

## Could comparable ART outcome be achieved in patients with adenomyosis to those without by frozen embryo transfer after controlling disease activity with Leuplin depot?

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### Study Question:

May long-term pituitary down regulation before FET cycles improved pregnancy outcomes in women with adenomyosis?

### Study Design :

A retrospective review of ART database from our infertility center. From Jan 2013 to Dec 2017, we have a total of 1188 frozen embryo transfer (FET) cycles after preparation of the endometrium with hormone replacement therapy (HRT), with at least one good embryo for transfer.

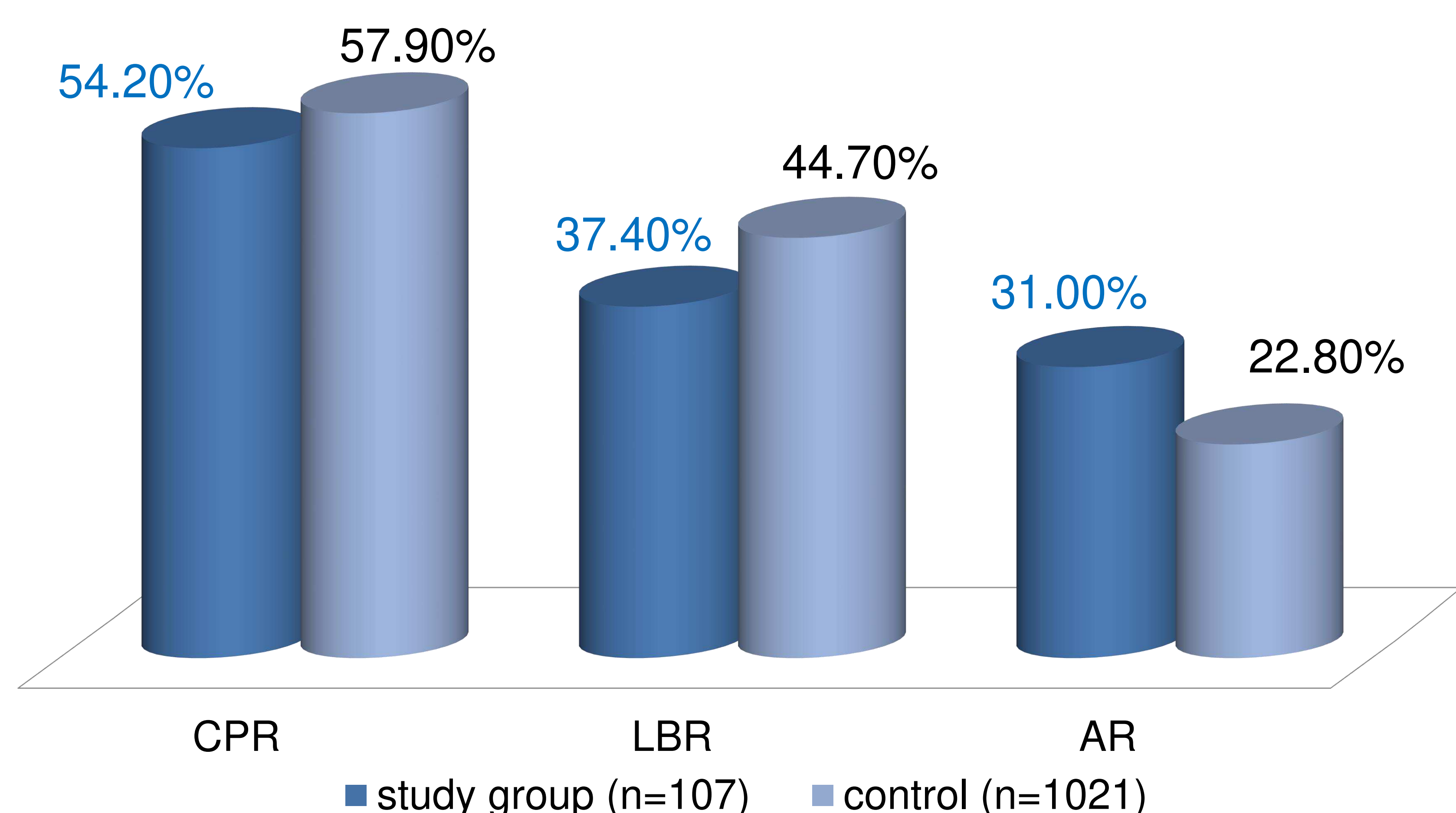
### Materials, setting and Methods:

Totally 107 patients with adenomyosis by sonographic diagnosis were included in this study. These patients were not surgically treated before and they received long-term GnRH agonist for 2 - 3 doses plus HRT (down-regulation + HRT) before FET. During this period, all the other patients without adenomyosis were included as control group. The pregnancy outcomes of the two groups were statistically compared and their serum marker CA-125 changes before and after the treatment was also compared to correlate with their final pregnancy outcome.

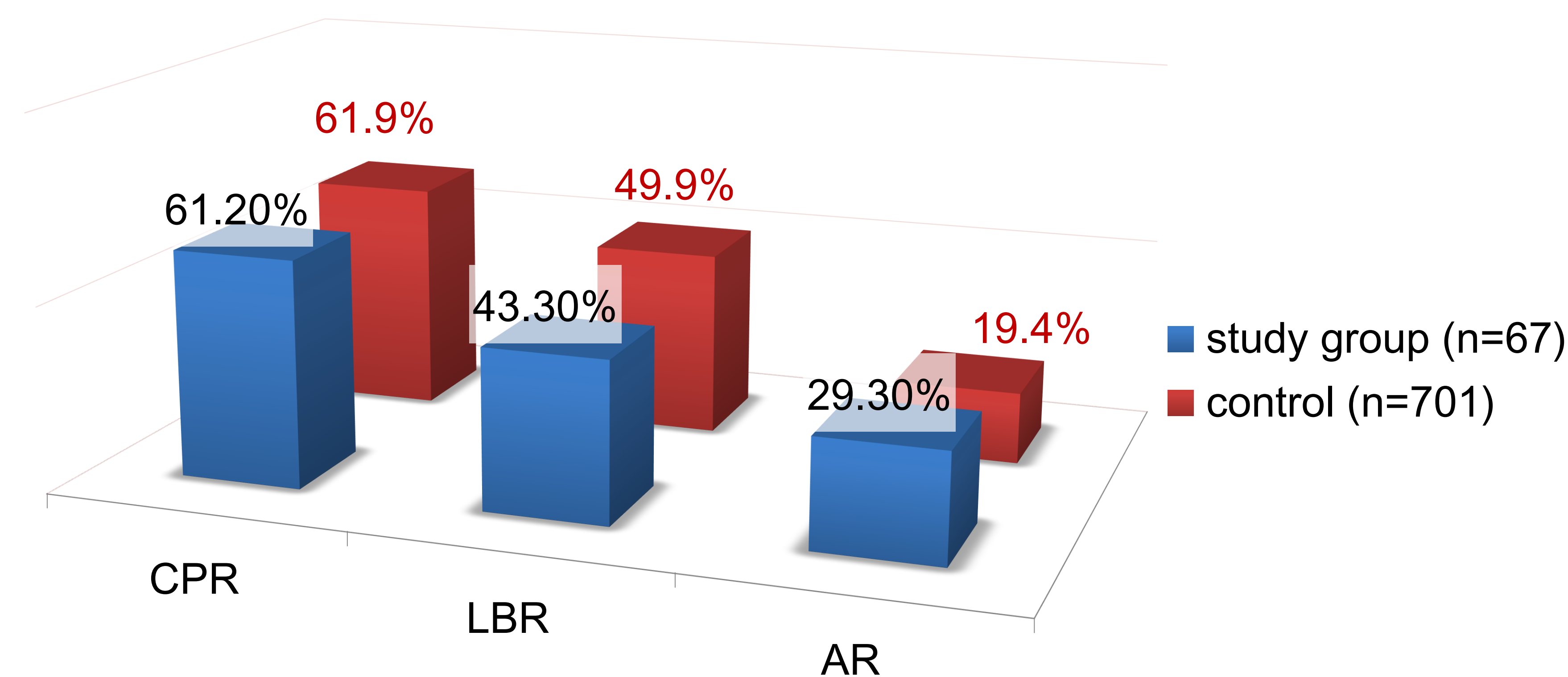
### Main Results:

The clinical pregnancy rates of the study and control groups were 54.2% and 57.9% respectively ( $p=0.464$ ). The live birth rates were 37.4% and 44.7% respectively ( $p=0.124$ ). The abortion rates were 31.0% and 22.8% respectively ( $p=0.117$ ). The clinical outcome between study and control groups in younger (age<38y/o) or older patient (age $\geq$ 38 y/o) have no significant differences.

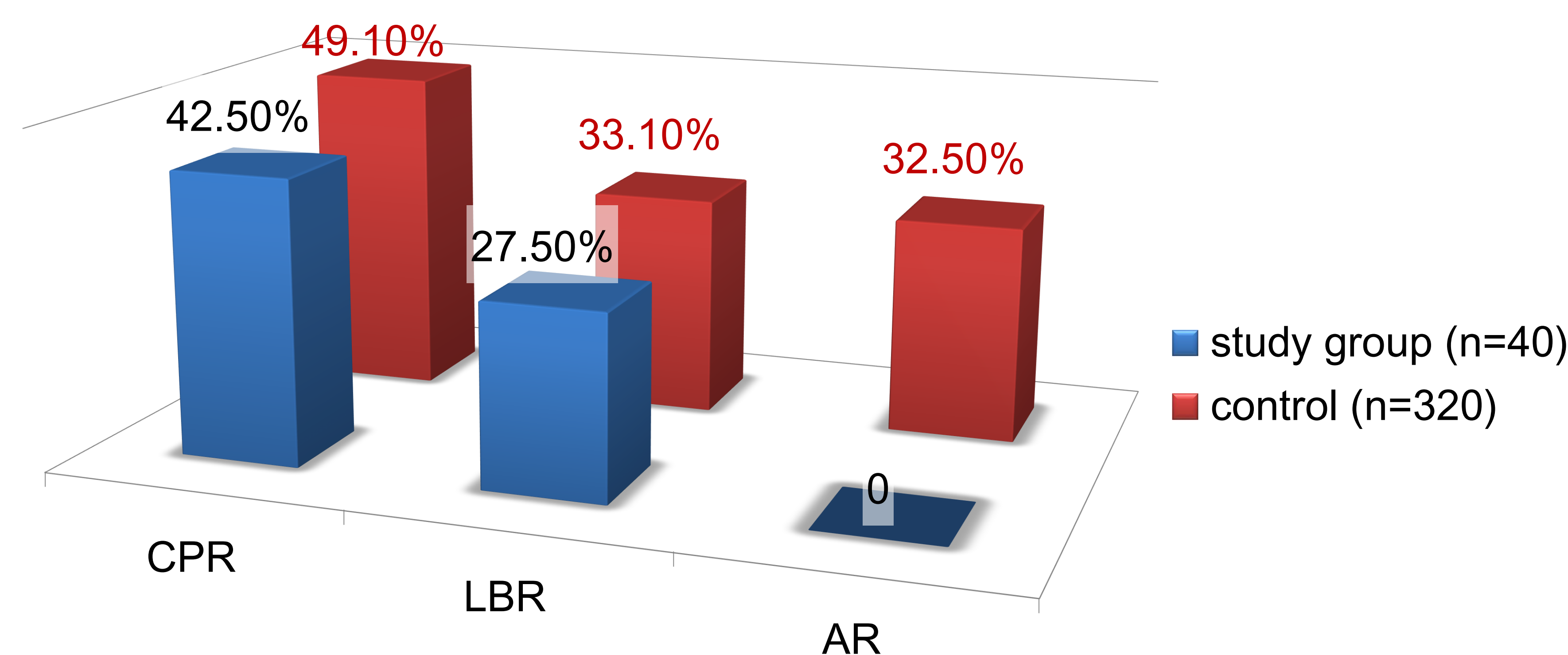
The higher abortion rates correlated to high initial serum CA-125 levels(>200 Unit/ml), and the timing of FET after the last CA-125 check(> 2 month), but no significantly correlated. Abortion rate was 42.9% and 29.4% respectively for patients with serum marker check to FET interval longer than and shorter than two months.



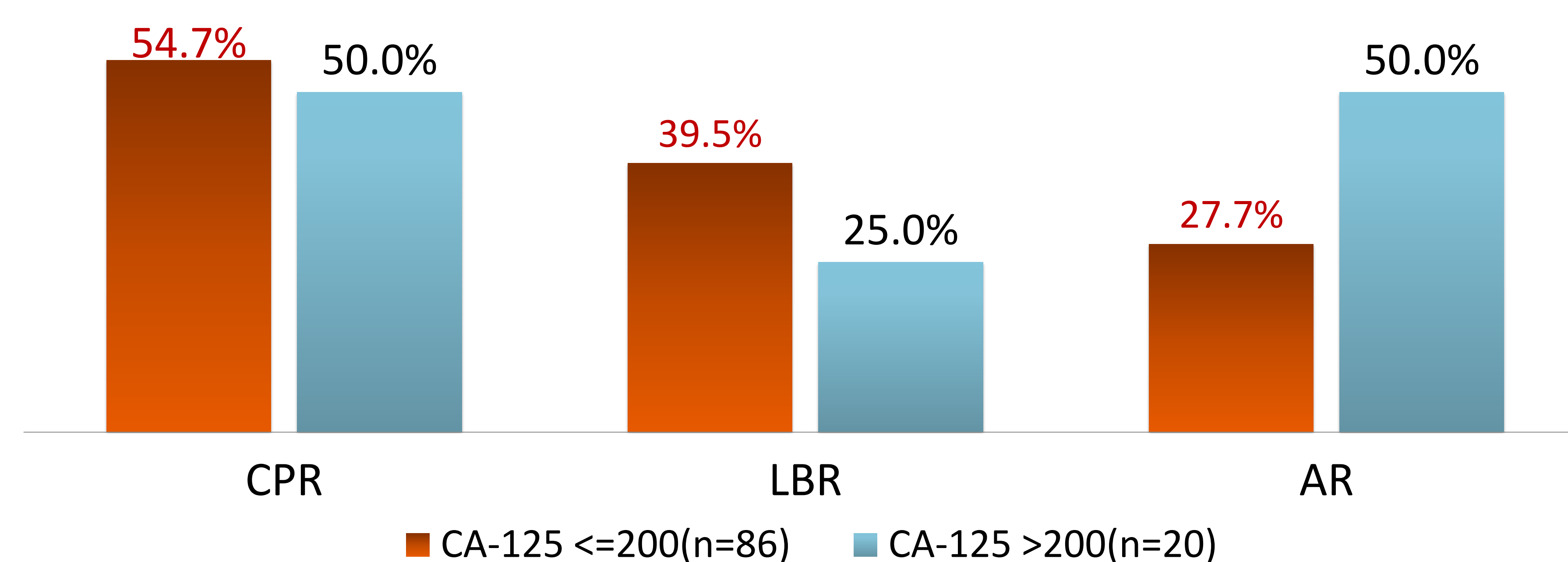
**Figure-1. The clinical outcome in FET cycles between control and study group.** The average age of control group was 35.5 and ET number was  $2.1\pm0.7$  in 1021 FET cycle. The average age of study group was 36.5 and ET number was  $2.3\pm0.7$  in 107 FET cycles. The age and ET number in the study group has statistically older control group ( $p<0.05$ ). The clinical outcome in control group has been compared with programmed cycles in study group, the CPR, LBR, AR have no statistical significance. CPR: the clinical pregnancy rate; LBR: live birth rate. AR: abortion rate. Control group: without adenomyosis. Study group: with adenomyosis.



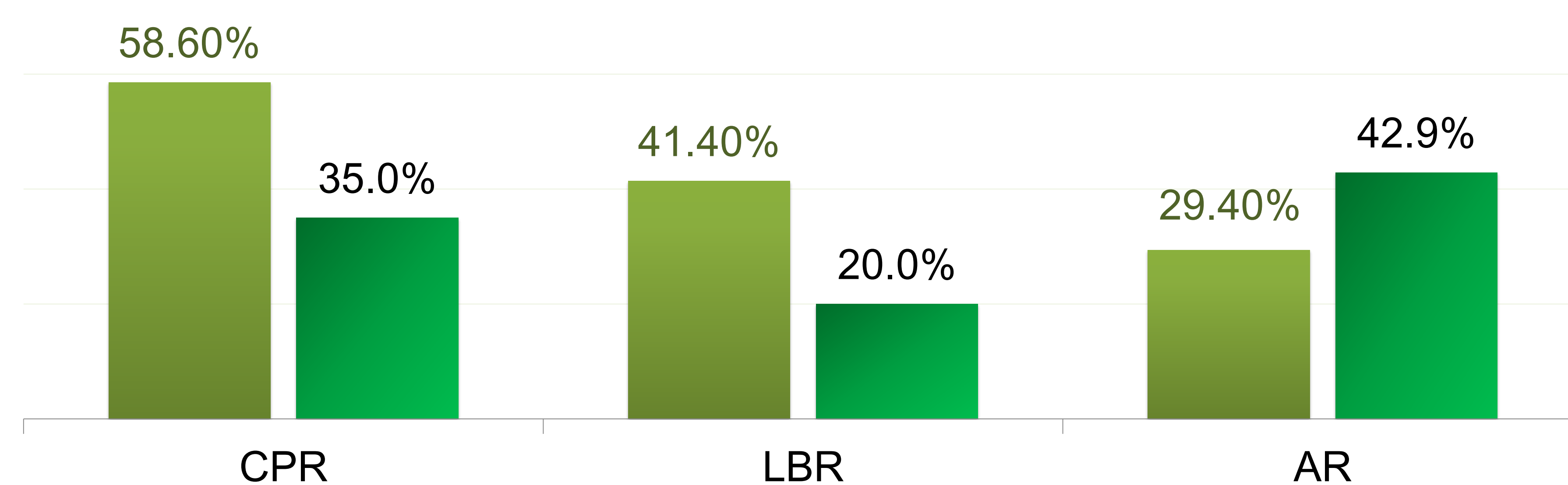
**Figure-2. The clinical outcome of FET cycles in older patient (age<38) between control and study group.** The CPR, LBR and AR between control group (n=701) and study group (n=67) have no statistically significant differences.



**Figure-3. The clinical outcome of FET cycles in older patient (age $\geq$ 38) between control and study group.** The CPR, LBR and AR between control group (n=320) and study group (n=40) have no statistically significant differences.



**Figure-4. The abortion rate of FET cycles by the initial serum CA-125 level after treatment.** The abortion rates of study cycle at different initial serum CA-125 level (Unit/ml) after treatment have no statistically significant differences.



**Figure-5. The clinical outcome of FET cycles by the interval between the last acceptable serum CA-125 and the actual FET performed.** The CPR, LBR and AR of study group between shorter duration group ( $\leq$  2 months) and longer duration group (> 2 months) have no statistically significant differences.

### Conclusion:

Long-term GnRH agonist administration before FET in women with Adenomyosis probably could achieve satisfactory and comparable pregnancy outcome to patients without adenomyosis. Initial high CA-125 level may correlate with higher abortion rate. It is better to perform FET within two months of serum marker control to reduce the abortion rate.