

PubMed

**Format:** Abstract

J Urol. 2019 Jan 21. doi: 10.1097/JU.000000000000053. [Epub ahead of print]

## Outcomes of Primary Lymph Node Staging of Intermediate and High Risk Prostate Cancer with 68Ga-PSMA Positron Emission Tomography/Computerized Tomography Compared to Histological Correlation of Pelvic Lymph Node Pathology: Can Preoperative 68Ga-PSMA Positron Emission Tomography/Computerized Tomography Replace Pelvic Lymph Node Dissection for Prostate Cancer Staging?

Yaxley JW<sup>1,2,3</sup>, Raveenthiran S<sup>2</sup>, Nouhaud FX<sup>2,4</sup>, Samartunga H<sup>5,3</sup>, Yaxley AJ<sup>6</sup>, Coughlin G<sup>1,2</sup>, Delahunt B<sup>7</sup>, Egevad L<sup>8</sup>, McEwan L<sup>9</sup>, Wong D<sup>9</sup>.

- 1 Wesley Urology Clinic, Brisbane, Queensland, Australia.
- 2 Royal Brisbane and Women's Hospital, Brisbane, Queensland, Australia.
- 3 Brisbane and Department of Medicine, University of Queensland, Herston, Queensland, Australia.
- 4 Department of Urology, Rouen University Hospital, Rouen, France.
- 5 Aquesta Uro-Pathology, Brisbane, Queensland, Australia.
- 6 School of Medicine, Griffith University, Brisbane, Queensland, Australia.
- 7 Department of Pathology and Molecular Medicine, Wellington School of Medicine and Health Sciences, Newtown, Wellington, New Zealand.
- 8 Department of Oncological Pathology, Karolinska Institute, Stockholm, Sweden.
- 9 Wesley Medical Imaging, Brisbane, Queensland, Australia.

**PURPOSE:** The majority of men who undergo pelvic lymph node dissection at radical prostatectomy have benign lymph node histology. The aim of this study was to assess the predictive value of preoperative Ga-PSMA (prostate specific membrane antigen) positron emission tomography/computerized tomography to predict histological metastasis on pelvic lymph node dissection performed during radical prostatectomy.

**MATERIALS AND METHODS:** We retrospectively reviewed the sensitivity, specificity, and positive and negative predictive values of preoperative staging Ga-PSMA positron emission tomography/computerized tomography to identify histological lymph node metastasis in 208 consecutive men who subsequently proceeded with pelvic lymph node dissection at radical prostatectomy.

**RESULTS:** Median prostate specific antigen was 7.6 µg/l, the lymph node count was 13 and Gleason score was 4 + 5. On a per patient basis only 21 of the 55 men with metastasis on

histological examination were identified on Ga-PSMA positron emission tomography/computerized tomography for 38.2% sensitivity. Of the 143 men with no lymph node metastasis on Ga-PSMA imaging 34 had metastasis on histology for 80.8% negative predictive value. Specificity was 93.5% and positive predictive value was 67.7%. For the 172 histologically identified malignant lymph node metastases the sensitivity per node was 24.4% and specificity was 99.5%.

**CONCLUSIONS:** If negative Ga-PSMA positron emission tomography/computerized tomography is used as the basis of not performing pelvic lymph node dissection, 80% of men would avoid unnecessary pelvic lymph node dissection. However, Ga-PSMA positron emission tomography/computerized tomography has poor sensitivity per node to detect all histologically positive lymph node metastases. Thus, pelvic lymph node dissection remains the gold standard to stage pelvic lymph nodes despite its known limitations and complications.

PMID: 30672842 DOI: [10.1097/JU.0000000000000053](https://doi.org/10.1097/JU.0000000000000053)

---