Can Multiparametric Prostate MRI Diagnose Cases with a Gleason Score of 3+3 in Prostate Biopsy Upgrade Patients in Radical Resection Material?

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INTRODUCTION

Prostate cancer is the second most common cancer in men after lung cancer. The pathological grading of prostate cancer is performed with the Gleason scoring (GS) system, which correlates with the stage and prognosis of the disease. The treatment approach for cases with GS 6 determined by transrectal ultrasound (TRUS) biopsy is not clearly defined in the literature. In our study, we aimed to identify cases with GS 6 on TRUS biopsy whose stage escalated based on preoperative MRI findings compared to surgical outcomes.

METHOD

In this retrospective study, data from 22 patients with prostate cancer with a Gleason score of 3+3 were examined. Patients were divided into two groups based on the Gleason cancer score of the radical prostatectomy specimen. Cases that remained with a final score of GS 3+3 (group 1, n=6) and cases with higher GS scores (group 2, n=16) were considered as two separate groups. Age, lesion size, prostate volume, PSA value, and PSA index were compared between the two groups. Additionally, ADC values were measured using ROI from diffusion-weighted images obtained with two different techniques with b values of 800 and 1500, and a comparison was made between the groups. The early arterial phase contrast enhancement feature of the lesions was recorded in dynamic contrast-enhanced examinations.

RESULTS

At the end of the study, it was observed that cancer stage escalated in 16 out of 22 patients (73%). The mean age of group 1 patients (57±3.9) was lower than that of group 2 patients (66±7.5), and this difference was statistically significant (p=0.009). Lesion size was smaller in group 1 patients (p=0.045). There was no statistically significant difference between the two groups in terms of MRI-biopsy intervals and biopsy-surgery durations (p=0.07 and 0.437, respectively). There was no significant difference between the two groups in terms of prostate volume, PSA value, PSA index, and early arterial contrast enhancement pattern (p=0.237, p=0.149, p=0.06, p=0.091, respectively). ADC values were significantly different between the two groups, with higher values observed in group 1 patients (p=0.011 and p=0.009).

Graphic 1: ADC values (0.27x10-3 mm2/second)

Graphic 2: age

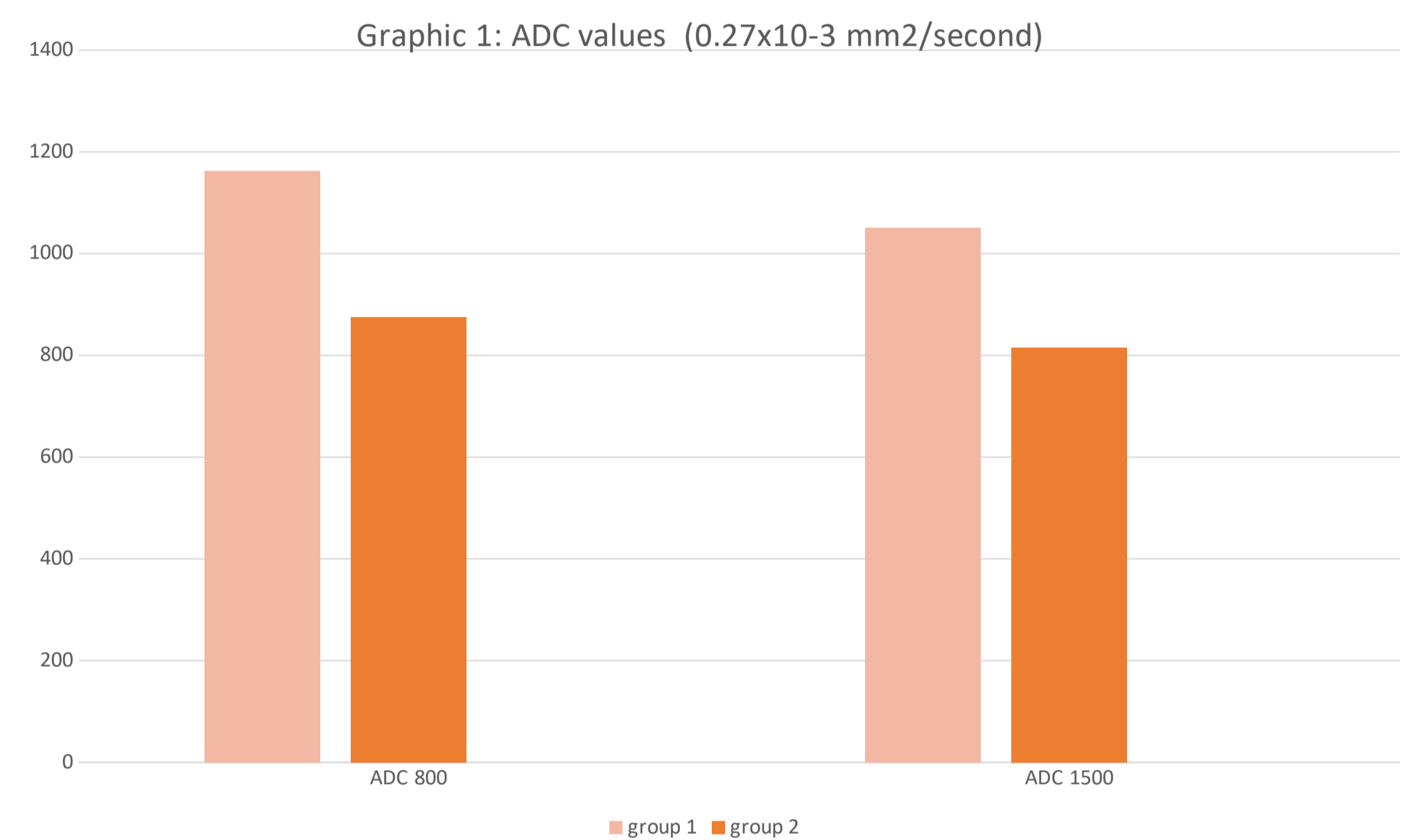Graphic 3: prostate size (cc)
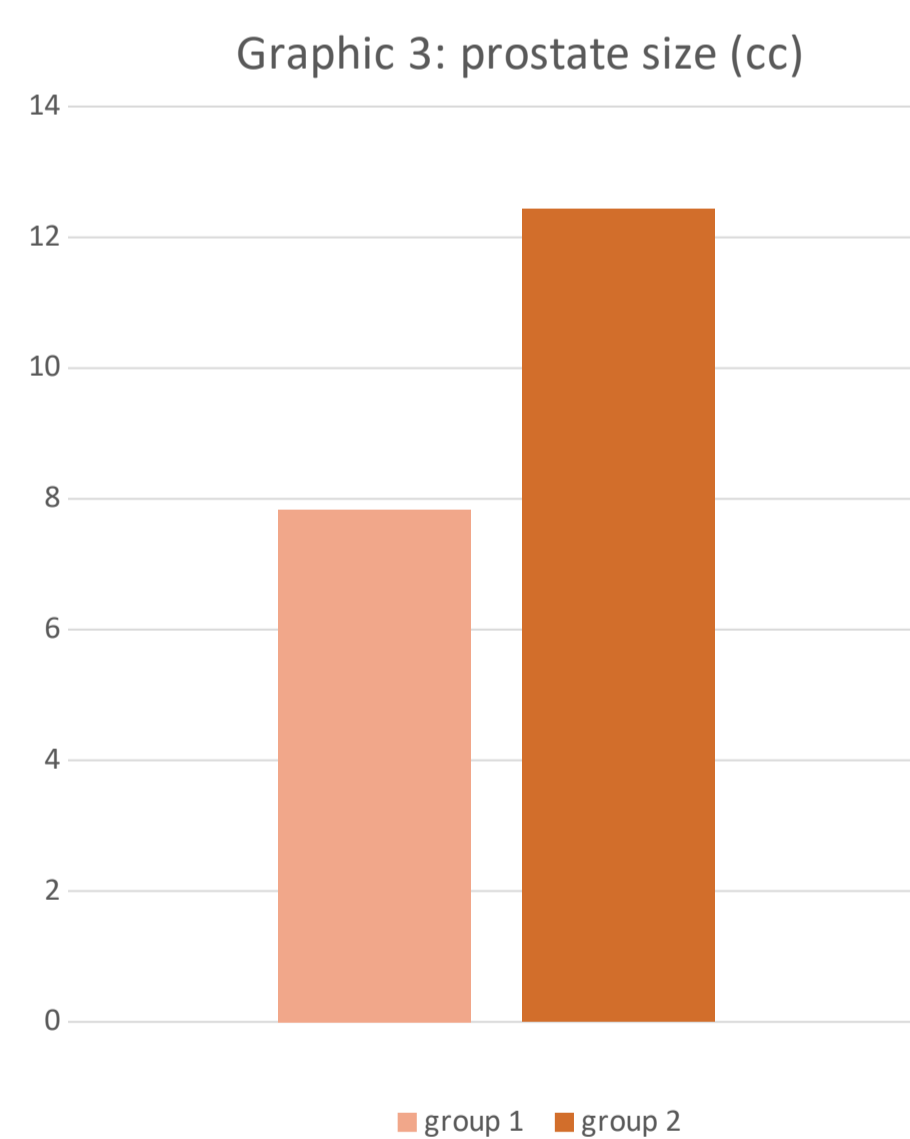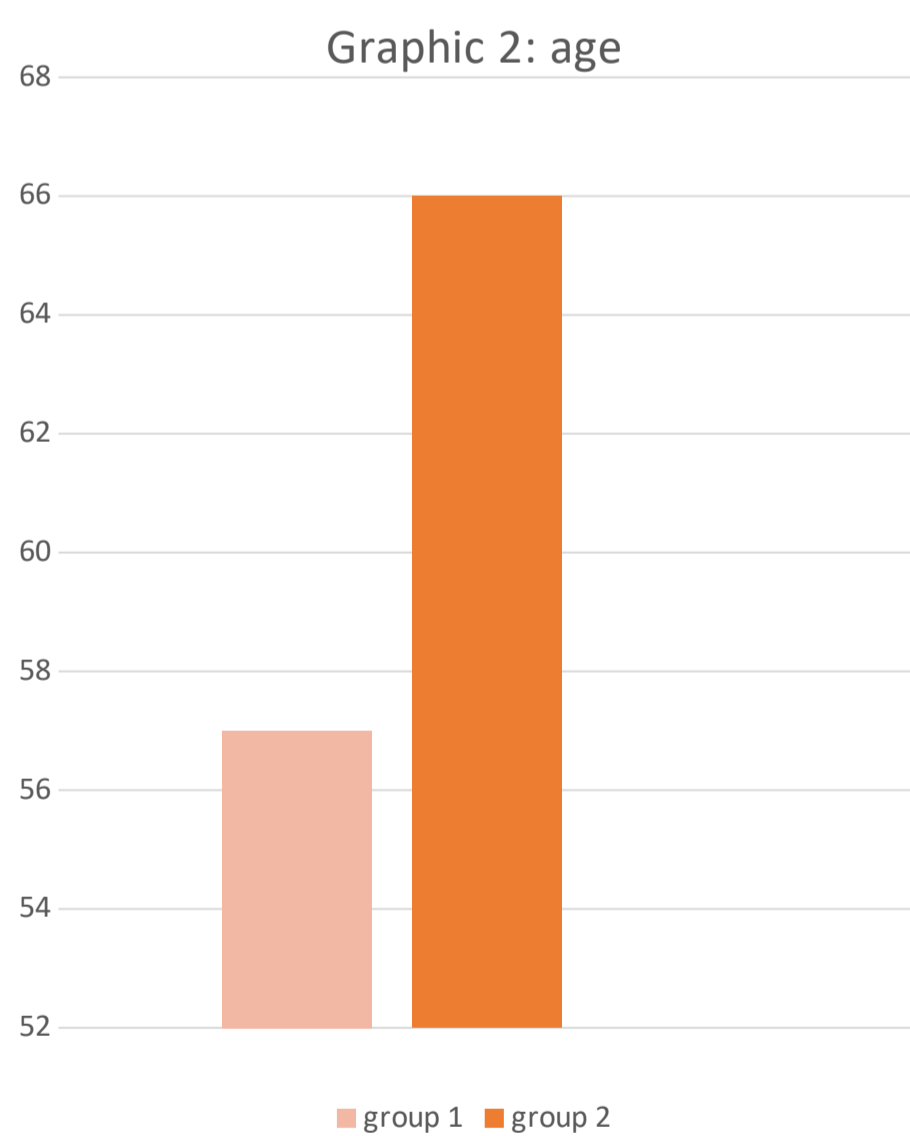
CONCLUSION

According to the preliminary results we obtained, in cases where TRUS biopsy results in a GS of 6, identifying younger patients, smaller lesion sizes, and higher ADC values may indicate that the final GS will not increase, suggesting a more conservative approach in these cases. Once we reach a sufficient number of patients in our study, the results will be reevaluated, and conclusions will be revised accordingly in the future.

Key words: Gleason score, magnetic resonance imaging, prostat cancer

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