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Predicting poor compliance with follow-up and intrauterine contraception services after medical termination of pregnancy

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ABSTRACT

Background Attendance at post-abortion follow-up visits is poor, but little is known about factors affecting it.

Objective To assess the factors associated with non-compliance with post-abortion services and to evaluate differences in rates of attendance and intrauterine device (IUD) insertion according to the type of service provision.

Methods 605 women undergoing a first trimester medical termination of pregnancy (MTOP) and planning to use intrauterine contraception were randomised into two groups. Women in the intervention group (n=306) were booked to have IUD insertion 1–4 weeks after the MTOP at the hospital providing the abortion, while women in the control group (n=299) were advised to contact their primary healthcare (PHC) centre for follow-up and IUD insertion.

Results In the intervention group, 21 (6.9%) women failed to attend the follow-up visit, whereas in the control group 67 (22.4%) women did not contact the PHC to schedule a follow-up (p<0.001). In both groups, non-attendance was associated with history of previous pregnancy and abortion. Not having an IUD inserted within 3 months was significantly more common in the control group (73.6% (n=220)) than in the intervention group (9.2% (n=28), p<0.001). In the intervention group, predictive factors for not having an IUD inserted were anxiety, history of pregnancy and abortion. However, we identified no significant predictive factors in the control group.

Conclusions Factors predicting low compliance with post-MTOP follow-up are few. Comprehensive provision of abortion care and post-abortion services seems beneficial for minimising the loss to follow-up and delay in initiation of effective contraception.

Trial registration number NCT01223521;Results.

Key messages

- Non-attendance at both post abortion follow-up and intrauterine device (IUD) insertion visits is common and difficult to predict.
- Comprehensive provision of abortion care and contraceptive services results in higher rates of attendance at follow-up and of IUD use after first trimester medical abortion.

INTRODUCTION

Poor compliance with follow-up after termination of pregnancy (TOP) is a challenge in clinical care and in research studies. The reported rates of attendance are commonly around 50%.[1 2] Even though the need for routine follow-up after TOP is questionable and is not recommended by WHO and the Royal College of Obstetricians and Gynaecologists guidelines, it continues to be recommended in some guidelines on induced abortion.[3–5] Post-TOP care is useful for confirming the clinical outcome and encouraging contraceptive use.[5] Initiation of effective contraception shortly after TOP is advisable to minimise the risk of subsequent unwanted pregnancy. Yet the reported rates of non-attendance at planned intrauterine device (IUD) insertion visits have ranged from 12% to 70%.[6–9]

Several risk factors for the need for subsequent TOP have been characterised. These include young age, smoking and previous TOP or delivery, whereas choosing long-acting reversible contraceptive methods lowers the risk.[10] In addition, it has been shown that the longer the

delay in initiating contraception, the lower the rate of contraceptive use and the higher the risk of unplanned pregnancy.[7 11]

However, little is known about possible risk factors for poor compliance with follow-up after TOP. More flexible and individual means of follow-up,[12] and even immediate initiation of long-acting reversible contraceptive methods at the time of medical termination of pregnancy (MTOP), have recently been developed.[8 13 14] Knowledge of these options is highly valuable in individualising post-TOP care. Being able to predict low compliance would be useful in targeting more intensified care, including contraceptive services, at those at greatest risk of dropping out.

Several factors related to healthcare provision may also affect use of post-TOP services. Previous studies have shown that initiation of intrauterine contraception can be hindered by misconceptions about its suitability in nulliparous women.[15] Also, practical problems in reaching healthcare services, difficulties in contacting the healthcare provider to schedule further services, economic and even geographical and logistical issues, increase the risk of non-attendance.[15 16] Centralising TOP and contraception services in a comprehensive manner has shown encouraging results in improving rates of attendance.[8 17]

This study is a secondary analysis of a large randomised controlled trial (RCT) assessing the effect of early IUD provision as part of a first trimester TOP service on the need for subsequent TOP.[18] In the RCT we found that in the first year after TOP, this need was significantly reduced (2.4% vs 5.4%, p=0.038) among women randomised to early provision of an IUD, in comparison with routine service delivery. In the present secondary analysis, we assessed the risk factors for non-compliance both in contacting healthcare providers for scheduled post-TOP care and for initiation of planned intrauterine contraception during the 3 months after MTOP.

METHODS

We conducted a RCT assessing the long-term effects of routine provision of IUDs as a part of TOP services among women (n=748), requesting either medical or surgical first trimester TOP. The study was carried out in collaboration with the Department of Obstetrics and Gynaecology, Helsinki University Hospital and the Centralised Family Planning, Department of Social Services and Health Care, City of Helsinki, between October 2010 and February 2018.[18]

Inclusion criteria were age ≥18 years, pregnancy ≤12 weeks of gestation, residence in the City of Helsinki and interest in intrauterine contraception after TOP. Women with contraindications to intrauterine contraception, such as uterine anomaly, acute genital infection or a cervical screening result requiring surgical intervention, were excluded. Randomisation was accomplished by a computer-assisted permuted-block method. The investigators did not participate in randomisation, which was done before the study started. The group assignments were kept in sealed envelopes, which were opened by the study nurse after informing and recruiting the women.

All procedures relating to induced abortion were carried out according to current Finnish national guidelines on TOP.[3] Women in the intervention group received an IUD, either a LNG 52 mg IUD (Mirena) or a copper IUD (Nova-T), both manufactured by Bayer Ag, Turku, Finland, at the hospital at the time of surgical TOP or at a scheduled follow-up visit 1–4 weeks after MTOP. All women choosing MTOP were encouraged to use oral contraceptives for interval contraception until the IUD insertion and were provided with a 3-month initiation package of pills to be started immediately after MTOP.

Women in the control group were advised to attend their primary healthcare (PHC) centre for a follow-up visit according to the national guideline for serum human chorionic gonadotrophin (hCG) measurement and a nurse appointment,[3] as well as for IUD insertion.

Women in the intervention group were invited to a study nurse visit at the hospital 3 months after the TOP. Women in both groups were offered a free-of-charge gynaecological check-up visit after 1 year.

All participants received a questionnaire at baseline and another at 3 months, assessing quality of life, anxiety, sexuality and experienced state of health. Anxiety was measured on the State-Trait Anxiety Inventory (STAI), using the 20-item State subscale.[19] A score >40 is generally considered indicative of clinically relevant anxiety.[20 21]

In the primary RCT we assessed the effects of early routine provision of IUD contraception in preventing subsequent TOPs. In addition, the study allowed us to assess effectiveness of the two different means of service provision—namely, the current practice of providing post-abortion care at the PHC centre, compared with a comprehensive approach in which IUDs are inserted at the same unit that provides the TOP.

In the present analysis, of the 748 study participants we focus on the 605 women who chose medical TOP, as the majority of women choosing surgical TOP received the IUD during the procedure. Thus, there were 306 women in the intervention group and 299 women in the control group (figure 1). Table 1 summarises the background characteristics of the participants. There were no significant demographic differences between the groups.

In the intervention group, the follow-up visit was scheduled at the time of the TOP. A reminder text message (SMS) was sent before this appointment. When patients failed to attend, two additional attempts were made for rebooking, either by phone call or by SMS.

In the control group, data on contacting and visiting the PHC centre were gathered from the databases of the City of Helsinki PHC centre. Attendance

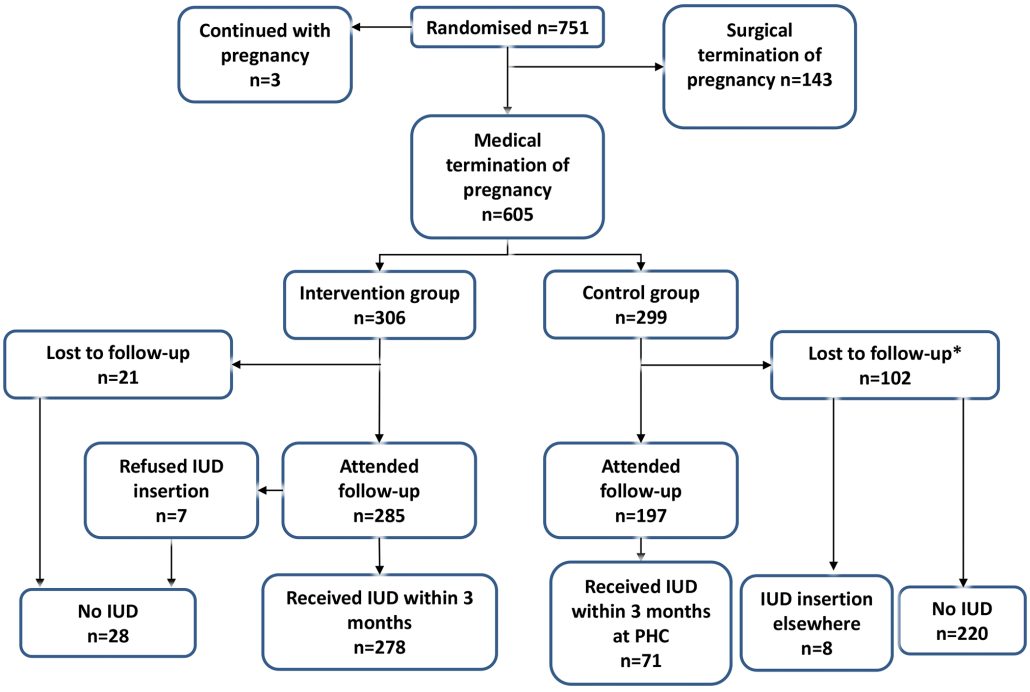

Figure 1 Study flow chart. IUD, intrauterine device; PHC, primary healthcare centre.

for follow-up was defined as attending a scheduled PHC appointment or having a serum hCG measured and contacting the PHC centre at least by telephone within 1 month after the TOP. In accordance with national guidelines, a pelvic examination was not regarded as necessary.

Table 1 Characteristics of 605 study participants undergoing first trimester medical termination of pregnancy and planning IUD for post-TOP contraception

Variable	Intervention group n=306 (%)	Control group n=299 (%)	Total n=605	P values
Age (years); median (IQR)	27 (22 to 32)	27 (23 to 33)	27 (22 to 33)	0.389
Duration of pregnancy (days); median (IQR)	56 (48 to 64)	54 (47 to 63)	55 (47 to 63)	0.103
Regular smoking	153 (50.0)	153 (51.2)	306 (50.6)	0.773
Regular use of alcohol	231 (75.5)	236 (78.9)	467 (77.2)	0.313
History of drug abuse	7 (2.3)	12 (4.0)	19 (3.1)	0.224
History of pregnancy*	208 (68.2)	200 (66.7)	408 (67.4)	0.688
History of TOP	139 (45.4)	120 (40.1)	259 (42.8)	0.189
History of delivery	148 (48.4)	134 (44.8)	282 (46.6)	0.382
Marital status				0.242
Married	57 (18.6)	42 (14.0)	99 (16.4)	
Cohabiting	83 (27.1)	78 (26.1)	161 (26.6)	
Single	166 (54.2)	179 (59.9)	345 (57.0)	
Diagnosis of a psychiatric condition	54 (17.6)	40 (13.4)	94 (15.5)	0.147
STAI index >40 at baseline	170/300 (56.7)	169/280 (60.4)	339/580 (58.4)	0.367
Diagnosis of a somatic condition	123 (40.2)	112 (37.5)	235 (38.8)	0.490
History of STD	117 (38.2)	106 (35.5)	223 (36.9)	0.478
Body mass index (kg/m^2); median (IQR)	23 (21 to 25)	23 (21 to 26)	23 (21 to 26)	0.658

*Includes all previous pregnancies, regardless of the outcome, before index pregnancy.
IUD, intrauterine device; STAI, State-Trait Anxiety Inventory; STD, sexually transmitted disease; TOP, termination of pregnancy.

Table 2 Non-attendance at follow-up visit after first trimester medical termination of pregnancy

	Both groups (n=605)		Intervention group (n=306)		Control group (n=299)	
	OR (95% CI)	P values	OR (95% CI)	P values	OR (95% CI)	P values
Randomisation group	7.03 (4.25 to 11.63)	**<0.001**	N/A	N/A	N/A	N/A
Regular smoking	1.38 (0.92 to 2.05)	0.116	2.66 (1.01 to 7.06)	**0.049**	1.18 (0.73 to 1.91)	0.494
Regular use of alcohol	0.80 (0.51 to 1.27)	0.343	0.80 (0.30 to 2.14)	0.654	0.68 (0.38 to 1.20)	0.179
History of drug abuse	2.36 (0.91 to 6.14)	0.077	5.90 (1.07 to 32.41)	**0.041**	1.40 (0.43 to 4.52)	0.575
Diagnosis of a psychiatric condition	1.15 (0.68 to 1.96)	0.599	2.53 (0.97 to 6.61)	0.058	1.05 (0.52 to 2.10)	0.899
STAI index >40	1.70 (1.10 to 2.63)	**0.017**	4.10 (1.16 to 14.47)	**0.028**	1.41 (0.84 to 2.35)	0.194
History of cervical screening abnormality	1.55 (0.81 to 2.96)	0.190	1.73 (0.48 to 6.29)	0.403	1.86 (0.79 to 4.39)	0.154
History of STD	0.90 (0.60 to 1.36)	0.625	1.23 (0.50 to 3.01)	0.652	0.87 (0.53 to 1.44)	0.582
History of pregnancy*	2.46 (1.51 to 4.01)	**<0.001**	10.16 (1.34 to 76.84)	**0.025**	2.38 (1.37 to 4.14)	**0.002**
History of TOP	1.96 (1.32 to 2.93)	**0.001**	5.68 (1.86 to 17.30)	**0.002**	1.97 (1.21 to 3.21)	**0.006**
History of delivery	1.43 (0.96 to 2.12)	0.080	2.25 (0.88 to 5.75)	0.089	1.46 (0.90 to 2.36)	0.124
Marital status						
Single (reference category)	1.00	–	1.00	–	1.00	–
Cohabitating	0.98 (0.62 to 1.55)	0.932	0.51 (0.16 to 1.59)	0.245	1.27 (0.73 to 2.21)	0.395
Married	0.65 (0.36 to 1.20)	0.170	0.37 (0.08 to 1.65)	0.191	0.91 (0.44 to 1.88)	0.803
Age group (years)						
<20 (reference category)	1.00	–	1.00	–	1.00	–
20–24	1.14 (0.47 to 2.77)	0.781	0.27 (0.06 to 1.32)	0.106	1.92 (0.58 to 6.36)	0.289
25–29	1.16 (0.47 to 2.89)	0.746	0.70 (0.17 to 2.99)	0.634	1.36 (0.40 to 4.61)	0.623
30–34	1.18 (0.46 to 3.00)	0.728	0.32 (0.06 to 1.70)	0.180	2.07 (0.59 to 7.20)	0.253
35–39	1.36 (0.52 to 3.56)	0.535	0.72 (0.15 to 3.58)	0.692	1.68 (0.47 to 6.06)	0.427
≥40	1.10 (0.32 to 3.53)	0.316	0.000	1.000	1.77 (0.40 to 7.93)	0.454

*Includes all previous pregnancies, regardless of the outcome, before the index pregnancy.
STAI, State-Trait Anxiety Inventory; STD, sexually transmitted disease; TOP, termination of pregnancy.

Patient involvement

The study participants were not involved in designing the study.

Statistical analysis

Statistical analyses were performed with SPSS version 24.0 (IBM Corp, Armonk, New York, USA). In analysing rates of attendance and IUD insertions, logistic regression was used to calculate ORs with a 95% CI. Student's t-test was used in comparison of continuous variables, for which the mean values and SD are reported.

RESULTS

Non-compliance with follow-up: intervention group

In the intervention group, 21/306 (6.9%) women did not attend the planned follow-up visit or receive an IUD despite phone calls, SMS messages and rebookings. Altogether 285 (93.1%) women attended the first follow-up visit 1–4 weeks after TOP.

Table 2 shows non-attendance at follow-up in both the intervention and control groups according to various background factors. Significant predictors of non-attendance at the first follow-up visit among the intervention group were smoking (9.8% (n=15) of smokers vs 3.9% (n=6) of non-smokers, OR=2.66 (95% CI 1.01 to 7.06), p=0.049), history of drug abuse (28.6% (n=2) vs 6.4% (n=19), OR=5.90 (95% CI 1.07 to 32.41), p=0.041), history of pregnancy (9.6% (n=20) vs 1.0% (n=1), OR=10.16 (95% CI 1.34 to 76.84), p=0.025), history of TOP (12.2% (n=17) vs 2.4% (n=4), OR=5.68 (95% CI 1.86 to 17.30), p=0.002) and STAI score >40 indicating clinically relevant anxiety (8.8% (n=15) vs 2.2% (n=3), OR=4.10 (95% CI 1.16 to 14.47) p=0.028). The mean number of previous TOPs was significantly higher in women not attending the follow-up visit (1.33 (SD 1.16)) than in those attending the visit (0.68 (SD 0.96), p=0.003). However, the difference was not significant when the number of all previous pregnancies was considered (1.93 (SD 2.10) vs 2.67 (SD 2.24), p=0.120).

In multivariate analysis, smoking remained significant in predicting non-attendance when adjusted for age, alcohol consumption and drug abuse. Previous pregnancies remained a significant predictor for low attendance when controlled for age, smoking, alcohol

consumption and drug abuse. However, a previous TOP was a significant predictor for poor compliance when controlled for age and previous pregnancies.

Non-compliance with follow-up: control group

In the control group 67 (22.4%) women did not contact the PHC centre to schedule a follow-up. One hundred and two (34.1%) women contacted the PHC centre but opted out of follow-up by telephone contact or by a visit.

Non-attendance at any post-TOP check (hCG measurement and/or a contact by phone or at the PHC) was significantly more common in women with previous pregnancies (40.2% (n=80) vs 22.0% (n=22), OR=2.38 (95% CI 1.37 to 4.14), p=0.002) and previous TOPs (43.3% (n=52) vs 27.9% (n=50), OR=1.97 (95% CI 1.21 to 3.21), p=0.006). In multivariate analysis, previous pregnancies remained significant when controlled for age, smoking and previous TOPs. Non-attendance was also significantly associated with a higher number of previous pregnancies (mean 2.01 (SD 1.97) vs 1.60 (SD 1.78), p=0.44) and previous TOPs (mean 0.86 (SD 1.09) vs 0.46 (SD 0.74), p<0.001).

Non-compliance with IUD insertion

In the intervention group 28 (9.2%) and in the control group 220 (73.6%) women did not have an IUD inserted during the first 3 months after MTOP. The difference between the groups was highly significant (OR=27.65 (95% CI 17.35 to 44.06), p<0.001). Odds ratios of not having an IUD inserted during the first 3 months, according to various background factors, are presented in table 3.

In the intervention group, 74 (24.2%) women had not received an IUD as prescribed in the protocol (within 4 weeks) after the TOP. At 3 months after the TOP, the number of women who had not had an IUD inserted was 28 (9.2%). Seven women refused IUD insertion at the follow-up visit and chose another contraceptive method instead. Women with previous

Table 3 Odds of not receiving an IUD during 3 months after TOP in women undergoing a first trimester termination of pregnancy and planning IUD contraception

	Both groups (n=605)		Intervention group (n=306)		Control group (n=299)	
	OR (95% CI)	P values	OR (95% CI)	P values	OR (95% CI)	P values
Randomisation group	27.65 (17.35 to 44.06)	**<0.001**	N/A	N/A	N/A	N/A
Regular smoking	1.13 (0.82 to 1.57)	0.450	1.61 (0.73 to 3.57)	0.238	1.03 (0.62 to 1.72)	0.911
Regular use of alcohol	1.20 (0.81 to 1.77)	0.368	0.97 (0.40 to 2.39)	0.950	1.15 (0.62 to 2.13)	0.663
History of drug abuse	2.03 (0.80 to 5.11)	0.135	4.20 (0.78 to 22.73)	0.096	1.08 (0.29 to 4.10)	0.909
Diagnosis of a psychiatric condition	0.79 (0.50 to 1.24)	0.302	1.64 (0.66 to 4.07)	0.288	0.71 (0.35 to 1.46)	0.350
Diagnosis of a somatic condition	0.76 (0.55 to 1.07)	0.114	0.81 (0.36 to 1.82)	0.612	0.68 (0.40 to 1.14)	0.144
STAI index >40 at baseline	1.24 (0.88 to 1.74)	0.215	2.60 (1.01 to 6.71)	**0.048**	0.91 (0.53 to 1.59)	0.748
STAI index >40 at 3 months	1.33 (0.83 to 2.14)	0.239	2.70 (0.71 to 10.36)	0.147	0.78 (0.40 to 1.53)	0.471
History of cervical screening abnormality	1.10 (0.62 to 1.97)	0.745	0.75 (0.17 to 3.32)	0.700	2.53 (0.73 to 8.77)	0.142
History of colposcopy	0.86 (0.41 to 1.79)	0.680	1.26 (0.27 to 5.78)	0.767	0.89 (0.27 to 2.93)	0.852
History of pregnancy*	1.28 (0.90 to 1.81)	0.172	4.26 (1.25 to 14.46)	**0.020**	1.31 (0.77 to 2.24)	0.320
History of TOP	1.32 (0.95 to 1.82)	0.101	4.07 (1.67 to 9.88)	**0.002**	1.64 (0.95 to 2.83)	0.074
History of delivery	0.81 (0.59 to 1.12)	0.208	1.26 (0.58 to 2.74)	0.564	0.68 (0.41 to 1.14)	0.141
Marital status						
Single (reference category)	1.0	–	1.00	–	1.00	–
Cohabitating	0.55 (0.34 to 0.88)	**0.012**	0.62 (0.20 to 1.92)	0.407	0.52 (0.25 to 1.07)	0.074
Married	0.71 (0.49 to 1.04)	0.082	0.64 (0.24 to 1.68)	0.365	0.65 (0.36 to 1.18)	0.153
Age group (years)						
<20 (reference category)	1.0	–	1.00	–	1.00	–
20–24	1.23 (0.60 to 2.53)	0.566	0.42 (0.10 to 1.82)	0.245	2.01 (0.66 to 6.14)	0.221
25–29	1.69 (0.82 to 3.51)	0.158	1.06 (0.26 to 4.24)	0.939	2.11 (0.68 to 6.59)	0.197
30–34	0.86 (0.40 to 1.84)	0.695	0.67 (0.15 to 2.93)	0.591	0.79 (0.26 to 2.46)	0.689
35–39	1.37 (0.62 to 3.00)	0.434	0.53 (0.10 to 2.87)	0.460	1.63 (0.49 to 5.47)	0.424
≥40	1.07 (0.41 to 2.83)	0.889	0.000	1.00	1.31 (0.31 to 5.53)	0.714

*Includes all previous pregnancies, regardless of the outcome, before the index pregnancy.
IUD, intrauterine device; STAI, State-Trait Anxiety Inventory; TOP, termination of pregnancy.

pregnancies were less likely to receive an IUD within 3 months (12.0% (n=25) vs 3.1% (n=3), OR=4.26 (95% CI 1.25 to 14.46), p=0.020). A similar result was seen in women with previous TOPs (15.1% (n=21) vs 4.2% (n=7), OR=4.07 (95% CI 1.67 to 9.88), p=0.002), which was no longer significant when controlled for previous pregnancies (p=0.057). However, the differences remained significant when controlled for age, smoking and alcohol consumption.

In the control group, no background factors were significantly associated with not receiving an IUD. During the first 3 months' follow-up after MTOP, 69.4% (n=93) of parous women and 77.0% (n=127) of nulliparous women did not receive an IUD. Women with a past history of TOP had a higher rate of non-use of IUD (79.2% (n=95)) than women with no history of TOP (69.8% (n=125)), but the difference was not statistically significant (OR=1.64 (95% CI 0.95 to 2.83), p=0.074). Women with clinically relevant anxiety levels at baseline had rates of IUD insertion similar to those with lower levels of anxiety (74.0% (n=125) vs 75.7% (n=84)). Of the women reporting previous drug abuse, 75% (n=9) did not receive an IUD during 3 months after MTOP.

Seventy-one women in the control group received an IUD from the PHC centre during the 3 months after MTOP. In addition, four women had an IUD inserted by a private doctor and another four women received an IUD at the hospital rather than at the PHC centre during the 3 months, in contrast to the study protocol; three at the time of uterine evacuation of retained products and one at a check-up following a TOP-related uterine infection.

DISCUSSION

Main findings

Poor compliance with post-TOP care was clearly observed in this study. The attendance rates were notably low among the women treated according to normal clinical procedure (control group) even though their management followed national guidelines. This is of particular significance, as these women belonged to a specially motivated group volunteering for a randomised trial and had expressed their interest in IUD contraception. We find few obvious risk factors predicting this low compliance. However, when all the participants were considered, non-attendance at the first follow-up was associated with clinically relevant levels of anxiety, as well as history of previous pregnancies and/or TOP.

One of our goals was to compare the standard approach to providing post-TOP initiation of intrauterine contraception with comprehensive easier access to IUD insertion and follow-up visits. The study findings clearly showed that providing MTOP and IUD insertion with minimal delay in a comprehensive manner results in significantly higher attendance for follow-up and rates of IUD initiation.

In the intervention group, all women who attended the follow-up and who were willing to have an IUD, received it within 3 months. Seven women chose another method instead. Thus, factors affecting IUD use in this group are essentially those associated with non-attendance. As the attendance rate in this group was exceptionally high (93%) even though several attempts were made to contact the women if necessary, the non-attenders represent a very select and non-compliant proportion of women.

In the control group, the rate of attendance was similar to that reported previously.[1 2] This group represented women in a 'normal' setting, with the only difference from the base population being participation in the study. In this group, non-attendance could be predicted only by a history of pregnancy and/or TOP. It is noteworthy that only 40% of the women attending the follow-up (by telephone or at a visit) received an IUD during the first 3 months (and 66% during the first year). Among women who did not attend PHC center follow-up, the rate of IUD use at 3 months was 7.8% (n=8) and half of these women had received the IUD at the hospital during a visit related to a diagnosed or suspected complication. We found no significant background factors predicting failure to have an IUD inserted. This finding reflects inefficacy of decentralised post-TOP services and contraceptive care.

Prescribing oral contraceptives after TOP is often considered as a 'bridging method', allowing more time to arrange an IUD insertion. In light of these findings, the idea of bridging does not seem to work in most women as only a quarter of the women (26%) in the control group received an IUD within 3 months. This is at least partly independent of the women's compliance and initiative and might be caused by factors such as shortage of physicians skilled in IUD provision, difficulty in scheduling or unnecessary delay in waiting for menstrual periods.

Strengths and limitations

The randomised structure of this study is its strength. However, limitations are that the findings are not directly applicable to all healthcare systems, as policies on where, at what cost and by whom, contraceptive services are provided differ greatly. Furthermore, all women participating in the study were by definition interested in IUD contraception, so the study population may not be representative of all women undergoing TOP. The women in the intervention group were given individualised service: they were flexibly rebooked for missed appointments and contacted several times if they failed to attend. In the real-life situation with a large flow of patients and fixed appointment schedules it may be impossible to provide such care. The exceptionally high rate of attendance in the intervention group may therefore give an optimistic perception of the effect

of comprehensive services. It is noteworthy that this study was initiated in 2010 and attitudes, practices and recommendations regarding IUD use, particularly in younger and nulliparous women, have changed over the past few years.[22–25]

CONCLUSIONS

A key finding of this study is that there are few risk factors for non-compliance with post-TOP care. This is in contrast with the risk factors for the need of subsequent TOP.[10] Thus, comprehensive provision of both MTOP and post-TOP contraception (including IUD provision) is likely to be beneficial.

Home testing for TOP outcome is being established as standard of care, and increasing possibilities for initiation of intrauterine contraception without delay following TOP are emerging.[12] The findings of this study can be of value in individualising post-TOP care and contraception planning, as well as in designing comprehensive TOP care. Attendance for post-TOP care is generally low and predicting non-attendance is difficult. Centralising TOP with post-TOP IUD services and setting up easily accessed, one-visit clinics is likely to lead to better overall rates of attendance and post-TOP IUD initiation.

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Competing interests OH has served on advisory boards for Bayer Healthcare, Gedeon Richter and Sandoz AG, and designed and lectured at educational events of these companies. SPS has served as an advisor for Exeltis and Gedeon Richter and lectured at educational events of Bayer. EP and MM have no conflicts of interest to declare.

Patient consent Obtained.

Ethics approval This study received approval from the ethics committee of the Hospital District of Helsinki and Uusimaa (HUS 260/13/03/03/2009 and §12/30.03.2010) and the City of Helsinki (10-1138/054). The trial was web-posted at www.clinicaltrials.gov [NCT01223521]).

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Notes