

Evaluation of Sexual Function On A Randomized Trial of a Prostate/Rectal Spacer

Hamstra, D.A., Shah, D., Kurtzman, S., Sylvester, J., Zimberg, S.H., Hudes, R.S., Karsh, L.I., Logsdon, M.D., Beyer, D., Kos, M., His, A., Forsythe, K., Soffen, E.M., Francke, P.M., Zhang, H., DeWeese, T.L., Ellis, R.J., Bogart, J., Mantz, C., and Mariados, N. *Daniel.Hamstra@gmail.com*

Poster #69

Background: The SpaceOAR phase 3 trial demonstrated that a hydrogel spacer placed between the prostate and rectum decreased rectal dose and toxicity while improving bowel quality of life (QOL) after image guided prostate IMRT to 79.2 Gy. Here we evaluated dose to penile bulb as well as sexual function on this trial

Material and Methods: Sexual QOL was measured with the Expanded Prostate Cancer Index Composite (EPIC) by mean summary scores and the proportion of patients with a minimal clinically significant difference (MCD) (11 points). Stratification was based on severe erectile dysfunction (ED)(EPIC ≤ 60) vs not. The single question on "Erections sufficient for intercourse over the preceding 4 weeks" was also evaluated.

Results: Median Follow-up was 37 months with 63% of men evaluable at 3 years. With Spacer the dose to the penile bulb was reduced for mean (21 vs 11 Gy), Dmax (46 vs 36 Gy), and V10-V30 (all p<0.05). For those potent at baseline there was an inverse correlation between mean penile bulb dose and ability to maintain erections sufficient for intercourse (p=0.03). Baseline EPIC sexual function was 53 (±24) with 54% having severe ED with no difference between arms (p>0.1). At 3-years average EPIC score was 39.7 (± 23) and 82% had severe ED with no differences between arms (p>0.1). At enrollment 46% had EPIC >60 with average summary of 77 (±8.3) which at 3-years was 53 (±24.8). In this sub-group a numerically higher EPIC was observed on the Spacer arm (57.7 (±24.1) vs. 44.6 (± 24.4)) which met the threshold for a MCD without statistical significance (p=0.07). Based on MCD and twice that there was a trend favoring Spacer with 53% vs 75% for 11-point decline (p=0.064) and 41% vs 60% for 22-point decline (p=0.11). A small number of men were potent at baseline and evaluable both at baseline and 3-years (n=49). Of these men on the Spacer arm were more likely to have erections sufficient for intercourse from 6-36 months post enrollment (p=0.03) which was 37.5% in the Control arm as compared to 66.7% in the Spacer arm at 3-years. Power analysis revealed 35% power to detect a change of 11-points in EPIC between arms and 27% power to detect a difference of 22-points.

Conclusion: The use of a hydrogel spacer decreased dose to the penile bulb with a suggestion of a clinically significant improvement in patient reported sexual function and potency.

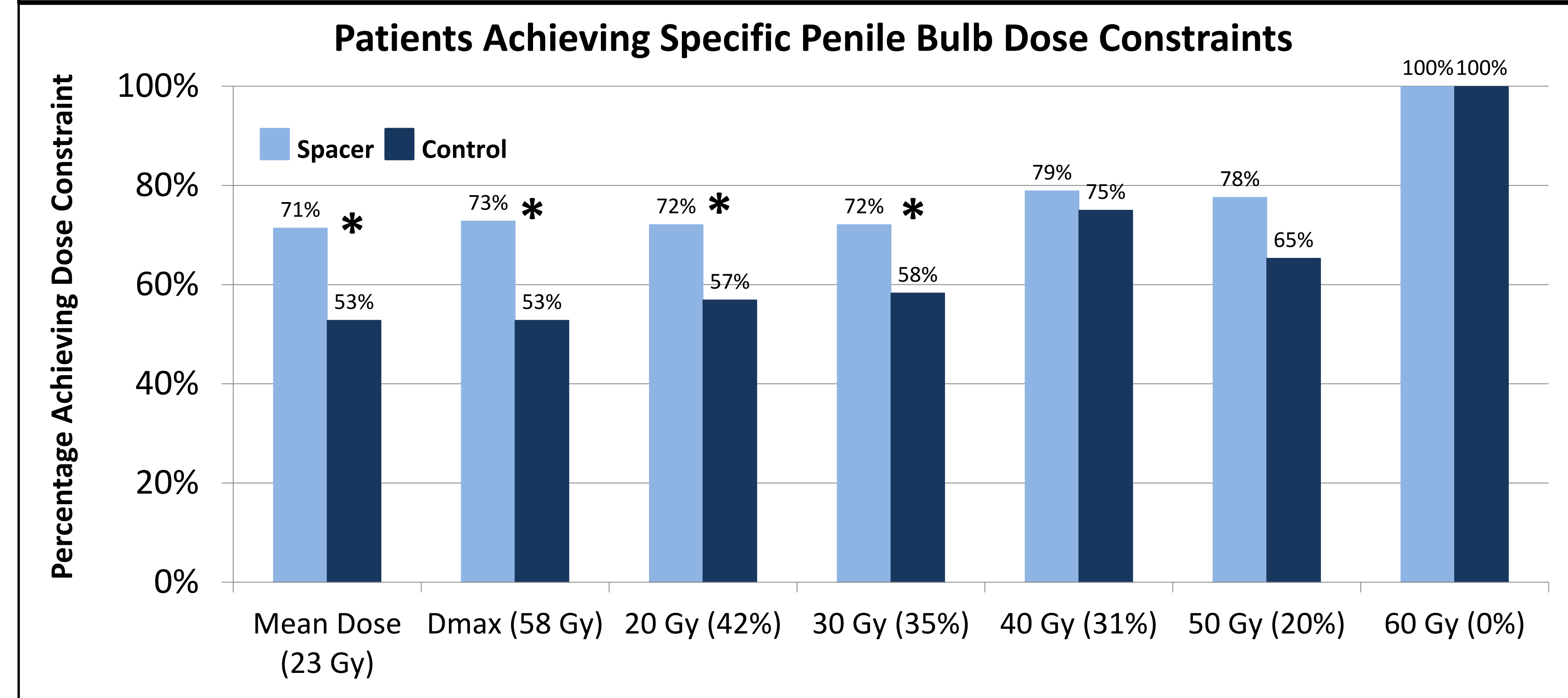


Figure 1: The Use of Rectal Spacer Resulted in Decreased Penile Bulb Doses for Dmean, Dmax, and Dose from D10-D30 Data presented are the percentage of patients on each arm achieving pre-specified cut-points (in parentheses) for penile bulb dose as recommended based upon the CHHiP Trial (Murray, J. et al. IJROBP 2016. 96:2, pg E232). The Spacer arm had statistically better distributions for Dmean, Dmax, D20 and D30 (* ; p<0.05).

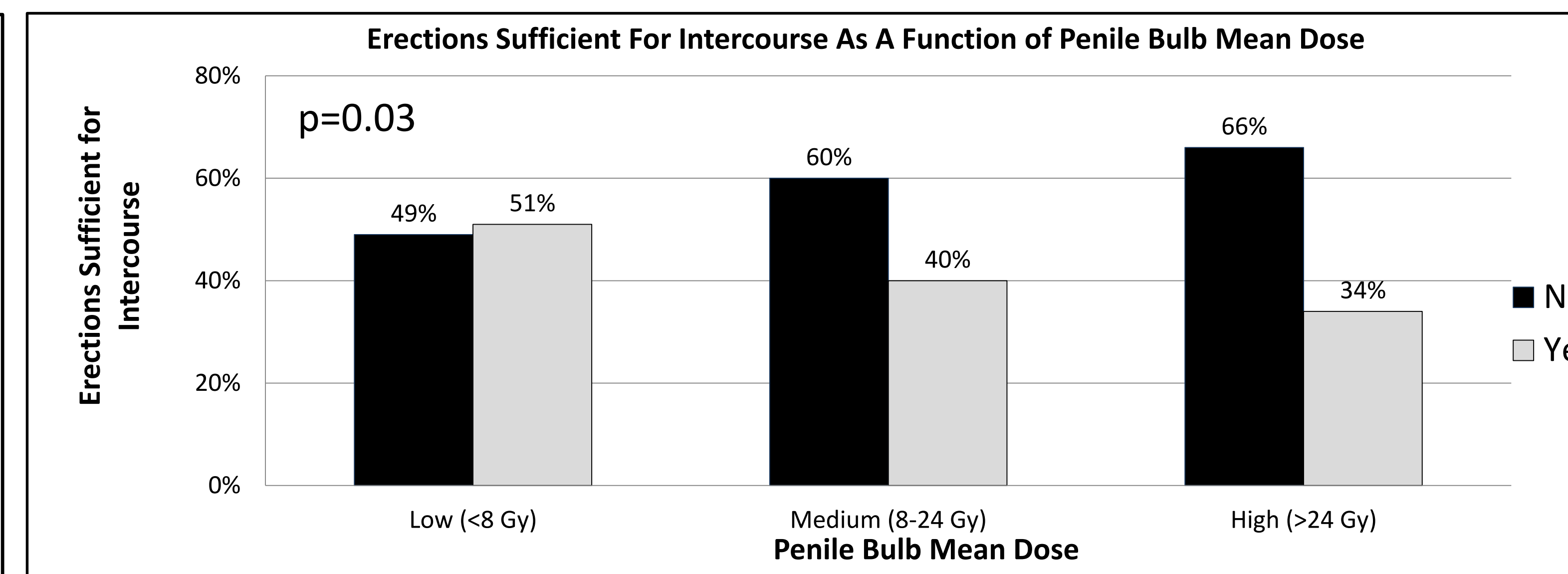


Figure 2: "Erections Sufficient for Intercourse" at 15-months as a Function of Mean Penile Bulb Dose By Tertile When limited to men with erections sufficient for intercourse at baseline there was an inverse correlation between penile bulb dose and maintaining erections sufficient for intercourse at 15-months as based upon the single question on the EPIC 50 on erectile function. (Jonckheere-Terpstra Test p-value=0.03)

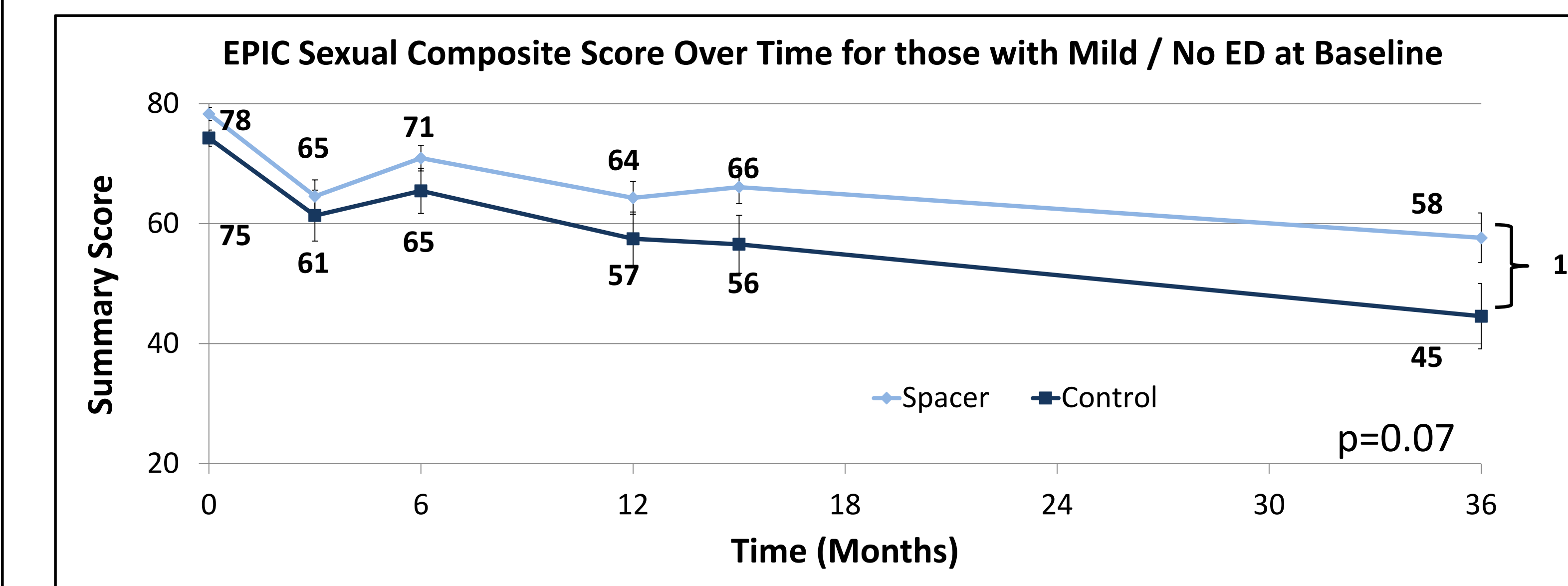
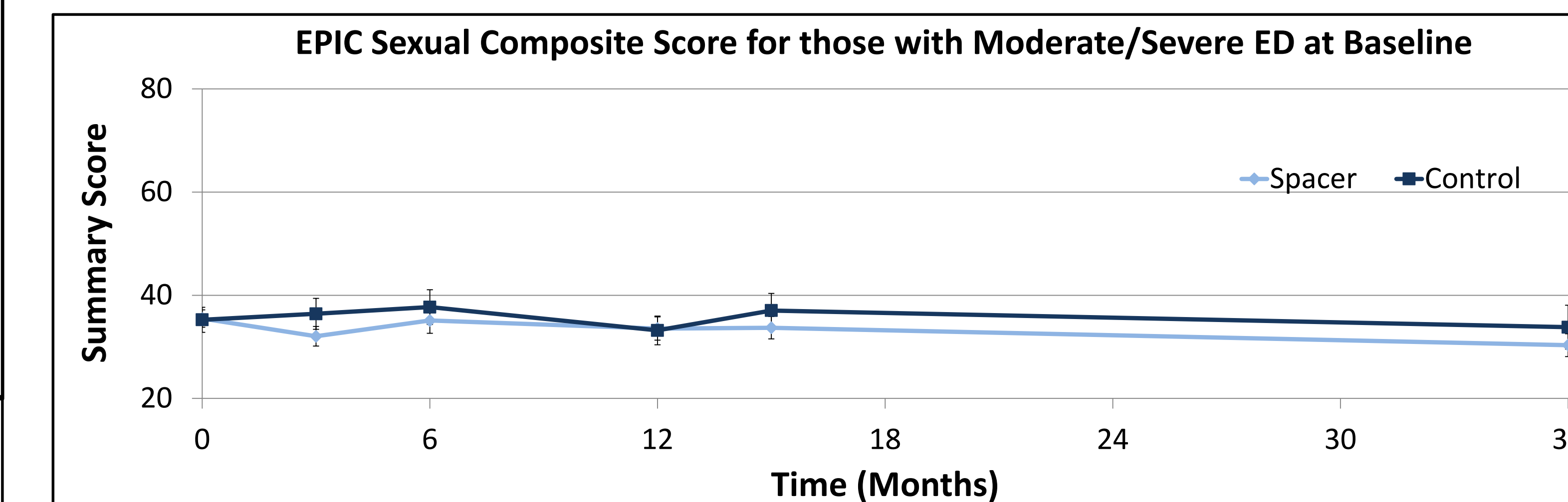


Figure 3: Epic Sexual Summary Score Over Time by Baseline Function and Treatment Arm For patients with poor baseline function (≤60, top, 54% of sample) there was no difference in EPIC sexual summary score over time by treatment arm. However, for those with better baseline function (>60, bottom, 46% of sample) there was a trend to higher EPIC sexual summary score for those randomized to prostate/rectal spacer (p=0.07). The difference at 36-months met threshold for a MCD (11-points).

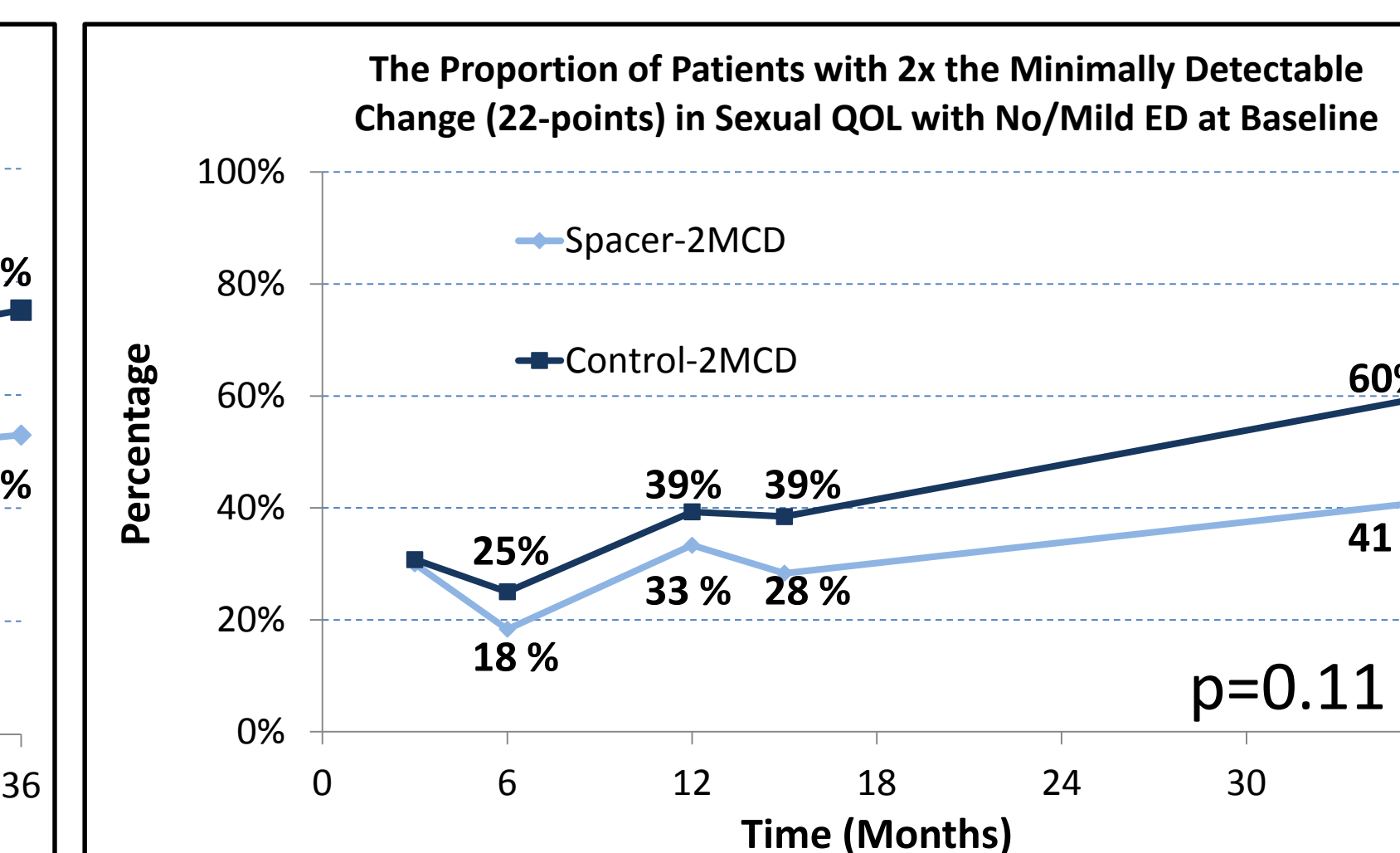
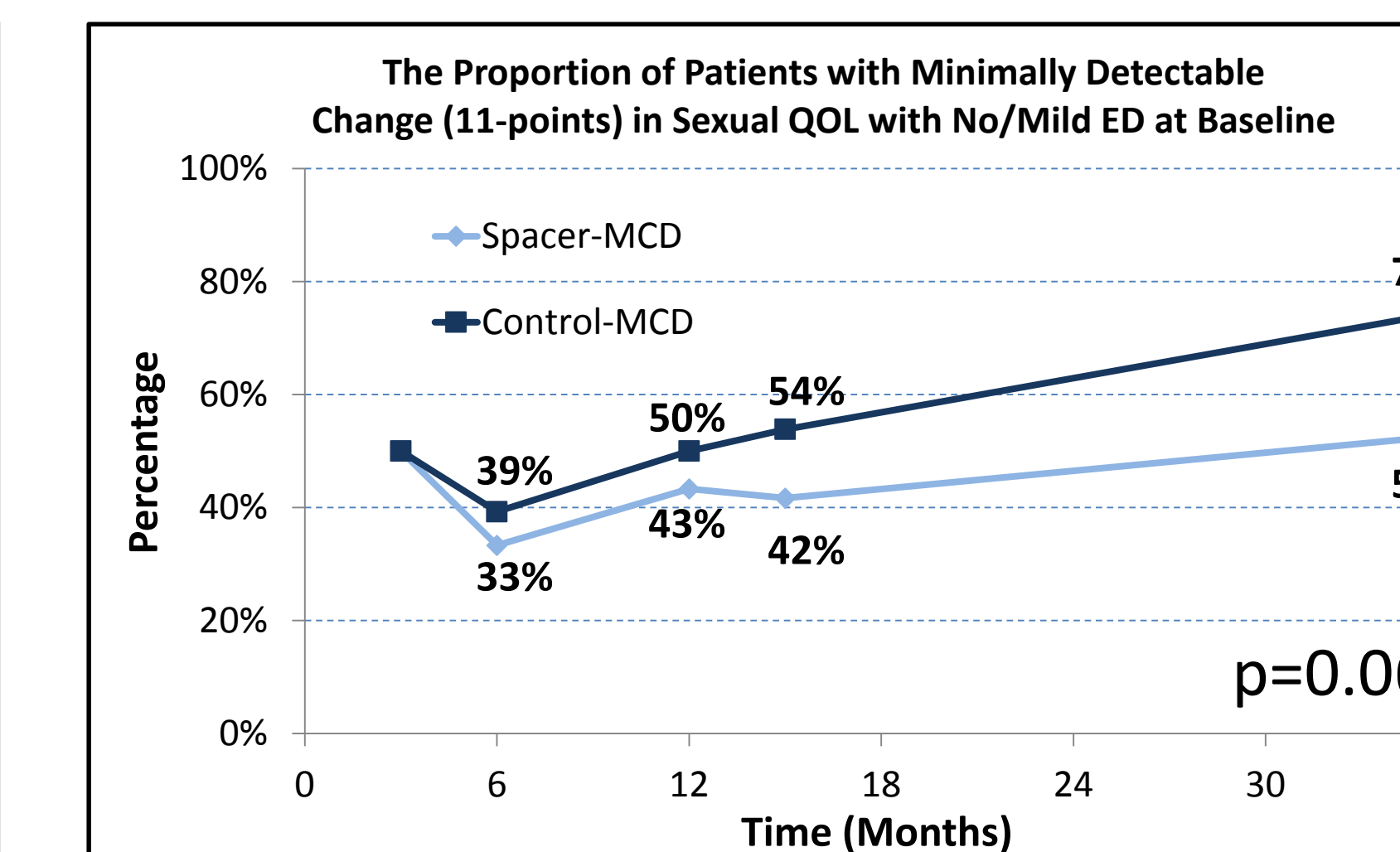


Figure 4: The Proportion of Patients Over Time by Treatment Arm with Good Baseline Function who had Declines in Sexual Function meeting 1x MCD or 2x MCD Declines Data plotted are the percentage of patients at each time point with 11- (p=0.06, left panel) or 22-point (p=0.11, right panel) declines in EPIC sexual summary score as a function of randomized treatment arm. The 11-point threshold has been established as a MCD for the EPIC instrument. (Skolarus et al. J. Urol 2015).

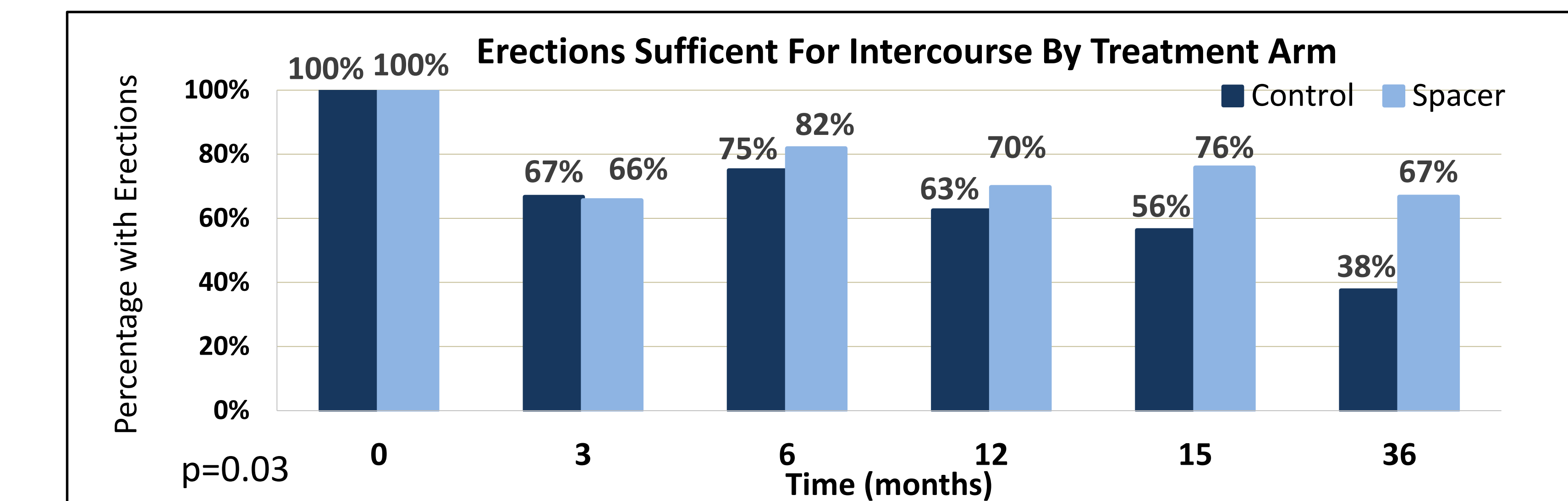


Figure 5: "Erections Sufficient for Intercourse" as a Function of Randomized Arm When limited to men with good baseline function and erections sufficient for intercourse who also had data available at 3-years (33: Spacer and 16: Control) there was a better ability to maintain erections in the experimental arm over time (p=0.03) which persisted from 6-months onward and was 67% vs. 38% at 3-years.

Conclusion: This secondary analysis of a randomized phase 3 trial for men treated with IGRT/IMRT found:

- A decrease in penile bulb radiation dose with Spacer (Fig 1, p<0.05)
- An inverse correlation between penile bulb dose and patient reported ability to maintain erections sufficient for intercourse. (Fig 2, p=0.03)

When analyzed by treatment arm men with adequate sexual function at baseline treated with Spacer had:

- A trend to clinically significant smaller decline in mean EPIC summary score (Fig 3, p=0.07)
- A trend to a smaller proportion with declines of 11-points (Fig 4, p=0.06)
- In those potent at baseline, better maintenance of erections sufficient for intercourse from 6-months through 3-years (Fig 5, p=0.03)

Not all QOL differences by treatment arm were statistically significant:

- However, given that <50% of men were potent at baseline the statistical power to detect these secondary analyses was ~25-35% limiting conclusions.