Actas Urol Esp. 2017;xxx(xx):xxx–xxx

Actas Urológicas Españolas

www.elsevier.es/actasuro

ORIGINAL ARTICLE

Higher number of transrectal ultrasound guided prostate biopsy cores is associated with higher blood loss and perioperative complications in robot assisted radical prostatectomy☆

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Received 12 January 2016; accepted 1 September 2016

KEYWORDS
Prostate cancer;
Imaging-guided biopsy;
Robot assisted radical prostatectomy

Abstract

Introduction: The local inflammatory process after prostate biopsies can have a negative impact on functional outcomes of radical prostatectomy. There is no evidence in literature demonstrating its impact on radical prostatectomy.

Objectives: To evaluate the impact of the number of TRUS core biopsies in the surgical morbidity and rate of positive margin on robot assisted radical prostatectomy (RARP).

Material and methods: A prospectively maintained database of 2054 RARPs in a single institution. Patients were further grouped into 2 groups based on the number of TRUS biopsy cores (G1 $\leq$ 12 cores; G2 > 12 cores). Multivariable logistic regression model was applied to analyze the impact of number of cores on complications.

Results: A total number of 1042 patients in the group 1 ($\leq$12 cores) and 1012 patients in the group 2 (>12 cores) were included. The rate of perioperative complications increased with higher number of biopsies (G1 6.4 vs. G2 8.5%; $p = 0.03$), but high grade complication (Clavien 3–4) were similar (G1 1.4 vs. G2 2.2%; $p = 0.16$). Positive surgical margin rates were similar in both groups (G1 11.8 vs. 9.98%; $p = 0.2$). At the multivariable logistic regression analysis shown that G2 had a 39% (OR 0.645) higher rate to experience perioperative complications during RARP.

☆ Please cite this article as: Carneiro A, Sivaraman A, Sanchez-Salas R, Nunes-Silva I, Baghdadi M, Srougi V, et al. Un mayor número de cilindros de biopsia transrectal de próstata guiada por ultrasonido se asocia con una mayor pérdida de sangre y complicaciones perioperatorias en la prostatectomía radical asistida por robot. Actas Urol Esp. 2016. http://dx.doi.org/10.1016/j.acuro.2016.09.012

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Conclusion: Higher number of TRUS biopsy cores (>12) is associated to higher blood loss and perioperative complications during RARP. Careful preoperative evaluation for those patients underwent multiple biopsies or saturation protocols is mandatory. Application of longer intervals (>6 weeks) between biopsy and surgery may be advisable to minimize potential risks of surgical complications in patients may benefit from RARP. Further studies are still necessary to confirm these results.

PALABRAS CLAVE
Cáncer de próstata;
Biopsia prostática ecodirigida;
Prostatectomía radical asistida por robot

Un mayor número de cilindros de biopsia transrectal de próstata guiada por ultrasonido se asocia con una mayor pérdida de sangre y complicaciones perioperatorias en la prostatectomía radical asistida por robot

Resumen

Introducción: La reacción inflamatoria local después de una biopsia prostática (BP) puede influir de manera negativa en los resultados globales posprostatectomía radical. No hay evidencia suficiente en la literatura respecto al impacto del número de punciones en los resultados posquirúrgicos.

Objetivos: Determinar el impacto del número de punciones de la BP en las complicaciones posquirúrgicas y en el estado de los márgenes operatorios.

Material y métodos: Se registraron prospectivamente 2.054 pacientes sometidos a prostatectomía radical asistida por robot (PRAR) en nuestra institución. Se formaron 2 grupos de pacientes, en relación con el número de punciones en la BP (G1 $\leq$ 12 punciones; G2 > 12 punciones). Se evaluó por medio del análisis multivariable (modelos de regresión logística) el impacto del número de punciones en las complicaciones posquirúrgicas.

Resultados: Se incluyeron 1.042 pacientes en el grupo 1 ($\leq$12 punciones) y 1.012 pacientes en el grupo 2 (>12 punciones). La tasa de complicaciones perioperatorias se incrementó a medida que aumentaba el número de punciones. (G1 6,4 vs. G2 8,5%; p = 0,03); no obstante, las complicaciones mayores (Clavien 3–4) fueron similares (G1 1,4 vs. G2 2,2%; p = 0,16). No hubo diferencia estadísticamente significativa respecto a los márgenes quirúrgicos positivos en ambos grupos (G1 11,8 vs. 9,98%; p = 0,2). El análisis multivariable (regresión logística) demostró que el grupo 2 tenía un porcentaje un 39% mayor de experimentar complicaciones post-PRAR (OR 0,645).

Conclusión: El mayor número de punciones (>12) en la BP podría estar relacionado con mayor sangrado y complicaciones posquirúrgicas después de PRAR. Una cuidadosa evaluación preoperatoria de los pacientes que se sometieron a biopsias o protocolos de saturación múltiple es obligatoria. La aplicación de intervalos más largos (>6 semanas) entre la biopsia y la cirugía puede ser recomendable para minimizar los potenciales riesgos de complicaciones quirúrgicas en los pacientes que pueden beneficiarse de PRAR. Otros estudios son todavía necesarios para confirmar estos resultados.

Introduction

Repeated prostate biopsies are often required during prostate specific antigen (PSA) screening or when conservative treatments for prostate cancer such as active surveillance or focal therapies are applied. Consequently, the number of biopsies performed annually has had a significant increase over the years, as well as the number of saturation biopsy protocols using increased cores (>20 cores) aiming to improve cancer detection rates.[1,2]

In this scenario, the transrectal ultrasound (TRUS) guided biopsy has been the most commonly used approach for collecting prostate specimens worldwide. However, despite their large application, TRUS biopsies are associated to higher rates of post-biopsy infections and sepsis due to rectal mucosa multi-resistant bacteria inoculation into the urinary tract.[3] Furthermore, TRUS repeated biopsies and saturation biopsy protocols are related to increased rates of bleeding and urinary infections as well.[4,5]

For this reason, the impact of prostate biopsies and their possible complications on the prostate surrounding tissues has been of great study interest. TRUS prostate biopsies cause local tissue trauma due to direct damage, and they are eventually associated to infection complications. Both events can result in inflammation leading to local fibrosis and scar tissue formation.[6,7] As a consequence, reports have linked multiple previous biopsies to a negative impact on functional outcomes after radical prostatectomy (RP).[8]

On the other hand, there is still no evidence in the literature demonstrating if extensive biopsy protocols can have an