Increasing accessibility of long-acting reversible contraceptive methods, like intrauterine devices (IUDs), is an important strategy to reduce the risk of unintended pregnancy. Unfortunately, fear of IUD insertion in women who have not had children is common among health care providers and women alike, and this limits IUD use. To increase acceptance of this highly effective contraceptive, there is need to investigate novel, low cost, easily applied and accessible techniques to improve the insertion experience. We performed this pilot study to evaluate the efficacy and tolerability of nitroprusside gel applied to the cervix as an intervention to improve the IUD insertion experience for both patient and provider.

Twenty-four healthy women who had never been pregnant before and were requesting IUD insertion were enrolled in this study. They were randomly assigned to receive nitroprusside gel 10mg applied inside the cervix or an identical appearing placebo. Subjects were asked to rate their level of pain on a visual analog scale (a 100mm line on which they mark their level of pain from 0=no pain to 100=worst imaginable pain). Pain scores were evaluated at the following time points: anticipated pain (prior to IUD insertion), speculum insertion, tenaculum (holder for cervix) placement, administration of study drug to the inside the cervix; measurement of uterine size; passage of the IUD through the cervix, deployment of the IUD arms inside the uterus, immediately after speculum removal, and 30 minutes after speculum removal. In addition, overall subject satisfaction with the IUD insertion experience and provider reported ease of insertion were evaluated on this same scale. Side effects and complications were assessed at 30 minutes, 1 hour, 2 hours and 24 hours after IUD insertion.

Baseline characteristics of the two randomization groups were similar. The mean pain score with deployment of the IUD inside the uterus was 72.5 mm in the placebo group and 58.7 mm in the nitroprusside group (p=0.07, one-sided). Generally, at least a 15mm reduction in pain scores is considered clinically relevant. A similar modest reduction in pain was seen with passage of the IUD inserter through the cervix. All IUDs were successfully placed upon first attempt, with no difference in ease of insertion reported by providers. Two subjects required dilation for successful IUD insertion, one in each group. There were two vasovagal reactions (minor complications) in the nitroprusside group, and none in the placebo group. Otherwise, there were no differences in blood pressure, pulse, or any other side effects.

This pilot study shows that administration of 10mg nitroprusside gel inside the cervix immediately prior to IUD insertion appears to provide a modest reduction in pain with IUD insertion among women who have never been pregnant before. Further research is needed to clarify if the reduction in pain is significant enough to be able to recommend the routine use of this intervention.