Active Surveillance

To read all the Educational Pamphlets 2017 go to pcamri.com

PSA to Prostate MRI

for patients and curious doctors

Samuel Aronson, M.D.           Laurence Klotz M.D.
Franck Bladou, M.D.
Armen Aprikian, M.D. & Marc Emberton, M.D.  Forewords
I’ve been diagnosed with prostate cancer. What if I decide to just do nothing?

**Active Surveillance**

Selection And Monitoring Of Untreated Prostate Cancer

“Sparing patients with Not-Aggressive and In-Between cancers the pain, risks and side effects of treatment.” – Dr. L. Klotz

**Prostate Cancers**

**Not-Aggressive**  **In-Between**  **Aggressive**

indolent, insignificant  
low grade, low risk, non-invasive  
biologically active, significant  
high grade, high risk, invasive

**Most Prostate Cancers are Not-Aggressive**

- Common, frequent, slow growing, cause no illness
- PSA, slow progression; PSA density ≤ 0.10 (prostate volume obtained from TRUS or MRI)
- Men with Not-Aggressive prostate cancers die from other causes
- Small volume Gleason grades 6 (low grade favorable microscopic appearance)

**Not visualized on MRI**

**In Between**

- PSA progression variable
- PSA Density 0.10 – 0.15
- May be visualized on MRI, cancer nodule 0.2 – 0.5 cc
- Small volume Gleason 6, 7 (3+4)

**Some Prostate Cancers are Aggressive**

- Less frequent, grow faster, cause serious illness and death
- PSA—rapid progression
  (prostate infections, urine retention can cause rapid rise in PSA)
- PSA density ≥ 0.15
- **Visualized on MRI** (cancer nodule usually ≥ 0.5 cc)
- Biopsy Gleason grades 7 (4+3), 8, 9, 10
  (high grade unfavorable microscopic appearance)

---

**Criteria for Active Surveillance**

- Age, Life expectancy
- PSA, PSA Progression, PSA Density
- MRI PI-RAD Score
- % Cancers in biopsy cores
- Local Staging
- Gleason Grade 6, 7 (3+4)
- Biomarkers
- MRI cancer nodule(s) volume, location
- Number of cores with cancer
- Distance Staging

---

**PSA**

For Diagnosis

- no assigned normal limits
- 4 ng/ml upper limit of normal incorrect
- The higher the PSA value the greater likelihood of cancer
- Less than 4 ng/ml Aggressive cancers can be present
- Over 4 ng/ml mostly BPH caused
- PSA Density, PSA Progression better cancer predictors

After treatment

PSA is a sensitive, reliable biomarker for monitoring
Active Surveillance Outcomes

25% have higher Gleason grades than initially diagnosed
5-10% develop worst cancers over many years
30% require or request treatment
2-3% die from prostate cancer

The majority of men with Not-Aggressive and In-Between cancers benefit by Active Surveillance, avoid treatment
Very few men on Active Surveillance develop problems from prostate cancer
Programmed monitoring with PSA, biomarkers, MRI and repeat biopsies diagnosis the aggressive cancers earlier before they cause trouble

Prostate MRI

- New remarkable detailed prostate imaging anatomy T2w, physiology DWI/ADC, microvasculature DCE
- 90% accurate in identifying Aggressive cancers
  - Targets specific nodule(s) to biopsy
  - Predicts Gleason Grade
- Provides image based criteria for Active Surveillance selection and monitoring
- Baseline MRI a reference for monitoring MRIs
- MRI best done before biopsy artefacts which makes interpretation much more difficult
- Requires experienced Radiologist, MRI knowledgeable Urologist and Pathologist to prove the presence of cancer (concordance with the MR images)
- 5 alfa reductases inhibitors downplays aggressive cancers
  - Lowers PSA
  - Decreases MR Imaged nodule(s) volume and score
  - Gives a false sense of PSA security

These percentages will decrease with MRI targeted biopsy, MRI selection and monitoring for Active Surveillance

Gleason Grade 3+4
Less than 10% pattern 4 is suitable for Active Surveillance
Greater than 10% pattern 4 has 4 times higher prostate cancer mortality
Active Surveillance Monitoring

MEN AT LOW RISK (limited life expectancy, many co morbidities)
*appropriate follow up*

MEN AT MODERATE AND HIGH RISK

6 MONTHS
- PSA every 6 months
- PSAD
- Biomarkers
- MRI if none previous

12-36 MONTHS
- Repeat MRI, compare to previous
- PSAD, urine culture, PVR
- Biomarkers
- MRI/TRUS fusion targeted biopsy

MRI and advanced biomarkers are replacing the need for serial repeat biopsy sessions

Prostate cancer doubling time is 4 years. Missing a Gleason 3+3 or low volume 3+4 causes no harm. Programmed monitoring will diagnose them.

References
1. Cristea O. et al., Active Surveillance in Canadian men with low-grade prostate cancer, CMAJ (2016) 188(8)
6. Villers, A. et. al. MRI in Addition To or As a Substitute for Prostate Biopsy The Clinicians Point of View, Diagnostic and Interventional Imaging (2012) 93, 262-264.

SAMUEL ARONSON M.D.
Assistant Professor of Urology, McGill University

Jewish General Hospital
3755 Côte Ste-Catherine Rd, E-959
Montreal (Quebec) H3T 1E2
Phone: 514 340-7558  Fax: 514 340-7559

LAURENCE KLOTZ, M.D.
Professor of Surgery, University of Toronto
Chief, Division of Urology
Sunnybrook Health Science Center
Room MG-408 Bayview Avenue
Toronto (Ontario) M4N 3M5
Phone: 416 480-4673  Fax: 416 480-6121

www.pcamri.com
info@pcamri.com