### Title

Return of fertility in nulliparous and parous women after levonorgestrel 52 mg intrauterine system discontinuation




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status, income quartile, patient urban-rural designation, hospital geographic region and hospital teaching status. We compared data to visits by women in the same age range without an EC diagnosis. Z-tests were performed to assess any significant differences between groups.

RESULTS: The estimated number of encounters for EC in the ED decreased significantly during the study period. The steepest decline occurred from 2006 (15,039 visits; 95%CI: 11,270 - 18,902) to 2007 (4,370 visits; 95%CI: 3,523 - 5,217). After 2007, visits decreased steadily, reaching 685 visits in 2014 (95%CI: 488 - 881). Overall, this represented a 95% decrease in visits over time. Annual total ED charges decreased from $6.2M in 2006 to $0.65M in 2014. When compared to all other ED visits by women aged 15-44 yo in 2014, ED visits for EC were more likely to be by women aged 15-19 yo (30.7 % vs 13.3%; p< .001), who lived in the Northeast (53.7% vs 17.7%; p< .001), lived in large metropolitan areas (64.2% vs 48.1%; p=0.010), or presented to metropolitan teaching hospitals (64.0% vs 54.4%; p=0.111). The proportion of visits for EC by patients who lived in zip codes with average incomes in the lowest and second income quartiles was 29.9% (95%CI: 20.7%- 39.2%), and 36.2% (95%CI: 23.4%-49.0%), respectively in 2014. Trends by payer showed that patients with private insurance or self-pay status experienced steeper declines in ED visit counts compared to patients with Medicaid, with estimated percent changes of -98%, -98% and -83% between 2006-2014 respectively.

CONCLUSIONS: ED utilization for emergency contraception decreased substantially between 2006-2014, demonstrating the influence of policy on these care seeking patterns. This decrease also led to cost-savings in the ED by reducing utilization. Nonetheless, trends by payer indicate a potential disparity in how women currently access (ED vs other outlets) and can pay for EC. Future policies should ensure that patients seeking care for unintended pregnancy are provided timely and cost-effective care.

*Supported by:* University of Michigan.

**O-104** Tuesday, October 9, 2018 11:00 AM

**RETURN OF FERTILITY IN NULLIPAROUS AND PAROUS WOMEN AFTER LEVONORGESTREL 52 MG INTRAUTERINE SYSTEM DISCONTINUATION.**

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OBJECTIVE: Evaluate reproductive function in nulliparous and parous women after levonorgestrel (LNG) 52mg intrauterine system (IUS) discontinuation based on time to pregnancy.

DESIGN: Prospective clinical trial.

MATERIALS AND METHODS: Eligible nulliparous and parous women 16-45 years old received the Liletta® IUS in a multicenter trial evaluating efficacy and safety for up to 10 years. Participants who discontinued the IUS within the first 5 years of use and desired pregnancy were contacted every three months for up to 12 months to determine whether pregnancy occurred; pregnancy outcomes were not assessed. We evaluated fertility endpoints in women 16-35 years at study entry. We compared outcomes by parity, gravidity and age using Fisher's exact test, student's t-tests and chi-square test for trend as indicated.

RESULTS: Overall, 132 (86.8%) of 152 women 16-35 years old at study entry who attempted to conceive did so within 12 months. The 12-month conception rates did not differ between nulliparous (70/80 [87.5%]) and parous (62/72 [86.1%]) women (p=0.82) or between nulligravid (60/68 [88.2%]) and gravid (72/84 [85.7%]) women (p=0.81). Pregnancy by the end of 3 and 6 months occurred in 66 (43.4%) and 106 (69.7%), respectively, with a median time to conception of 91.5 days. Median use before discontinuation for the evaluated population was 34 months (range 1.3-59.8 months). Pregnancy rates at 12 months post-discontinuation did not differ by length of IUS use for nulliparous or parous women (Table). The age at IUS discontinuation of women who successfully conceived (29.8±4.0 years) did not differ from women who did not conceive (29.6±4.3 years), p=0.84.

CONCLUSIONS: After Liletta discontinuation, women have rapid return of normal fertility as demonstrated by time to pregnancy in the year post-removal. Fertility rates after IUS removal do not vary based on parity, gravidity, duration of IUS use or age at discontinuation.

*Supported by:* Medicines360.

Pregnancy Rates by Parity After Levonorgestrel 52mg IUS Discontinuation

| | Total | | Nulliparous | | Parous | |
|---|---|---|---|---|---|---|
| Years of IUS Use | Pregnant | p-value* | Pregnant | p-value* | Pregnant | p-value* |
| ≤1 | 11/12 (92%) | 0.43 | 3/3 (100%) | 0.62 | 8/9 (89%) | 0.29 |
| 1+ to 2 | 27/30 (90%) | | 11/12 (92%) | | 16/18 (89%) | |
| 2+ to 3 | 36/41 (88%) | | 17/21 (81%) | | 19/20 (95%) | |
| 3+ to 4 | 33/42 (79%) | | 21/25 (84%) | | 12/17 (71%) | |
| 4+ to 5 | 25/27 (93%) | | 18/19 (95%) | | 7/8 (85%) | |

*Chi-square test for trend

**O-105** Tuesday, October 9, 2018 11:15 AM

**PLASMA LEVONORGESTREL LEVELS IN NON-OBESE AND OBESE WOMEN USING A LEVONORGESTREL 52 MG INTRAUTERINE SYSTEM FOR UP TO 7 YEARS.**

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OBJECTIVE: To evaluate levonorgestrel plasma concentrations for up to seven years in non-obese and obese women using a levonorgestrel (LNG) 52mg intrauterine system (IUS).

DESIGN: Prospective clinical trial.

MATERIALS AND METHODS: Eligible women 16-45 years old received an LNG 52mg IUS (Liletta®) in a multicenter trial evaluating efficacy and safety for up to 10 years. A planned sub-study enrolled 40 participants (19 obese, 21 non-obese) to evaluate LNG concentrations over time at baseline, weeks 1 and 2, and months 1, 3, 6, 9, 12, 18, 24, 30 and 36. Additionally, all study subjects (219 obese and 670 non-obese) began blood sampling every 6 months at month 36. The liquid chromatography-tandem mass spectrometry assay had a lower limit of LNG detection of 25 pg/mL. We compared LNG concentrations in obese and non-obese women at each time point through 84 months (7 years) using an independent-samples t-test.

RESULTS: Plasma LNG concentration was lower in obese compared with non-obese subjects at all time-points through 84 months (Table). All obese users had maximum levels <300 pg/mL at day 30 and thereafter. Maximum LNG concentrations in non-obese LNG 52mg IUS users were 603 pg/mL at week 1, 492 pg/mL at week 14, and <300 pg/mL by 1 year. From 3 to 84 months, LNG concentrations were 21-41% lower in obese subjects (p<0.01 for all months). Average BMI in the obese and non-obese sub-study participants were 38.6 ± 5.8 kg/m$^2$ and 24.6 ± 2.9 kg/m$^2$, respectively, with ranges of 30.4-49.2 kg/m$^2$ and 18.9-29.5 kg/m$^2$, respectively. Average BMI in the obese and non-obese study subjects beginning sampling at 36 months were similar, with 23.2% of obese subjects having a BMI ≥40 kg/m$^2$.

CONCLUSIONS: Obese women demonstrate lower plasma LNG concentrations throughout seven years of LNG 52mg IUS use. The LNG concentrations in obese and non-obese women may be helpful for patient education

Mean Plasma Levonorgestrel Levels in Levonorgestrel 52mg IUS Users

| Time Point (months) | Obese | | Non-Obese | | |
|---|---|---|---|---|---|
| | N | LNG (pg/mL) | N | LNG (pg/mL) | P-value |
| 0.25 (1 week) | 19 | 188 ± 53 | 21 | 310 ± 140 | <.001 |
| 1 | 19 | 180 ± 45 | 21 | 248 ± 83 | .006 |
| 6 | 16 | 151 ± 40 | 20 | 230 ± 67 | <.001 |
| 12 | 15 | 144 ± 52 | 18 | 192 ± 36 | .006 |
| 24 | 15 | 116 ± 27 | 15 | 178 ± 38 | .002 |
| 36 | 219 | 104 ± 53 | 670 | 141 ± 51 | <.001 |
| 48 | 182 | 90 ± 44 | 550 | 121 ± 52 | <.001 |
| 60 | 95 | 83 ± 46 | 250 | 114 ± 45 | <.001 |
| 72 | 65 | 69 ± 29 | 133 | 102 ± 39 | <.001 |
| 84 | 47 | 64 ± 29 | 94 | 94 ± 32 | <.001 |