

An Audit of Imaging in Patients Diagnosed with Early Prostate Cancer

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Introduction

Prostate cancer is the commonest cancer in men in the UK¹ and a number of treatments exist depending on staging. The use of imaging in early prostate cancer is frequently debated at the urology MDT especially Magnetic Resonance Imaging (MRI) in low and intermediate risk group patients and practice varies despite specific guidance from National Institute for Health and Clinical Excellence (NICE).²

This audit aims to:

1) assess compliance of imaging use with NICE guidance 2008 "Prostate Cancer: Diagnosis and Treatment"² at the Freeman Hospital.

2) evaluate the impact of non-compliant practices: did imaging change management plan?

Methods

- ❖ Patients with non-metastatic prostate cancer were selected based on urology MDT records between April and September 2011 (6 months) and risk stratified as per NICE guidance:

Risk Category	PSA		Gleason score		Clinical stage*
Low	< 10 ng/ml	and	≤ 6	and	T1-T2a
Intermediate	10–20 ng/ml	or	7	or	T2b-T2c
High	> 20 ng/ml	or	8-10	or	T3-T4

- ❖ Modality and timing of imaging were examined on each patient and compared with standards
- ❖ Treatment modality (surgery, radiotherapy, hormone, brachytherapy, combination therapy, or surveillance) was examined and determined if it was influenced by any non-compliant use of imaging

Audit Standards

NICE Guidance 2008 "Prostate Cancer: Diagnosis and Treatment: Imaging".² Key points include:

✓ CT in **low/intermediate** risk group - not indicated

✓ **Bone scans** in **low**-risk group - not indicated

✓ **MRI or CT** in **high**-risk group - recommended

• **MRI -not** recommended for men with **low-** or **intermediate**-risk group

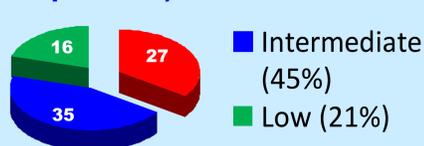
• (please see result for itemised standard)

Results

Demographics

Total n = 80	Mean Age Years (range)
Exclusions = 2	•68 (57-81)
Total audited = 78	•67 (52-78)
	•64 (51-78)

Risk Stratification (No. of patients)



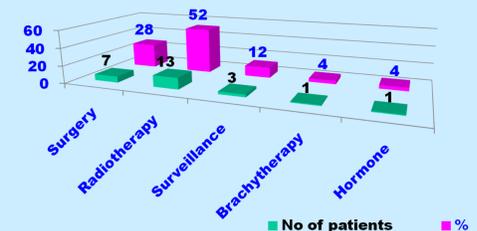
Comparison with Standards:

NICE Guidance/Audit standard	Non-compliance	Compliance
1. Treatment intent shall be determined		100%
2. No radical treatment intended -no imaging		100%
3. CT in low/intermediate risk group- not indicated	2%	98%
4. Bone scans in low-risk group- not indicated		100%
5. MR spectroscopy- only in a clinical trial		100%
6. MRI or CT in high-risk group- recommended	11%	89%
7. Bone scans when hormonal therapy is being deferred ...-recommended	NA	NA
8. PET scan for prostate ca- no role in routine practice		100%
*9. MRI in low/intermediate risk group-not recommended	49%	51%

	NO	Yes
*Did MRI imaging change cancer stage?	56%	44%
*Did MRI imaging change management plan	64%	36%

The Non-compliant MRI Use:

Total 25/51 patients (49%) - low risk group (3/51) & **Intermediate risk (22/51)**. Based on treatment modality, the distribution of these patients is illustrated in the following chart:



MRI resulted in (all within **intermediate risk group**):

- **change of cancer stage** in 11 (44%) and subsequent
- **change of treatment plan** in 9 patients (36%) including **one surgery avoided** due to metastatic disease found.

Discussion

Use of MRI in men with early prostate cancer has been controversial in the UK. The European Association of Urology (EAU) guidance recommends local staging (T-staging) of prostate cancer should be based on MRI which demonstrates higher accuracy for the assessment of T2, T3 as well as T4 disease (level of evidence C).³ The accuracy of T staging by MRI however range from 50% to 92%.⁴

NICE acknowledges the above and that MRI is "commonly used" in low/intermediate group.² Having evaluated its use in men for whom radical treatment was intended it concluded that "the cost effectiveness of MRI was yet to be established in this group" and "evidence supporting this (use of MRI) is insubstantial and further research is required".²

The authors believe that patient care can be improved:

- ✓ if a consensus can be reached and local guidance produced on MRI use especially in intermediate risk group undergoing radical treatment.
- ✓ if good quality cycles of audit results are supportive of this while more robust research evidence is still awaited.

Conclusions

- ❖ Excellent overall compliance with NICE guidance of imaging use in men with early prostate cancer including CT/MRI/Bone scan in high risk group at the Freeman Hospital, Newcastle.
- ❖ Non-compliant practice mainly involved MRI use in intermediate risk patients which had a significant clinical impact.
- ❖ This suggests MRI may have role in management of intermediate risk group undergoing radical treatment but the cost implications need to be considered.

Recommendations

- ✓ Patient risk group should be identified and documented on imaging request forms & in MDT discussion proforma to aid imaging decision
- ✓ All high risk patients should have MRI/CT performed
- ✓ To reach a consensus amongst radiologists, urologists and oncologists concerning MRI use in selected patients in intermediate risk group if radical treatment is planned. (Business case being discussed.)
- ✓ To re-audit in 12 months

References

1. Cancer Research UK <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/prostate/incidence> 2010. Accessed Dec 2012.
2. National Institute for Health and Clinical Excellence (2008) [Prostate Cancer: Diagnosis and Treatment: Imaging]. [CG58]. London: National Institute for Health and Clinical Excellence.
3. The European Association of Urology (EAU) guidance http://www.uroweb.org/gls/pdf/08%20Prostate%20Cancer_LR%20March%2013th%202012.pdf . Accessed Dec 2012.
4. Fuchsjaeger M, Shukla-Dave A, Akin O, Barentsz, Hricak H. Prostate cancer imaging. Acta Radiol 2008;49:107-20.