ABSTRACT

The proportion of nulligravid and nulliparous women is increasing as women delay childbirth in developed countries. Simultaneously contraceptive failure, unintended pregnancies and abortions, especially in women of ages below the common childbearing age, are a global problem. By promoting intrauterine devices (IUD) and subdermal implants, referred to as long-acting reversible contraceptives (LARC), to these women contraceptive failure caused by non-compliance of the user can be minimized in addition to providing easy and efficient long-term contraception. However, risk for difficulties at IUD insertion in nulligravid/nulliparous women as well as small uterine size have both been barriers limiting the use of intrauterine contraception (IUC) in these women.

The present studies were designed to study the barriers to IUC in nulligravid and nulliparous women. To compare both types of IUC, we used the levonorgestrel-releasing intrauterine system (LNG-IUS) and the copper-releasing NovaT (TCu380Ag) with equal frames (32x32mm). To exclude any effect of prior pregnancy on the uterine cavity or the cervix, only nulligravid women were included. Difficulties at insertion, menstrual diaries kept after insertion (months 1-3) and at the end of the study (months 10-12) as well as adverse events were compared against uterine measurements and pre-insertion menstrual characteristics reported by the women. In addition, as uterine perforation is mainly seen as a complication following insertion we retrospectively analyzed women treated for this rare complication between 1996 and 2009 in our hospital district area.

We gave 165 nulligravid women requesting their first IUD the free choice between the two IUDs after contraceptive counseling. The majority, 113 women (68.5%) chose the LNG-IUS and 52 women (31.5%) chose the copper IUD. Insertion was easy in 89% of the women. Women were satisfied, with only 17/135 women (12.6%) available for follow-up discontinuing because of adverse events. Bleeding and pain were similar to earlier reports on parous women. Severe pain at insertion was reported by 56.5% of women and severe dysmenorrhea the only factor predicting severe pain (OR 7.9, 95% CI 2.5-24.9, $p<0.001$). Dysmenorrhea was also related to more pain during the first months with both devices. Reported spontaneous bleeding predicted bleeding with the LNG-IUS, but not with the copper IUD. Among women using the LNG-IUS scanty menstrual bleeding (OR 8.2, 95% CI 1.4-48.2, $p=0.02$) and smoking (OR 8.2, 95% CI 1.8-38.6, $p=0.007$) predicted amenorrhea at one year. Uterine measurements, particularly fundal width, were small in comparison to the devices in a majority of the women. The odds for a difficult or failed insertion increased with a shorter uterine length and a steeper flexion angle, but the vast majority of insertions also in small and more flexed uteri were uneventful. Cervical tightness was the main reason for problems in difficult insertions. No uterine threshold measurements predicting difficulties were found. Small uterine measurements were associated with both less bleeding and pain among LNG-IUS users. Women with the widest fundal width reported significantly more pain at the end of the one-year follow-up compared to those with smaller width. Uterine size did not affect bleeding with the copper IUD, but there was a slight indication towards more pain during long-term use among women with smaller uterine measurements, although size groups were small with this device. Uterine size did not predict adverse events.

We found 75 cases of surgically treated uterine perforation during the 15-year long study period. The perforation incidence was low, 0.4/1000 insertions, and similar with both types of IUC. Post partum insertion, earlier presented as the main risk factor for uterine perforation, was common also in this population (64%). The majority of women, 71%, presented with complaints of abnormal bleeding or pain, but 29% were asymptomatic and diagnosed due to missing threads or pregnancy. Pregnancy was more common with copper IUDs, 33% *vs.* 7% with the LNG-IUS (p=0.009). We found no severe IUD caused complications or intra-abdominal adhesions. Adhesions were local and more common with copper IUDs (58% *vs.* 20%, p=0.002).

In conclusion, nulligravid women are satisfied users of modern IUC, with continuation rates and bleeding and pain profiles similar to reports on parous women. Small uterine measurements are not a barrier to IUC and pre-insertion ultrasonographic evaluation of uterine size is unnecessary. As dysmenorrhea predicts both severe insertion pain and pain during the first months of IUD use, analgesia and counseling for these women should be highlighted. Although rare, the risk for uterine perforation is increased during the post partum period, probably reflecting uterine involution as the main reason for this complication. Neither symptoms nor surgical findings are severe with the current devices.

FULL Text:
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