Prediction of Prostate Cancer Tumour Volume

Introduction and Objective:
There are many nomograms available to predict tumour volume. How applicable are they to local populations.

Materials and Methods:
A retrospective and prospective analysis by univariate linear regression of up to 500 patient characteristics generated individual correlation coefficients.

Results:

	r	r2 proportion of variation explained by regression		n
PSA	0.3454	0.119	12%	494
cores	0.3417	0.116	12%	446
DRE	0.2651	0.07	7%	424
%	0.2483	0.061	6%	398
bi	0.1902	0.036	4%	422
Gleason	0.1535	0.023	2%	482
age	0.1109	0.0122	1%	498
Inner gland volume on TRUS	-0.0727	0.00528	0.50%	141
Total gland volume on TRUS	-0.0419	0.0017	0.20%	303
			approx 45% of cancer tissue is explained by these 9 variables	

significant difference between PSA and other parameters?

psa and cores P=0.959
psa and dre
P=0.184
psa and % P=0.115
psa and bi P=0.012 sig
psa and Gleason P=0.00137
psa and age P=0.000093
psa and TZ P=0.000008
psa and vol P= 0.00000005

psa test for equality of these correlation coefficients, chi = 4.04 P= 0.257, ie no difference
cores
DRE
% of
core

Conclusions: Predicting final pathological radical prostatectomy tumour volume is fraught with difficulties using pre operative biopsy characteristics. We found that the parameters were PSA, number of cores involved, digital rectal examination and % involvement of core were best, although each performed poorly with correlation coefficients of around 0.3. Surprisingly bilateral disease (which

by definition is at least T2c) performed significantly worse as did Gleason score (there is significant upgrading on final pathology) and age. Inner gland volume and total gland volume were negatively correlated. A nomogram to predict the tumour volume is needed which will take into account the total gland volume, inner gland volume and peripheral gland volume. This will almost certainly improve the predictive power of the biopsy parameters. The clinicians' rectal examination experience is probably also important but we have not been able to prove this yet.