R Coll Radiol)* 2003; **15**: 47-54 [*RCA*] [PMID: 12708710 DOI: 10.1053/clon.2002.0178] [FullText]
42 **Yalman D**, Aras AB, Ozkök S, Duransoy A, Celik OK, Ozsaran Z, Haydaroğlu A. Prognostic factors in definitive radiotherapy of uterine cervical cancer. *Eur J Gynaecol Oncol* 2003; **24**: 309-314 [*RCA*] [PMID: 12807246] [FullText]
43 **Hong JC**, Foote J, Broadwater G, Sosa JA, Gaillard S, Havrilesky LJ, Chino JP. Data-Derived Treatment Duration Goal for Cervical Cancer: Should 8 Weeks Remain the Target in the Era of Concurrent Chemoradiation? *JCO Clin Cancer Inform* 2017; **1**: 1-15 [*RCA*] [PMID: 30657372 DOI: 10.1200/CCI.16.00072] [FullText]
44 **Korenaga TK**, Yoshida EJ, Pierson W, Chang J, Ziogas A, Swanson ML, Chapman JS, Sinha S, Chen LM. Better late than never: Brachytherapy is more important than timing in treatment of locally advanced cervical cancer. *Gynecol Oncol* 2022; **164**: 348-356 [*RCA*] [PMID: 34865860 DOI: 10.1016/j.ygyno.2021.11.015] [FullText]
45 **Vijayakumar S**, Nittala MR, Duggar WN, King M, T Lirette S, Yang CC, Mundra E, Woods WC, Otts J, Doherty M, Panter P, Howard C, Ridgway M, Allbright R. The Influence of Patient and System Factors on the Radiotherapy Treatment Time in the Treatment of Non-metastatic Cervical Cancer Patients in a Rural and Resource-Lean State's Safety-Net Hospital: Benefits of Strategic Planning. *Cureus* 2023; **15**: e35954 [*RCA*] [PMID: 37038585 DOI: 10.7759/cureus.35954] [FullText]
46 **Goel V**, Singh. JK, Pandey MK. Impact of prolongation of overall treatment time and timing of brachytherapy on outcome of radiation therapy in carcinoma of uterine cervix. *J Clin Oncol* 2006; **24**: 15032-15032 [*RCA*] [DOI: 10.1200/jco.2006.24.18_suppl.15032] [FullText]
47 **Diaz J**, Yu D, Micaily B, Ferriss JS, Hernandez E. Radiation therapy with concurrent chemotherapy for locally advanced cervical carcinoma: outcome analysis with emphasis on the impact of treatment duration on outcome. *Obstet Gynecol Int* 2014; **2014**: 214351 [*RCA*] [PMID: 25431594 DOI: 10.1155/2014/214351] [FullText] [Full Text(PDF)]
48 **Pandu Ranga Kumari M**, Nagarjun Reddy B, Sanjeeva Kumari C, Rama Krishna M. Comparison Between Concurrent EBRT and ICA with Conventional EBRT Followed by ICA in Cervical Cancer. *J Obstet Gynaecol India* 2016; **66**: 263-273 [*RCA*] [PMID: 27382221 DOI: 10.1007/s13224-014-0661-x] [FullText]
49 **Huang Z**, Mayr NA, Gao M, Lo SS, Wang JZ, Jia G, Yuh WT. Onset time of tumor repopulation for cervical cancer: first evidence from clinical data. *Int J Radiat Oncol Biol Phys* 2012; **84**: 478-484 [*RCA*] [PMID: 22386374 DOI: 10.1016/j.ijrobp.2011.12.037] [FullText]
50 **Allal AS**, Mermillod B, Roth AD, Marti MC, Kurtz JM. The impact of treatment factors on local control in T2-T3 anal carcinomas treated by radiotherapy with or without chemotherapy. *Cancer* 1997; **79**: 2329-2335 [*RCA*] [PMID: 9191520 DOI: 10.1002/(sici)1097-0142(19970615)79:12<2329::aid-cncr6>3.0.co;2-g] [FullText]
51 **Graf R**, Wust P, Hildebrandt B, Gögler H, Ullrich R, Herrmann R, Riess H, Felix R. Impact of overall treatment time on local control of anal cancer treated with radiochemotherapy. *Oncology* 2003; **65**: 14-22 [*RCA*] [PMID: 12837978 DOI: 10.1159/000071200] [FullText]
52 **Deniaud-Alexandre E**, Touboul E, Tiret E, Sezeur A, Houry S, Gallot D, Parc R, Huang R, Qu SH, Huart J, Pène F, Schlienger M. Results of definitive irradiation in a series of 305 epidermoid carcinomas of the anal canal. *Int J Radiat Oncol Biol Phys* 2003; **56**: 1259-1273 [*RCA*] [PMID: 12873670 DOI: 10.1016/s0360-3016(03)00417-6] [FullText]
53 **Ben-Josef E**, Moughan J, Ajani JA, Flam M, Gunderson L, Pollock J, Myerson R, Anne R, Rosenthal SA, Willett C. Impact of overall treatment time on survival and local control in patients with anal cancer: a pooled data analysis of Radiation Therapy Oncology Group trials 87-04 and 98-11. *J Clin Oncol* 2010; **28**: 5061-5066 [*RCA*] [PMID: 20956625 DOI: 10.1200/JCO.2010.29.1351] [FullText]
54 **Glynne-Jones R**, Meadows HM, Lopes A, Muirhead R, Sebag-Montefiore D, Adams R; ACTII study group. Impact of compliance to chemoradiation on long-term outcomes in squamous cell carcinoma of the anus: results of a post hoc analysis from the randomised phase III ACT II trial. *Ann Oncol* 2020; **31**: 1376-1385 [*RCA*] [PMID: 32619648 DOI: 10.1016/j.annonc.2020.06.012] [FullText]
55 **Wong CS**, Tsang RW, Cummings BJ, Fyles AW, Couture J, Brierley JD, Pintilie M. Proliferation parameters in epidermoid carcinomas of the anal canal. *Radiother Oncol* 2000; **56**: 349-353 [*RCA*] [PMID: 10974385 DOI: 10.1016/s0167-8140(00)00213-9] [FullText]
56 **Meyer A**, Meier Zu Eissen J, Karstens JH, Bremer M. Chemoradiotherapy in patients with anal cancer: impact of length of unplanned treatment interruption on outcome. *Acta Oncol* 2006; **45**: 728-735 [*RCA*] [PMID: 16938816 DOI: 10.1080/02841860600726729] [FullText]

57 **Janssen S**, Meier zu Eissen J, Kolbert G, Bremer M, Karstens JH, Meyer A. Anal cancer treated with radio-chemotherapy: correlation between length of treatment interruption and outcome. *Int J Colorectal Dis* 2009; **24**: 1421-1428 [*RCA*] [PMID: 19649642 DOI: 10.1007/s00384-009-0775-2] [FullText]

58 **Raphael MJ**, Ko G, Booth CM, Brogly SB, Li W, Kalyvas M, Hanna TP, Patel SV. Factors Associated With Chemoradiation Therapy Interruption and Noncompletion Among Patients With Squamous Cell Anal Carcinoma. *JAMA Oncol* 2020; **6**: 881-887 [*RCA*] [PMID: 32324199 DOI: 10.1001/jamaoncol.2020.0809] [FullText]

59 **Glynne-Jones R**, Sebag-Montefiore D, Adams R, McDonald A, Gollins S, James R, Northover JM, Meadows HM, Jitlal M; UKCCCR Anal Cancer Trial Working Party. "Mind the gap"--the impact of variations in the duration of the treatment gap and overall treatment time in the first UK Anal Cancer Trial (ACT I). *Int J Radiat Oncol Biol Phys* 2011; **81**: 1488-1494 [*RCA*] [PMID: 20934265 DOI: 10.1016/j.ijrobp.2010.07.1995] [FullText]

60 **Myerson RJ**, Outlaw ED, Chang A, Birnbaum EH, Fleshman JW, Grigsby PW, Kodner IJ, Malayapa RS, Mutch MG, Parikh P, Picus J, Tan BR. Radiotherapy for epidermoid carcinoma of the anus: thirty years' experience. *Int J Radiat Oncol Biol Phys* 2009; **75**: 428-435 [*RCA*] [PMID: 19251377 DOI: 10.1016/j.ijrobp.2008.11.047] [FullText]

61 **Konski A**, Garcia M Jr, John M, Krieg R, Pinover W, Myerson R, Willett C. Evaluation of planned treatment breaks during radiation therapy for anal cancer: update of RTOG 92-08. *Int J Radiat Oncol Biol Phys* 2008; **72**: 114-118 [*RCA*] [PMID: 18472363 DOI: 10.1016/j.ijrobp.2007.12.027] [FullText] [Full Text(PDF)]

62 **Weber DC**, Kurtz JM, Allal AS. The impact of gap duration on local control in anal canal carcinoma treated by split-course radiotherapy and concomitant chemotherapy. *Int J Radiat Oncol Biol Phys* 2001; **50**: 675-680 [*RCA*] [PMID: 11395235 DOI: 10.1016/s0360-3016(01)01510-3] [FullText]

63 **Ceresoli GL**, Ferreri AJ, Cordio S, Villa E. Role of dose intensity in conservative treatment of anal canal carcinoma. Report of 35 cases. *Oncology* 1998; **55**: 525-532 [*RCA*] [PMID: 9778618 DOI: 10.1159/000011907] [FullText]

64 **Constantinou EC**, Daly W, Fung CY, Willett CG, Delaney TF. 2035 Dose-time considerations in the treatment of anal cancer. *Int J Radiat Oncol Biol Phys* 1996; **36**: 295 [*RCA*] [DOI: 10.1016/s0360-3016(97)85613-1] [FullText]

65 **D'Ambrosio DJ**, Li T, Horwitz EM, Chen DY, Pollack A, Buyyounouski MK. Does treatment duration affect outcome after radiotherapy for prostate cancer? *Int J Radiat Oncol Biol Phys* 2008; **72**: 1402-1407 [*RCA*] [PMID: 18472368 DOI: 10.1016/j.ijrobp.2008.03.011] [FullText] [Full Text(PDF)]

66 **Liauw SL**, Liauw SH. Prolongation of total treatment time because of infrequently missed days of treatment is not associated with inferior biochemical outcome after dose-escalated radiation therapy for prostate cancer. *Int J Radiat Oncol Biol Phys* 2011; **81**: 751-757 [*RCA*] [PMID: 20932666 DOI: 10.1016/j.ijrobp.2010.06.054] [FullText]

67 **Perez CA**, Michalski J, Mansur D, Lockett MA. Impact of elapsed treatment time on outcome of external-beam radiation therapy for localized carcinoma of the prostate. *Cancer J* 2004; **10**: 349-356 [*RCA*] [PMID: 15701266 DOI: 10.1097/00130404-200411000-00004] [FullText]

68 **Gao M**, Mayr NA, Huang Z, Zhang H, Wang JZ. When tumor repopulation starts? The onset time of prostate cancer during radiation therapy. *Acta Oncol* 2010; **49**: 1269-1275 [*RCA*] [PMID: 20712432 DOI: 10.3109/0284186X.2010.509737] [FullText]

69 **Thames HD**, Kuban D, Levy LB, Horwitz EM, Kupelian P, Martinez A, Michalski J, Pisansky T, Sandler H, Shipley W, Zelefsky M, Zietman A. The role of overall treatment time in the outcome of radiotherapy of prostate cancer: an analysis of biochemical failure in 4839 men treated between 1987 and 1995. *Radiother Oncol* 2010; **96**: 6-12 [*RCA*] [PMID: 20400191 DOI: 10.1016/j.radonc.2010.03.020] [FullText]

70 **Amdur RJ**, Parsons JT, Fitzgerald LT, Million RR. The effect of overall treatment time on local control in patients with adenocarcinoma of the prostate treated with radiation therapy. *Int J Radiat Oncol Biol Phys* 1990; **19**: 1377-1382 [*RCA*] [PMID: 2262361 DOI: 10.1016/0360-3016(90)90347-m] [FullText]

71 **Pedicini P**, Strigari L, Benassi M. Estimation of a self-consistent set of radiobiological parameters from hypofractionated versus standard radiation therapy of prostate cancer. *Int J Radiat Oncol Biol Phys* 2013; **85**: e231-e237 [*RCA*] [PMID: 23332226 DOI: 10.1016/j.ijrobp.2012.11.033] [FullText]

72 **Miralbell R**, Roberts SA, Zubizarreta E, Hendry JH. Dose-fractionation sensitivity of prostate cancer deduced from radiotherapy outcomes of 5,969 patients in seven international institutional datasets: α/β = 1.4 (0.9-2.2) Gy. *Int J Radiat Oncol Biol Phys* 2012; **82**: e17-e24 [*RCA*] [PMID: 21324610 DOI: 10.1016/j.ijrobp.2010.10.075] [FullText]

73 **Kajanti M**, Holsti LR, Holsti P, Möykkynen K. Effect of split-course radiotherapy on survival and local control in advanced localized prostatic carcinoma. *Int J Radiat Oncol Biol Phys* 1993; **26**: 211-216 [*RCA*] [PMID: 8491679 DOI: 10.1016/0360-3016(93)90199-6] [FullText]

74 **Lai PP**, Perez CA, Shapiro SJ, Lockett MA. Carcinoma of the prostate stage B and C: lack of influence of duration of radiotherapy on tumor control and treatment morbidity. *Int J Radiat Oncol Biol Phys* 1990; **19**: 561-568 [*RCA*] [PMID: 2211204 DOI: 10.1016/0360-3016(90)90481-x] [FullText]

75 **Lai PP**, Pilepich MV, Krall JM, Asbell SO, Hanks GE, Perez CA, Rubin P, Sause WT, Cox JD. The effect of overall treatment time on the outcome of definitive radiotherapy for localized prostate carcinoma: the Radiation Therapy Oncology Group 75-06 and 77-06 experience. *Int J Radiat Oncol Biol Phys* 1991; **21**: 925-933 [*RCA*] [PMID: 1917621 DOI: 10.1016/0360-3016(91)90731-i] [FullText]

76 **Horwitz EM**, Vicini FA, Ziaja EL, Dmuchowski CF, Stromberg JS, Gustafson GS, Martinez AA. An analysis of clinical and treatment related prognostic factors on outcome using biochemical control as an end-point in patients with prostate cancer treated with external beam irradiation. *Radiother Oncol* 1997; **44**: 223-228 [*RCA*] [PMID: 9380820 DOI: 10.1016/s0167-8140(97)00126-6] [FullText]

77 **Chen Z**, King W, Pearcey R, Kerba M, Mackillop WJ. The relationship between waiting time for radiotherapy and clinical outcomes: a systematic review of the literature. *Radiother Oncol* 2008; **87**: 3-16 [*RCA*] [PMID: 18160158 DOI: 10.1016/j.radonc.2007.11.016] [FullText]

Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
Telephone: +1-925-3991568
E-mail: office@baishideng.com
Help Desk: https://www.f6publishing.com/helpdesk
https://www.wjgnet.com