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Implementation of uterine artery embolisation for symptomatic uterine fibroids: an inventory

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ABSTRACT

The validity of uterine artery embolisation (UAE) as an alternative treatment for hysterectomy to treat symptomatic uterine fibroids has been well established. Despite its favourable outcomes, UAE is still only marginally applied in the Netherlands. The aim of this inventory is to identify factors which either restrict or facilitate the implementation of UAE.

Gynaecologists and interventional-radiologists in three hospitals in Amsterdam were interviewed by means of questionnaires. One of these hospitals had ample experience in UAE for uterine fibroids, one hospital had just started providing this treatment, and one hospital did not perform UAE. Also patients with symptomatic fibroids who were scheduled for either UAE or hysterectomy were interviewed about the counselling for UAE.

The following obstacles in the implementation of UAE were found: lack of knowledge about UAE, absence of a multidisciplinary protocol, and above all, the absence of UAE as one of the treatment options in the Dutch national guideline on the management of menorrhagia. 75% of all patients claimed to be well informed about UAE by their gynaecologist.

Our recommendations for the implementation of UAE are: 1) adding UAE to the Dutch guideline for the management of menorrhagia with clearly defined indications and contraindications; 2) educating gynaecologists about UAE; 3) composing a patient information leaflet and a website, and 4) arranging a protocol in a multidisciplinary team.

KEYWORDS

Uterine artery embolisation, uterine fibroids, implementation

INTRODUCTION

Since the introduction of uterine artery embolisation (UAE) for symptomatic uterine fibroids by Ravina *et al.* in 1995[1] the effect of UAE on shrinkage of fibroids and reduction of symptoms became evident. Three randomised studies evaluated various aspects of this new treatment modality and demonstrated its equivalence and -sometimes- superiority to hysterectomy and/or myomectomy.[2-6] Even after five years of follow-up, UAE was found to be equally effective compared with hysterectomy in terms of patients' Health Related Quality of Life (HRQOL) and satisfaction, while its cost-effectiveness was superior.[7] Despite these favourable outcomes of UAE, its implementation in daily practice has been rather disappointing, as illustrated by a recent CIRSE (Cardiovascular and Interventional Radiological Society of Europe) survey.[8] This survey illustrates that although the use of UAE was widespread throughout European countries in 2009, the majority of centres (53%) performed only between 10 and 50 UAE procedures/year. They stated the importance of using the media to enhance patient awareness of treatment options such as UAE and that the creation of an interactive website is a unique opportunity to do so. The survey also recommended UAE to be offered as part of a multidisciplinary approach, thereby including radiologists, gynaecologists and anaesthesiologists. However, no further advice was given on how to implement UAE in routine practice. To analyse all the possible restricting and facilitating factors in the implementation of UAE and to put forward recommendations for wider use of UAE in the treatment for symptomatic uterine fibroids we performed an inventory among a group comprising an interventional-radiologist, gynaecologists and patients suffering from symptomatic uterine fibroids in three hospitals in Amsterdam.

METHODS

This inventory was performed between March 31st and June 15th 2010 and consisted of questionnaires and interviews. It was performed in three (non-academic) hospitals in Amsterdam; one hospital with ample experience with UAE for uterine fibroids, one hospital that had just started providing this treatment, and one hospital where UAE is not being performed. The experience in UAE, and the size and setting of these hospitals differed.

Questionnaires and interviews

The questionnaires for the gynaecologists were composed by investigators of the EMMY (EMbolization versus hysterectoMY) trial[4-7] after interviewing a gynaecologist specialised in the treatment of fibroids in each participating hospital. The questionnaires were quite similar to the questions in the interviews, but they were shorter for optimising the response rate, and were administered to all gynaecologists of the three hospitals. In both the hospitals offering UAE, the intervention-radiologist specialised in performing UAE was interviewed. The reason to interview only one radiologist per hospital was that the counselling process starts with the gynaecologist when patients visit the outpatient clinic for heavy menstrual bleeding caused by fibroids. Therefore interviewing the radiologists was to survey the process after the counselling by the gynaecologist.
In both the interviews and questionnaires various determinants were examined concerning UAE: knowledge, experience, attitude towards the procedure, expectations, logistics and financial and educational considerations.[9,10] The questions were designed to identify which determinants are relevant in the implementation of UAE.

Gynaecologists

The questionnaires for gynaecologists concerned: 1) the counselling process; 2) perceived (contra) indications for UAE; 3) how often patients were referred for UAE; 4) whether they feel sufficiently informed about the procedure; 5) the restricting and facilitating factors in implementation of UAE for fibroids in the Netherlands, and 6) based on existing literature about implementation strategies, we selected existing strategies and asked whether the gynaecologist judged the following strategies would contribute to a successful implementation: a) adding UAE to the Dutch guideline on the management of menorrhagia; b) organising a conference or information meeting for gynaecologists; c) creating a patient information leaflet and website on UAE; d) approaching key figures in the gynaecological department to spread the knowledge about the procedure.[11-14]

Radiologists

The questions in the interviews with radiologists in the two hospitals concerned: 1) whether or not radiologists should be involved in the counselling of patients eligible for UAE; 2) any foreseeable problems which might arise in practice when doing so; 3) their personal experience with performing UAE; 4) the restricting and facilitating factors in implementation of UAE for fibroids in the Netherlands and 5) whether the above-mentioned implementation strategies would contribute to the implementation of UAE.

Interviews with patients

We conducted structured interviews with patients scheduled for UAE or hysterectomy for symptomatic uterine fibroids in the three hospitals. All patients who were scheduled for UAE or hysterectomy between March 31st and June 15th 2010 were asked to participate if they were pre-menopausal and did not have a wish for future pregnancy. If informed consent was obtained, they were interviewed prior to the procedure.

UAE patients

The questions for patients undergoing UAE addressed the following subjects: 1) if and where they had learned about UAE; 2) their satisfaction about the information received from the gynaecologist; 3) whether they had received an information leaflet, and 4) why they had opted for UAE. Several options were mentioned and patients were asked if these applied to their situation.

Hysterectomy patients

Patients eligible for UAE who underwent a hysterectomy for symptomatic uterine fibroids were interviewed in all the participating hospitals in the same period. The questions addressed the following: 1) whether they were offered an alternative to hysterectomy; 2) which alternative(s) was/were offered; 3) the information received about UAE and 4) why they had opted for hysterectomy.

RESULTS

Questionnaires were sent to 24 gynaecologists and two interventional radiologists. Seventeen gynaecologists returned the questionnaires, including two of the three interviewed gynaecologists. For this reason some questions are answered by 17, and some by 18 gynaecologists. Only two interventional radiologists were interviewed, i.e. the specialists who perform the UAEs in the two hospitals providing UAE.
Most gynaecologists (14/18, 77.8%) shared the opinion that UAE should be a standard treatment option to offer a patient with symptomatic uterine fibroids if the patient

meets the inclusion criteria. There are criteria, however, that some gynaecologists consider to be an exclusion criterion for UAE, while others do not. A submucous fibroid was considered to be an exclusion criterion by 23.5% (4/17), while patients with fibroids without menorrhagia were not counselled for UAE by 41.2% (7/17). Almost all gynaecologists (17/18, 94.4%) declared that they had adequate knowledge about UAE for counselling their patients. Some gynaecologists (8/18, 44.4%), however, indicated they were uncertain about several aspects of UAE about which they needed more information, especially on the effect of UAE on uterine fibroids on specific localisations and on the effect of UAE on fertility.

In one of the two hospitals where UAE is performed, counselling by the attending interventional-radiologist is part of the standard counselling process and most (11/16, 68.8%) of all gynaecologists and radiologists in these two UAE performing hospitals find it necessary to work in a multidisciplinary team. Both radiologists said they were well educated about UAE and had ample experience in performing the procedure. Most gynaecologists (11/14, 78.6%) indicated that they referred patients for UAE more often since the procedure was offered in their hospital. The gynaecologists of the hospital where UAE is not performed mentioned that they would not refer more often if the procedure was being offered in their hospital, as stated by 75% (3/4). At this moment they refer their patients to an academic centre in Amsterdam if UAE is indicated. Both gynaecologists and radiologists mentioned that streamlining the procedure and making a postprocedural pain protocol in a multidisciplinary team would improve the logistics.

The gynaecologists indicated the following factors to restrict the implementation of UAE:

- Lack of knowledge of the procedure in a group of gynaecologists, which might lead to less counselling (3/18, 16.7%).
- Some gynaecologists (2/18, 11.1%) have the opinion that many gynaecologists do not believe in favourable results of UAE and that they therefore do not counsel.
- Concerns that the number of surgical procedures performed by gynaecologists might decrease with financial consequences for the gynaecological department (3/18, 16.7%).
- Concerns about the development of surgical skills by residents because of dropping numbers of hysterectomy (3/18, 16.7%).

The gynaecologists indicated the following factors to facilitate the implementation of UAE:

- Adding UAE to the Dutch guideline on the management of menorrhagia (16/18, 88.9%).
- Appointing 'key figures' in the gynaecological department to spread the knowledge about UAE (14/18, 77.8%).
- Organising conferences or information meetings about UAE in order to improve the knowledge on UAE among gynaecologists (13/18, 72.2%).
- The formation of a multidisciplinary team to formulate logistic procedures, pain management and an after-care protocol, in order to improve the cooperation between the radiology and gynaecology department (11/18, 61.1%).
- Development of agreement between the gynaecology and radiology departments about proper financial arrangement in offering UAE (1/18, 5.6%).
- Selecting centres that will offer the procedure and announcing this to all hospitals in the Netherlands, so that every gynaecologist knows where to refer to (2/18, 11.1%).
- A patient information leaflet and website (18/18, 100%).
- Publication of success stories of satisfied patients for fellow patients, gynaecologists and interventional-radiologists (2/18, 11.1%).

Both radiologists indicated the following factors to restrict the implementation of UAE:

- Gynaecologists are not sufficiently convinced about the results of UAE in the treatment of fibroids.
- Radiologists should be more part of the follow-up of the patients after UAE.
- No streamlined protocol on logistics, pain management and aftercare after the procedure.

Both radiologists indicated the following factors to facilitate the implementation of UAE:

- Implementation of UAE for fibroids in the Dutch guideline on the management of menorrhagia.
- Gynaecologists need to be better informed about UAE, for example in congresses or meetings.
- Creating a patient information leaflet and website on UAE.
- Approaching 'key figures' in the gynaecological department to spread the knowledge about the procedure.
- The protocol needs to be streamlined, especially a logistics, pain management and after-care protocol for each specific hospital that offers UAE, made by a multidisciplinary team.

Patients

All patients were premenopausal women who suffered from menorrhagia due to fibroids that were not removable by transcervical resection or by laparoscopy. They did not have contraindications for UAE, had no desire for future pregnancy and informed consent was obtained.

UAE patients

All eight patients scheduled for UAE were satisfied about the information they received on UAE. Most of them learned about UAE from their gynaecologist (5/8, 62.5%; 95% CI 24.5 to 91.5) while some (3/8, 37.5%; 95% CI 8.5 to 75.5) found information on the internet, after which they discussed this option with their gynaecologist. All patients said they would have liked to receive an information leaflet about the procedure, but even without this leaflet they said they were well-informed about the procedure (8/8, 100%; 95% CI 63.1 to 100), the hospital stay (7/8, 87.5%; 95% CI 47.3 to 99.7), the recovery period (7/8, 87.5%; 95% CI 47.3 to 99.7), and possible complications (7/8, 87.5%; 95% CI 47.3 to 99.7). The most important reason for them to choose UAE over a hysterectomy was a shorter hospital stay (4/8, 50%; 95% CI 15.7 to 84.5), preservation of the uterus (7/8, 87.5%; 95% CI 47.3 to 99.7), because UAE was viewed as less invasive without abdominal scars (5/8, 62.5%; 95% CI 24.5 to 91.5) and because they liked the fact that they could resume work sooner (5/8, 62.5%; 95% CI 24.5 to 91.5).

Hysterectomy patients

Of the seven hysterectomy patients suitable for UAE, 85.7% (6/7; 95% CI 42.1 to 99.6) received information about UAE. All of them said that the main reason for choosing hysterectomy was its definitive character in solving of their problem. Some stated that they preferred to be treated by their own gynaecologist (5/7; 71.4%, 95% CI 29.0 to 96.3) or the possibility to be treated in their own hospital (2/7; 28.6%, 95% CI 3.7 to 71.0) as a reason to choose for hysterectomy.

DISCUSSION

In this inventory we analysed the factors restricting or facilitating the implementation of UAE in the treatment of symptomatic uterine fibroids in Amsterdam. UAE is a proven valuable alternative to hysterectomy, but still neither implemented well in Amsterdam, nor in the Netherlands, or in Europe.[8] Implementation strategies for new medical treatments in general have been widely studied. The majority of these studies concluded that effective implementation strategies included multifaceted interventions (interventions composed of a varied range of components or strategies) and interactive education. Multifaceted interventions consistently resulted in significant improvements in guideline compliance and behavioural change.[12,15,16] Interactive education strategies including workshops and practical sessions are also effective. The most important reported effects attributed to educational strategies are associated with educational outreach visits by educators, the provision of promotional material and subsequent reminders or educational follow-up.[17-19] Thus knowledge about the procedure by health care providers is most important in the implementation of a new procedure. This is more or less in accordance with this inventory. The factors that we found as restricting the implementation of UAE almost all had to do with ignorance about the procedure. Although almost all of the gynaecologists who were questioned claimed to have enough knowledge on UAE, some mentioned a lack of knowledge among gynaecologists as a restricting factor. The most important conclusion in our study is that UAE has to be implemented in the Dutch guideline on the management of menorrhagia first, before it can be implemented in the treatment spectrum for symptomatic uterine fibroids in the Netherlands. This guideline should contain information on inclusion and exclusion criteria, effectiveness and on the effect of UAE on pregnancy because these are subjects some gynaecologists are not convinced about. A submucous fibroid, for example, was considered to be an exclusion criterion by 23.5% because of the possible risk of necrosis and infection,[20] while patients with fibroids without menorrhagia were not counselled for UAE by 41.2%, because they stated that for patients suffering from only bulk and pressure symptoms caused by fibroids a hysterectomy might be more effective. Although UAE has already been implemented in the NICE guideline on menorrhagia, adding UAE to the Dutch (NVOG) national guideline on menorrhagia will reach more gynaecologists in the Netherlands.

In the interviews many professionals expressed the need for standardised protocols on pain management and after-care in UAE, which ideally should be streamlined by a multidisciplinary team with a gynaecologist, interventional-radiologist and anaesthesiologist. Patients expressed the requirement for further information, i.e. leaflets and a website, as an addition to the counselling process. Another obstructing factor is possible financial loss; some gynaecologists mentioned 'losing' their patients to the intervention-radiologists, with financial consequences. A resolution for this financial problem might lie in constructing a joint billing system, in which both specialities will have their proportional financial share. Another option for the financial motives is to convince the gynaecologists that it might actually be financially beneficial to offer UAE. Being able to offer the complete range of treatments (either in their own hospital or by referral to another hospital) makes a hospital an appealing treatment centre and will therefore attract more patients for the gynaecology department.

There are some limitations to this inventory. Firstly the number of interviewed interventional-radiologists was very limited. We decided to interview the UAE specialist in both UAE performing hospitals, because the counselling of patients on UAE primarily occurs

by the gynaecologists. Secondly we did not use existing questionnaires on implementation, because these were not available. Our questionnaires might be useful in the rest of the Netherlands to perceive a broader perspective of the problems that need to be solved before UAE can be implemented as a fully accepted option for the treatment of symptomatic uterine fibroids.

In summary, our recommendations to facilitate implementation of UAE are: 1) adding UAE to the Dutch guideline for treatment of menorrhagia with clearly described indications and contraindications; 2) educating gynaecologists about UAE, for example by organising a conference or information meeting; 3) composing a patient information leaflet and a website, and 4) arranging clear agreements between the gynaecology and radiology departments in a multidisciplinary team.

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