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# An Analysis of Quality Outcomes in Patients Having a Hysterectomy: Robotics vs the Vaginal Approach

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## Objective:

To analyze quality outcomes in patients who underwent a robotic-assisted hysterectomy (R) and vaginal hysterectomy (V) by high-volume surgeons after the robotics learning curve.

## Methods:

All patients who underwent a robotic and vaginal hysterectomy for benign disease from 6/2006-6/2011 were extracted from our database and de-identified. Inclusion criteria for high volume surgeons were completion of 20 cases in any year. The first 20 cases within each cohort were considered “the learning curve” and removed from analysis. Demographic data reviewed included age and BMI. Primary outcome measures were length of stay (LOS), estimated blood loss(EBL), and operative time(OR time). Secondary outcome measures were complication rates including bladder complications, ureteral injury, vaginal side-wall lacerations, bowel injury and hematomas. Student’s t-tests and Pearson’s  $\chi^2$  tests were used for data analysis. This study was IRB approved.

**Table 1.** Population Characteristics

| Characteristic | Vaginal (n=235) | Robotic (n=179) | p-value |
|----------------|-----------------|-----------------|---------|
| Age            | 56              | 49              | p<.01   |
| BMI            | 29.1            | 31.6            | p<.01   |

**Table 2.** Quality Measures for Vaginal and Robotic-assisted Hysterectomies

|                           | Vaginal Hysterectomies (n=235) | Robotic-assisted Hysterectomies (n=179) | p-value     |
|---------------------------|--------------------------------|---|-------------|
| LOS                       | 2490 min ± 1502 min            | 1990 min ± 795 min                      | <.01        |
| EBL                       | 318 cc                         | 103 cc                                  | <.01        |
| OR time                   | 235 min ± 68 min               | 206 min ± 71 min                        | <.01        |
| Blood transfusions        | 2                              | 0                                       | ns (p=0.22) |
| Patient Complication Rate | 4.2%                           | 3.9%                                    | ns (p=0.88) |

**Table 3.** Patient Complications

| Types of Complications       | Vaginal Hysterectomies (n=235) | Robotic-assisted Hysterectomies (n=179) |
|------------------------------|--------------------------------|---|
| Bladder complications        | 5                              | 2                                       |
| Ureteral Injury              | 1                              | 0                                       |
| Vaginal side-wall Laceration | 1                              | 4                                       |
| Hemorrhage                   | 2                              | 0                                       |
| Bowel Injury                 | 1                              | 0                                       |
| Hematoma                     | 0                              | 1                                       |
| Total                        | 10/235 (4.3%)                  | 7/179 (3.9%)                            |

## Results:

A total of 416 patients (236 V, 180 R) met the inclusion criteria. There were no significant differences between the two groups in the demographic data. The mean LOS for R was less than V (1990 min, ± 795 min vs. 2490 min, ± 1502 min) (p<.01). The mean EBL for R was less than V (103 cc vs. 318 cc, p<.01). The mean OR time was also less for R than V (206 min ± 71 min vs. 235 min ± 68 min) (p<.01). R experienced a lower patient complication rate compared to V (3.9% vs. 4.2%), but it lacked statistical significance.

## Conclusion:

After the learning curve, patients who have a robotic hysterectomy may have improved quality outcomes when surgery is performed by high-volume surgeons.

