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ORIGINAL ARTICLE

Current practice in the removal of benign endometrial polyps: a Dutch survey

Lotte J. E. W. van Dijk · Maria C. Breijer · Sebastiaan Veersema · Ben W. J. Mol · Anne Timmermans

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Abstract The purpose of this study is to evaluate the current practice of Dutch gynecologists in the removal of benign endometrial polyps and compare these results with the results of a previous study from 2003. In 2009 Dutch gynecologists were surveyed by a mailed questionnaire about polypectomy. Gynecologists answered questions about their individual performance of polypectomy: setting, form of anesthesia, method, and instrument use. The results were compared with the results from the previous survey. The response rate was 70% (585 of 837 gynecologists). Among the respondents, 455 (78%) stated to remove endometrial polyps themselves. Polyps were mostly removed in an inpatient setting (337; 74%) under general or regional anesthesia (247; 54%) and under direct hysteroscopic vision (411; 91%). Gynecologists working in a teaching hospital removed polyps more often in an outpatient setting compared with gynecologists working in a nonteaching hospital [118 (43%) vs. 35 (19%) $p<0.001$]. These results are in accordance with the results from 2003. Compared to 2003 there was an increase in the number of gynecologists performing polypectomies with local or no anesthesia [211 (46%) vs. 98 (22%), $p<0.001$]. An increase was also noted in the number of gynecologists using direct hysteroscopic vision [411 (91%) vs. 290 (64%), $p<0.001$] and 5 Fr electrosurgical instruments [181 (44%) vs. 56 (19%), $p<0.001$]. Compared to the situation in 2003, there is an increase in removal under direct hysteroscopic vision, with 5 Fr electrosurgical instruments, using local or no anesthesia. This implies there is progress in outpatient hysteroscopic polypectomy in the Netherlands.

Keywords Polypectomy · Hysteroscopy · Inpatient · Outpatient

L. J. E. W. van Dijk (✉) · M. C. Breijer
Department of Obstetrics & Gynecology, TweeSteden Hospital, Tilburg, The Netherlands
e-mail: jew.vandijk@gmail.com

M. C. Breijer
e-mail: m.c.breijer@amc.uva.nl

M. C. Breijer · B. W. J. Mol · A. Timmermans
Department of Obstetrics & Gynecology, Academic Medical Center, Amsterdam, The Netherlands

B. W. J. Mol
e-mail: b.w.mol@amc.uva.nl

A. Timmermans
e-mail: a.timmermans@amc.uva.nl

S. Veersema
Department of Obstetrics & Gynecology, St. Antonius Hospital, Nieuwegein, The Netherlands
e-mail: s.veersema@antoniusziekenhuis.nl

Background

Benign endometrial polyps are frequently associated with abnormal uterine bleeding [1–4]. Endometrial polyps have a low potential for (pre)malignancy. However age and postmenopausal bleeding are factors which are associated with malignancy [3, 5–7]. Most gynecologists (up to 93%) will remove endometrial polyps in patients with abnormal uterine bleeding symptoms [8]. Although case series, cohort studies, and retrospective studies on this subject exist, few studies address this question prospectively in a comparative cohort study or a randomized controlled trial [9, 10]. Removing endometrial polyps is thought to improve symptoms of abnormal uterine bleeding and increase satisfaction rate in women with endometrial polyps

[11, 12]. The evidence that justifies the removal of endometrial polyps however is limited.

Traditionally, endometrial polyps were removed by dilatation and curettage (D&C). However, in approximately 57% of the D&C procedures endometrial polyps are not detected and D&C fails to extract endometrial polyps in 60–87% of the cases [13, 14]. Former surveys have demonstrated that D&C for polyp removal has not been completely abandoned: 2% of gynecologists in the UK removed polyps with D&C and 56% removed polyps with D&C following hysteroscopy [8]. In 2003, in the Netherlands, 4% of the gynecologists removed polyps with D&C and 27% used D&C following hysteroscopic localization. The preferred method of Dutch gynecologists is hysteroscopic removal (69%) [15]. Moreover, hysteroscopic polypectomy is the most performed hysteroscopic procedure in the Netherlands [16].

Large prospective cohort studies and randomized controlled trials have demonstrated that outpatient hysteroscopy and polypectomy are feasible, safe, and effective with high patient satisfaction rates [17–23]. Compared to the inpatient setting, patients treated in the outpatient setting recover faster, leading to a decrease in time away from home and work [24]. Nevertheless, our previous study revealed that in 2003, outpatient hysteroscopic polypectomy in the Netherlands was not practiced on a large scale (29% of gynecologists). However, we saw that outpatient hysteroscopic polyp removal was more often practiced in teaching hospitals compared with nonteaching hospitals. We therefore hypothesized that there might be a tendency towards outpatient hysteroscopic polypectomy. To evaluate this hypothesis, we conducted the current survey.

Materials and methods

All practicing gynecologists, holding membership of the Dutch association of obstetrics and gynecology (NVOG), in 2009 were identified from the national database. Gynecologists in training were not included. All gynecologists were approached by mail and received a questionnaire with a cover letter and prepaid return envelope. Different criteria were met to achieve the best response rate: the questionnaire was brief, fitting on one page; was explicit; and had a structured format consisting of three items subdivided in closed questions. To assure a higher response rate, a reminder was sent to the nonresponders after 8 weeks and a second reminder was sent by mail and email after another 12 weeks.

The questionnaire concerned questions about the medical practice of gynecologists, when a benign polyp was suspected following ultrasound or endometrial biopsy. Recipients were asked in what type of hospital they were working: a teaching hospital, with a residency program for gynecology, or a nonteaching hospital. Subsequently, gynecologists were asked to report whether they performed endometrial polypectomy themselves. Only those who did were then requested to report about setting (inpatient, day care, outpatient), form of anesthesia (general, regional, local or none), method of polyp removal (D&C, D&C after hysteroscopic localization or under direct hysteroscopic visualization), and type of hysteroscopic instrument used (5 Fr mechanical instruments, 5 Fr electrosurgical instruments, resectoscope, or morcellator).

Respondents were asked to report whether they performed the different modalities as a standard method, incidentally or never at all. The options that were chosen as a standard were used for further analysis. It was possible to leave questions unanswered or give multiple answers to one question (e.g., general and regional anesthesia as a standard method).

An inpatient setting was considered an operating theater with an anesthesiologist present for general or regional anesthesia and at least one night stay in the hospital. A day care setting was considered an operating theater with an anesthesiologist present, but discharge from the hospital the same day. A "walk-in-walk-out" procedure, without the presence of an anesthesiologist and without hospital admission, was considered an outpatient setting. Since the inpatient setting and day care setting both require hospital admission and use of an operating theater, they were analyzed together as one category. The same was applied to the form of anesthesia: general and regional anesthesia both require an anesthesiologist and were analyzed as one category. Local anesthesia is administered by a gynecologist and was therefore analyzed together with no anesthesia as one category. These categories enabled comparison of the current results with the results from 2003.

Statistical analysis

All data were processed anonymously. The information was collected, and descriptive statistical analyses were performed with SPSS for Windows® Release 15.0 Standard Version (Chicago, IL, USA). Answers given by gynecologists working in teaching hospitals were compared to answers given by gynecologists working in nonteaching hospitals. The data from this study were also compared to the data from our survey conducted in 2003 [15]. The chi-square test was used to compare proportions. Differences between groups were considered statistically significant at $p<0.05$. All p values were two sided.

Findings

In 2009 a total of 837 gynecologists were registered in the Netherlands. After the first mailing, 409 questionnaires were returned. Another 87 gynecologists responded after the first reminder. A second reminder was sent, with a

response of 89. In total a number of 585 (70%) gynecologists participated. Not all respondents answered all items of the questionnaire. Therefore subcalculations with different denominators were made.

Current practice

Of the 585 participating gynecologists, 455 (78%) performed polypectomy for endometrial polyps themselves. Table 1 shows the current practice of removing endometrial polyps. An inpatient or day care setting was used routinely by 337 (74%) gynecologists, with general or regional anesthesia by 247 (54%) gynecologists. Removal under direct hysteroscopic vision was the most used method of polypectomy, used by 411 (91%) respondents. Removal under direct hysteroscopic visualization was practiced routinely with 5 Fr mechanical instruments, 5 Fr electrosurgical instruments, or resectoscope by 166 (40%), 181 (44%), and 174 (42%) respondents, respectively.
Outpatient polypectomy was carried out by 153 (34%) of the respondents, and 211 (46%) used local or no anesthesia. Separating this last group, it shows that 76 gynecologists (17%) used local anesthesia vs. 145 (32%) no anesthesia ($p<0.001$). Table 2 shows the method of polyp removal vs. form of anesthesia. In case of D&C after hysteroscopic localization, more gynecologists used general or regional anesthesia than local or no anesthesia (13% vs. 1%, $p<0.001$).

Teaching vs. nonteaching hospitals

In teaching hospitals, gynecologists removed polyps significantly more in an outpatient setting compared with gynecologists in nonteaching hospitals (43% vs. 19%, $p<0.001$; Table 1). Local or no anesthesia was more often used in teaching hospitals compared with nonteaching hospitals (55% vs. 33%, $p<0.001$). Direct hysteroscopic vision was the most common method of polypectomy in both types of hospitals.

Comparison with practice in 2003

In 2003 and in 2009, an equal number of gynecologists (455) reported to remove endometrial polyps themselves. These results turned out this way by chance. In both years the majority of Dutch gynecologists performed polypectomy in an inpatient setting under general or regional anesthesia (Table 3). Though, significantly less general or regional anesthesia (54% vs. 72%, $p<0.001$) and more local or no anesthesia (46% vs. 22%, $p<0.001$) is used in 2009 compared with 2003. This applies both for teaching and nonteaching hospitals (numbers not shown separately). In 2009, 145 gynecologists (32%) used no anesthesia vs. 21 (5%) in 2003 ($p<0.001$). A shift towards the removal under direct hysteroscopic vision is seen in 2009 compared with 2003 (91% vs. 64%, $p<0.001$), with a decrease in use of D&C (9% vs. 29%, $p<0.001$). The 5 Fr electrosurgical instruments are more frequently used in 2009 compared with 2003 (44% vs. 19%, $p<0.001$).

Discussion

Our survey shows that the majority of gynecologists in the Netherlands remove endometrial polyps in an inpatient setting, under direct hysteroscopic vision. More gynecologists

Table 1 Current practice in 2009 concerning removal of endometrial polyps

	Total	Teaching (n=275)	Nonteaching (n=180)	p value
Setting				
-Inpatient/day care	337 (74)	193 (70)	144 (80)	0.019
-Outpatient	153 (34)	118 (43)	35 (19)	<0.001
Anesthesia				
-General/regional	247 (54)	133 (48)	114 (63)	0.002
-Local/no	211 (46)	152 (55)	59 (33)	<0.001
Method				
-D&C	6 (1)	2 (1)	4 (2)	ns
-D&C after hysteroscopy	37 (8)	15 (6)	22 (12)	0.010
-Direct hysteroscopic vision	411 (91)	257 (94)	154 (86)	0.005
Hysteroscopic vision	n=411	n=257	n=154	
Instrument				
-5 Fr mechanical	166 (40)	102 (40)	64 (42)	ns
-5 Fr electrosurgical	181 (44)	122 (47)	59 (38)	ns
-Resectoscope	174 (42)	106 (41)	68 (44)	ns
-Morcellator	12 (3)	10 (4)	2 (1)	ns

Number of performing gynecologists (in percent)

Teaching academic and nonacademic teaching hospitals, *D&C* dilatation and curettage, *ns* not significant

Table 2 Method of polyp removal versus form of anesthesia

	General/regional anesthesia	Local/no anesthesia	*p* value
D&C	3 (1)	1 (1)	ns
D&C following hysteroscopy	32 (13)	3 (1)	<0.001
Under direct hysteroscopic vision	214 (86)	206 (98)	ns
Total	249	210	

Number of gynecologists (in percent)

D&C dilatation and curettage, *ns* not significant

in teaching hospitals perform polypectomy in an outpatient setting compared with nonteaching hospitals. Comparing current practice to the situation in 2003, we found an increase in hysteroscopic polyp removal with a decrease in D&C removal. Furthermore, we noted a decrease in the use of general or regional anesthesia and an increase in the number of gynecologists performing hysteroscopy with local or no anesthesia; no difference in the use of outpatient setting was noted. We also found an increase in the number of gynecologists using 5 French electrosurgical instruments.

There are two limitations that need to be addressed regarding the present study. First, our response rate is marginal. Our results should however be considered valid as a response rate of 70% is a level where the impact of nonresponse bias is negligible [25]. Moreover, the questionnaires were concise and met different criteria to achieve the best response rate. We met these criteria by using a short one-page questionnaire with return envelopes and reminders [26, 27].

The second limitation concerns the fact that we only considered the number of gynecologists removing polyps, and we did not display the number of polypectomies they performed. This could mean that few gynecologists perform polypectomies in an outpatient setting, but the major part of the number of polypectomies in the Netherlands (by a minor group of gynecologists) is performed outpatient. To get an impression of the number of uterine polypectomies per year, we sent all departments of gynecology in the Netherlands a letter and asked for the annual report of their department. However, the annual reports of the various hospitals differed in layout and classification. Some hospitals classified their therapeutic hysteroscopies in subcategories like hysteroscopic polypectomy, while others grouped them under the same denominator, without separation in numbers of polypectomies. We could therefore not include this information in our current survey.

In 2003 we hypothesized a tendency towards outpatient hysteroscopic removal of polyps for the future. Although we could not show such an increase directly in the number of gynecologists performing outpatient hysteroscopic polypectomy, our results imply that there is a tendency towards outpatient hysteroscopic polypectomy. We found an increase in the number of gynecologists performing polypectomy under direct hysteroscopic vision with local or no anesthesia

Table 3 Comparison numbers of 2009 with 2003

	Total 2009, *n*=455	Total 2003, *n*=455	*p* value
Setting			
-Inpatient/day care	337 (74)	321 (71)	ns
-Outpatient	153 (34)	129 (28)	ns
Anesthesia			
-General/regional	247 (54)	326 (72)	<0.001
-Local/no	211 (46)	98 (22)	<0.001
Method			
-D&C	6 (1)	17 (4)	0.03
-D&C after hysteroscopy	37 (8)	115 (25)	<0.001
-Direct hysteroscopic vision	411 (91)	290 (64)	<0.001
Hysteroscopic vision	2009, *n*=411	2003, *n*=290	
Instrument			
-5 Fr mechanical	166 (40)	197 (68)	<0.001
-5 Fr electrosurgical	181 (44)	56 (19)	<0.001
-Resectoscope	174 (42)	159 (55)	0.001
-Morcellator	12 (3)	na	na

D&C dilatation and curettage, *ns* not significant, *na* not applicable, *Teaching* academic and nonacademic teaching hospitals

and a decrease in D&C after hysteroscopy and the use of general or regional anesthesia. Considering the fact that an increase in local and no anesthesia was observed, it can only be concluded that more gynecologists are performing hysteroscopy as a "walk-in-walk-out" office procedure.

Hysteroscopic polypectomy seems to be integrated in the daily practice of most hospitals in the Netherlands [16]. Possible explanations for the shift towards outpatient hysteroscopic polypectomy can be mentioned on a speculative basis. First, the Dutch obstetrics and gynecology residency curriculum requires hysteroscopic polypectomy for graduation. The curriculum includes a basic surgical skill course with additionally the possibility to attend advanced courses and congresses on hysteroscopy. Each year many residents and gynecologists participate in these courses, which enhance the implementation of basic minimally invasive surgery skills training into the residency curriculum [28, 29]. Second, in 2002 hysteroscopic sterilization was introduced in the Netherlands. This technique was set in a "see-and-treat" setting with the use of 5 Fr working channel instruments. The use of this technique has probably had a positive influence on implementation of outpatient hysteroscopy for other indications. Third, literature shows that outpatient hysteroscopy is the most cost-effective method of hysteroscopy [24].

This progress in outpatient hysteroscopic polypectomy in the Netherlands is an advantage in medical practice. Literature shows that the best method of pain control for women undergoing traditional hysteroscopy is local anesthesia [30, 31]. However, a recent systematic review reported less pain during hysteroscopy in case of vaginoscopic approach (no anesthesia) compared with traditional hysteroscopic techniques, even with use of local anesthesia [32]. We showed a significant increase in the number of gynecologists using no anesthesia in 2009 compared with 2003. This makes the vaginoscopic approach of hysteroscopy more favorable.

Conclusion

In conclusion, this study shows that although hysteroscopy without anesthesia [32] and outpatient hysteroscopic polypectomy [19, 21–23] have been described in the literature to be highly successful, it is still not practiced on a large scale in the Netherlands. However, there is progress in outpatient hysteroscopic polypectomy. This implies that daily practice is catching up with the situation described in the literature.

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