



Short Communication

Supravaginal hysterectomy in Curaçao prevalence and impact on screening for cervical cancer

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ABSTRACT

In Curaçao, hysterectomies are frequently performed. A common reason for this procedure is the high incidence of leiomyomatosis. However in some cases the cervix is conserved. Following supravaginal hysterectomy most women discontinue cervical cancer screening because they think the cervix is not conserved. We aimed to get insight in the proportion of supravaginal hysterectomies and the level of awareness on the necessity to continue with cervical cancer screening in case of retained cervix.

In 2014, data from all hysterectomies performed between 2003 and 2013 on Curaçao were collected. Information about: type of hysterectomy (supravaginal or not), age of the patient, reason for a hysterectomy and incidence of cervical cancer post-hysterectomy were obtained from the nationwide pathology database. In addition, 600 hysterectomised volunteers answered a questionnaire in which the awareness of their type of hysterectomy and continuation of screening for cervical cancer after surgery were investigated. In the at-risk population (≥ 15 years old), 6.0 per1000 women (95% CI 5.9–6.2) had a hysterectomy between 2003 and 2013 ($n = 692,304$). From the performed hysterectomies, 2.9% were supravaginal and no cases of cervical cancer post-hysterectomy were reported. The majority (55.3%) of women were unaware of their cervical status post-hysterectomy. About one-third (34.3%) of these women had their last Pap-smear pre-hysterectomy. Information campaigns are needed to raise awareness in women, to continue cervical-screening after supravaginal hysterectomy.

1. Introduction

Cervical cancer is the 4th most prevalent female cancer in the world (Instituto Catalán de Oncología [ICO], 2015) and in the Caribbean region it is the second most common cancer in women. (Martin et al., 2013) Studies have stated that this cancer can be eradicated. (Bosch, 2012) However, important reasons for why this preventable cancer cannot yet be eradicated, are the low uptake of HPV vaccination programmes, lack of proper implementation of screening programmes on the global level and/or the high numbers of none responders to the screening programme. (Bruni et al., 2016; de San José et al., 2012) The need to investigate reasons why women do not attend for cervical cancer screening and especially after having undergone a hysterectomy, was identified as part of the process for the preparation for the HPV research on Curaçao. When women were approached to participate with a pilot screening, many refused to participate because of their

history of hysterectomy. When asked for the type of hysterectomy procedure and follow up actions, most of them were unaware whether their cervix had been preserved or not. Therefore they never attended for cervical cancer screening anymore because they assumed that this was not necessary.

Hysterectomy is one of the most common surgeries performed worldwide (Moorman et al., 2013; Garry, 2005) and different surgical techniques are used for this procedure. Supravaginal hysterectomy is one of the surgical modalities in which the surgeon removes the uterus but leaves the cervix in place. Some studies refer that it can be considered less morbid than total hysterectomy. (Zouhair et al., 2012) This surgical procedure may be performed for women when the reason for hysterectomy is a benign disorder. Women should continue screening for cervical cancer when a supravaginal hysterectomy has been performed. If they are not well informed about the procedure, misunderstanding and misinterpretations about continuing with cervical

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cancer screening will occur. Cancer of the preserved cervical stump contributes to 3–9% of cervical cancer cases in the world. (Hellström et al., 2001; Hellström et al., 2011; Cléber et al., 2004; Wahba et al., 2015) The present study was set up with the aim to obtain insight in the proportion of supravaginal hysterectomies in women from Curaçao, and to investigate the level of awareness of the need of continuing cervical cancer screening in case of a preserved cervix.

2. Material and methods

2.1. Retrospective data

We performed a retrospective review of all hysterectomies done on Curaçao between 2003 and 2013. In addition all new cases of cervical cancer per year were collected. We used the PALGA system, which is the nationwide database containing all pathology reports from Curaçao and the Netherlands. In both datasets, we looked for the diagnosis of cervical cancer in the cervical stump and whether previously a supravaginal hysterectomy had been performed. Also, additional information about the year of surgery, type of surgical-technique and other patient data such as age and reason for hysterectomy were collected. All data were collected anonymously.

The Nation Statistics Department [Curaçao Bureau Statistiek (CBS)] provided the number of inhabitants living on Curaçao from 2003 to 2013. For the incidence calculation, we included the at-risk population, which consisted of all women ≥ 15 years in 2003–2013 ($n = 692,304$).

2.2. Questionnaire data

Finally, 600 hysterectomised women were included in the questionnaire survey. The participants were generally women who had a history of hysterectomy and were attending the breast cancer-screening programme or information sessions organised by the prevention centre. The questionnaire was answered anonymously and included multiple-choice questions regarding awareness of retained cervix (RC), reason for hysterectomy, screenings after hysterectomy, current age and age at the time of hysterectomy.

2.3. Policies and ethics

The materials were handled very attentive considering the participants' privacy. Prior to participation with the questionnaire survey, each participant received detailed information about the study objectives and an informed consent was signed. Moreover, a marketing campaign was conducted by making use of posters, information sessions, educational programmes on television, radio and on the Facebook page of Fundashon Prevenshon (FP). The study was approved by the Institutional Review Board of the medical ethics committee of Fundashon Prevenshon, Curaçao, (IRB board's approval number 0002/14).

3. Results

3.1. Retrospective data

4184 hysterectomies were performed between 2003 and 2013, resulting in an incidence of 6.0 hysterectomies per 1000 women (95% CI 5.9–6.2). The main reason for hysterectomy was uterine leiomyomas, in 3082 cases (73.7%) (Table 1).

In 3.2% of the cases the reason for hysterectomy was the presence of a (pre)malignant lesion of the cervix. From the performed hysterectomies, 123 (2.9%) were supravaginal (Table 1). The mean age in women with supravaginal hysterectomy was 44.9 (range 23–85).

One hundred and sixty-one cervical cancer cases were diagnosed between 2003 and 2013 on Curaçao, yielding an incidence of 23.3 per 100,000 women (95% CI 19.9–27.1). No case of cervical cancer in the

retained cervix was reported for 2003–2013.

3.2. Questionnaire data

Six hundred hysterectomised women, mean age 58.4 year (range 39–77), completed the questionnaire (Table 2).

Mean age on which hysterectomy of the 562 (87.6%) participants had been performed was 43.2 years (range 19–60 years).

Leiomyomatosis (59.5%) was the most common reason for a hysterectomy. This finding is in agreement with the most common reason to perform a hysterectomy as found in PALGA (73.7%).

Three hundred and thirty two (55.3%) women were not aware of their cervical status post hysterectomy and 25 (4.2%) of the participants did not answer the question.

Three hundred and six women had their last pap smear before the hysterectomy indicating that they had not attended for cervical-screening after the operation.

Only 13.2% of the participants gave the correct answer for the reason why Pap smears are performed indicating that the majority of the interviewed women are unaware of the importance of screening (Table 2).

4. Discussion

The number of hysterectomies (6.0 per 1000 women) performed on Curaçao is high and supravaginal hysterectomy occurred in 2.9% of hysterectomised women.

The majority of the participants (55.3%) were unaware of their cervical status post-hysterectomy and do not understand the reason why Pap-smears are being performed (86.8%).

No cases of cancer of the cervical stump were found during our analysis. The reason to leave an intact cervix was not written in the pathology reports. Moreover we were unable to look in surgery reports, which limits our interpretation.

A limitation of our study is that a number of women on Curaçao seek medical assistance abroad and consequently the here presented data may not be complete.

The Caribbean region, mainly consists of an Afro and Latin population and is known for a high incidence and high mortality rate of cervical cancer. (Murillo et al., 2008) Cervical cancer in the Afro female population is higher compared to the Caucasian female population. (Moorman et al., 2013; Beavis et al., 2017) A recent publication in the U.S. also reports a higher mortality rate of cervical cancer under (old) African American women. (Beavis et al., 2017) Furthermore, hysterectomy rate for the African Americans is 10.1 while for the white Americans this was 4.7 (Beavis et al., 2017) indicating a higher prevalence in the ethnic group from Afro descendants. Despite the high incidence of cervical cancer (23.3%) our study showed a low awareness of the need for cervical screening under the population on Curaçao. This unawareness that results in misinterpretations, maybe based on differences in social and cultural background, and may explain why women do not respond to the call for cervical cancer screening. Further investigation to the underlying factors is needed. More hysterectomies are performed in the Afro female population because of the high prevalence of leiomyomatosis. (Moorman et al., 2013)

In the Americas, mainly under the African and Hispanic population, the thought exists that the cervix may influence coitus favourably. However, studies have shown no evidence for this phenomenon. (Hellström et al., 2011; Roovers et al., 2003; El-Toukhy et al., 2004) In addition in some cases, women do not want their cervix removed because of the threat of the partner breaking up the relationship after hysterectomy. (Richter et al., 2000; Groff et al., 2000) This may influence a woman's decision in preferring a supravaginal hysterectomy. Collectively these considerations suggest that psychological arguments play a role in the decision to perform a supravaginal hysterectomy. In Europe, most publications comparing total versus supravaginal

Table 1
Number and reasons for hysterectomy between 2003 and 2013 on Curaçao.

	Hysterectomy	Mean age and range	Subtotal hysterectomy n (%)	Mean age and range	Uterus leiomyomatosis	CIN/cervical ca.	Endometrium ca./Uterus sarcoma	Ovarium ca.	Other causes
2003	348	46.7 (27–79)	8 (2.3)	42.5 (36–49)	273	8	7	3	49
2004	412	47.0 (25–85)	6 (1.5)	42.2 (34–50)	320	10	8	1	67
2005	360	46.8 (24–86)	16 (4.4)	46.3 (32–63)	241	14	9	0	80
2006	346	46.4 (22–77)	9 (2.6)	44.0 (30–76)	228	17	12	2	78
2007	419	46.9 (28–85)	10 (2.4)	43.7 (30–56)	304	10	14	0	81
2008	357	47.0 (27–83)	9 (2.5)	48.7 (40–72)	244	13	13	0	78
2009	393	47.1 (30–83)	12 (3.1)	44.0 (34–63)	317	16	17	5	26
2010	396	47.6 (23–85)	17 (4.3)	47.0 (23–66)	295	14	15	4	51
2011	387	48.7 (26–87)	16 (4.1)	47.9 (35–85)	280	13	16	2	60
2012	387	48.1 (26–80)	8 (2.1)	42.3 (35–49)	297	7	22	1	52
2013	379	48.3 (20–86)	12 (3.2)	45.6 (30–53)	283	13	15	4	52
Total	4184	47.3 (20–87)	123 (2.9)	44.9 (23–85)	3082	135	148	22	674

CIN = Cervical intraepithelial neoplasia; cervical ca. = cervical cancer.

*The row with “other causes” represents the reasons for hysterectomy performed because of postpartum complications, endometriosis or other surgical indications where pathology report showed no abnormalities.

Table 2
Participant's characteristics and reasons for uterus extirpation of 600 hysterectomised women in Curaçao who completed the questionnaire.

	n = 600	%
Reason for hysterectomy		
Uterus myomatosis	357	59.5
Endometriosis	24	4.0
Complication at delivery	8	1.3
Other	176	29.4
no answer	35	5.8
Age when hysterectomy was performed		
19–45	341	56.8
46–73	199	33.2
No answer	60	10.0
Year in which hysterectomy was performed		
< 2000	200	33.3
2000 + >	291	48.5
No answer	109	18.2
Awareness of intact cervix post-hysterectomy		
Intact	168	28.0
Not intact	75	12.5
Unawareness	332	55.3
no answer	25	4.2
Date of last Pap-smear		
< 3 years before this questionnaire	68	11.3
3–5 years before this questionnaire	73	12.2
5–10 years before this questionnaire	99	16.5
Prior hysterectomy	306	51.0
Don't remember	22	3.7
No answer	32	5.3
Reason why a Pap-smear is done according to the participant		
Early detection of any cancer in the genital tract	134	22.3
Early detection of cervical cancer	79	13.2
Detection of vaginal infection	143	23.8
Don't know the reason why a Pap-smear is done	143	23.9
no answer	101	16.8

hysterectomy describe the differences in physical adverse effects post-surgery. The studies that compare the effect of total and supravaginal hysterectomy on psychological and sexual satisfaction show no significant difference between the two procedures. (Ellström Engh et al., 2010; Risa et al., 2006) Given the social and cultural differences, a different approach to raise awareness for cervical screening in the women of Curaçao is required.

We found no cervical carcinoma cases in the cervical stump. One important reason is that several inhabitants seek medical consultation outside Curaçao. Since proper or structured data registration is lacking in most of the Caribbean region we cannot evaluate the size of this

problem.

However given the prevalence of an intact cervix after hysterectomy (2.9%) and the published risk of cervical carcinoma in the cervical stump (3–9% of cervical cancer cases in the world) (Hellström et al., 2001; Hellström et al., 2011; Cléber et al., 2004; Wahba et al., 2015) we aim to inform women still to continue with cervical screening after a supravaginal hysterectomy. This information must be clear to both, patient and health providers in charge of screening.

Another limitation of the study is that the 600 women who filled in the questionnaire were not randomly selected from the women who underwent hysterectomy between 2003 and 2013. Despite this limitation we have the impression that the results of the questionnaire give a reasonable impression about the awareness of cervical cancer in Curaçao. The questionnaire finding that leiomyomatosis is the most important reason for hysterectomy is corroborated by the data from the national data registry system PALGA and further supports our impression.

4.1. In conclusion

Lack of understanding of the impact of an intact cervix after hysterectomy and the necessity for Pap-smear in general are reasons why women don't respond to cervical cancer screening invitations. As part of the strategy to achieve the eradication of cervical cancer, (Bosch et al., 2013) information campaigns on these topics are necessary.

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Conflicts of interest

DJ. Hooi, BI Witte, I Gomes Bravio, HM Pinedo, GG Kenter, have no conflicts of interest.

CJLM Meijer has received speakers' fee from GSK, Qiagen, SPMSD/Merck, Roche, Menarini and Seegene, served occasionally on the scientific advisory board (expert meeting) of GSK, Qiagen, SPMSD/Merck., Roche and Gentical and by occasion as consultant for Qiagen

and Gentcel. He holds stock in Qiagen and Self-Screen b.v., a spin off company of VUMC. Until April 2016 he was minority stock holder of Diassay b.v. and until 2014 he had a small number of certificates of shares in Delphi Biosciences.

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