THE PUBLISHING HOUSE
OF THE ROMANIANACADEMY

Supplement 1/2015, 4th ISAA

UTERINE ARTERY EMBOLISATION - THERAPEUTIC METHOD FOR UTERINE FIBROIDS

Cătălin NENCIU, Irina HORHOIANU, Ruxandra ALBU, Adina AFLOAREA, Mihai DUMITRAȘCU and Vasile Valerică HORHOIANU

University Emergency Hospital, Obstetrics and Gynecology, Bucharest, Romania
Corresponding Author: Cătălin NENCIU, E-mail catalin_george1402@yahoo.com
Accepted November 11, 2015

Uterine fibroid is the most common benign tumor encountered in the female genital pathology. Uterine fibroid is a benign tumor of the myometrial smooth muscle. It is found in 25% in women of childbearing age and approximately 40% in women around 50 years who still shows menstrual cycle. Uterine artery embolization is a minimally invasive therapeutic method that implies the devascularisation of the fibroid nodules with preservation of the gestational and menstrual functions. The main indication of the uterine artery embolization is the uterine fibroid. The aim consist in the permanent devascularisation in one intervention without inducing uterine necrosis and the symptomps remission represented by bleeding, pelvic pain and discomfort. We present the experience of the Bucharest Emergency University Hospital Obstetrics and Gynecology ward regarding the treatment of uterine fibroid by the embolization of the uterine arteries performed between January 1, 2014 – December 31, 2014. In this paper we propose to realize a review of the embolization effect regarding the diminution of the bleeding, pelvic pain and discomfort due to the uterine fibroids, in order to increase the quality of patient's life.

Keywords: uterine fibroids, uterine artery embolization, minimally invasive treatment

INTRODUCTION

Uterine fibroids are the most common benign tumor formation of the pelvic area. The tumor's origin is the myometrium which may spontaneously regress with menopause[1]. Uterine fibroid is prevalent in women of childbearing age and has the highest incidence around of age of 50. In the majority of cases the symptoms are absent. Clinical manifestations caused by fibroids are bleeding, vaginal discharge, pelvic pain and discomfort determined by the size of fibroids. Also they can lead to the appearance of urinary (frequency) or gastrointestinal (constipation) symptoms. Uncontroled growth of the tumor can cause compression on vasculars and nervous elements[2]. The uterine artery embolization is a minimally invasive method of treatment which successfully removes the vascular source of the uterine fibroids. Following this procedure the menstrual and reproductive functions are maintained. It was first used in 1995 for the treatment of uterine fibroids. The procedure consists on inserting embolic material after the uterine artery catheterisation. The aim of the intervention is the permanent devascularisation of the uterine fibroid without causing necrosis and improving the bleeding, pelvic pain and discomfort due to the nodules size reduction[4]. The counterindication of the procedure are: pregnancy, endometrial cancer, cervical cancer, anexial tumors suspicion, leiomyosarcoma, allergy or renal insufficiency, surgery indication[3,5].

MATERIAL AND METHODS

We conducted a retrospective chart review and survey of patients. The study was developed between 01.01.2014 – 31.07.2015 in the Obstetrics and Gynecology ward at the University Emergency Hospital Bucharest, Romania. There were included 118 patients with ages between 30 and 48 years, with typical symptoms like bleeding, pelvic pain and abdominal-pelvic discomfort . Patients included had undergone uterin artery embolisation (UAE) at least 6 months prior the beginning of the study or 6 months before the end of the study. There were included in the

study patients seeking fertility preservation or refusing to perform surgery, or having anesthetic contraindications. The exclusion criteria in this study were: pregnancy, menopause, suspicion of malignancies or histologically confirmed malignancy, avascular calcified uterine fibroids, or pelvic infections. The complete diagnose of the patients included in the study was achieved through genital clinical examination, transvaginal ultrasound, Pap smear and uterine biopsy. The embolization procedure consists in placing an intravascular catheter up to the uterine artery by introducing embolic particles that have the effect of blocking the vascular supply. The embolization has the following steps: creating vascular access which will determine a vascular road for the catheter introduction and positioning. The catheter will be inserted on the vascular territory that supplies the interested area. After the optimal catheter placement, the contrast angiography will be performed and a series of pictures will be taken to distinguish the preembolization state and afterwards control picture of the angiography. The procedure ends with the catheter withdrawal and achieving hemostasis at the site of puncture. The University Emergency Hospital uterine artery embolization is performed by interventional radiologists station using polyvinyl alcohol and embocheres microsphere as the embolic material. The selected patients for inclusion study were evaluated before the procedure and at 6 months post procedure to track the effects of intervention on symptoms. The survey was conducted before the procedure, and the follow-up survey was conducted 6 months after. We considered a successful procedures when a positive change in symptoms occurred. Failure was considered when patients experienced a negative change in symptoms or no change.

Tabel 1. Symptomathology scale

	Bleeding	Pain + discomfort
Mild	menses 3-4 days no anemia	Occasional menstrual pain or Intermittent pain responsive to treatment
Moderate	menses 4-6 days anemia in the postmenstrual period	persistent pain more than 2 days with need for medication
Severe	Menses more than 6 days, Metrorrhagia Mediun-severe anemia	Constant pain and need for medication change schedule to urinate laxative

Fig.1 The effect of UAE on metrorrhagia

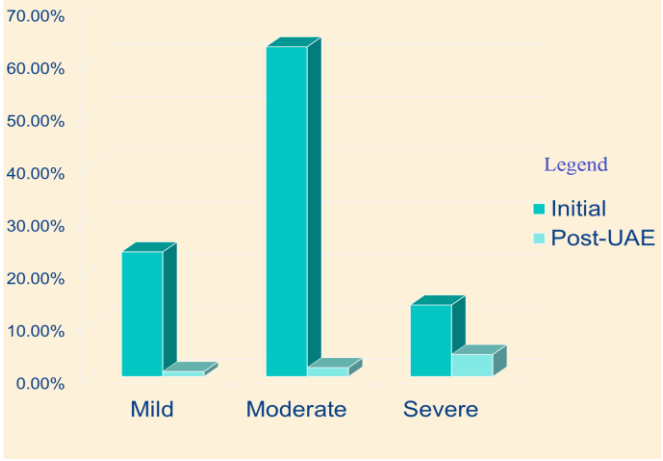


Fig 2. The effect of UAE on pain and abdominal-pelvic discomfort

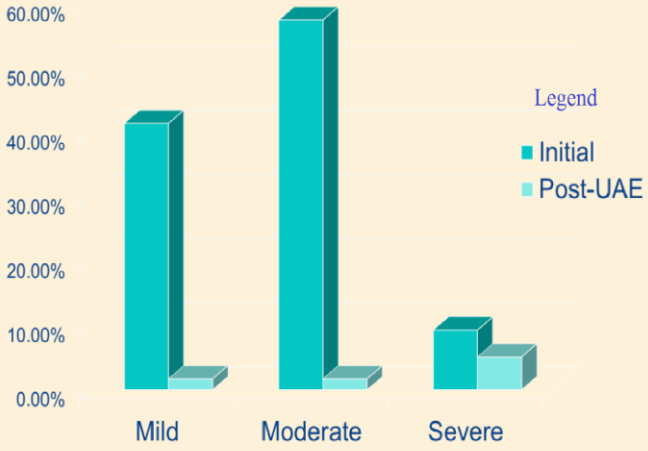
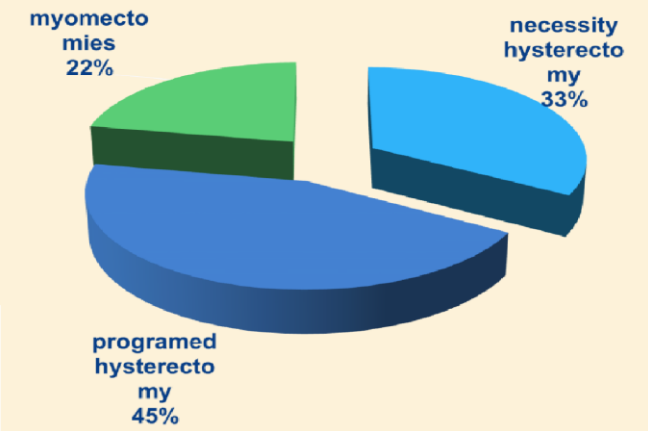


Fig 3. Surgycal intervention after failed UAE

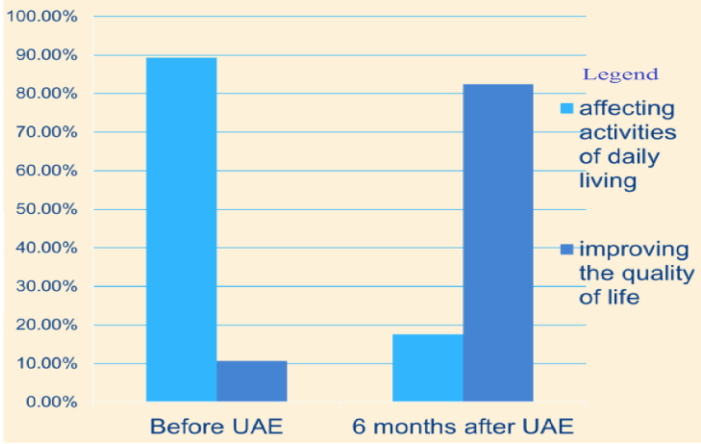


Legend:
light blue: necessity hysterectomy
dark blue: histerectomy
green: myomectomies

Table 2. Questionnaire on quality of life

	Before UAE	After UAE
The impact of symptomatology on daily activities	☐ Minor ☐ Moderate ☐ Severe	☐ Minor ☐ Moderate ☐ Severe
Flexible work arrangements	☐ Easy ☐ Hard	☐ Easy ☐ Hard
Mental state	☐ Relaxed ☐ Tensioned	☐ Relaxed ☐ Tensioned
Social inclusion	☐ Low ☐ Moderate ☐ Good	☐ Low ☐ Moderate ☐ Good
Amount of money spent on managing the symptoms	☐ Low ☐ Moderate ☐ High	☐ Low ☐ Moderate ☐ High

Fig. 4. The effect of UAE on the quality of life



RESULTS AND DISCUSSIONS

A total of 118 patients met the criteria for inclusion in the study. The average age in the time of the intervention was 41 ± 3 years. Patients who underwent uterine artery embolization had the average size of the uterus around 90/70 mm and the largest fibroid node was 55 mm. Regarding the symptoms after the uterine artery embolization were obtained the following results (table 1): - effect on bleeding (figure 1): 28 patients from 118 included had mild bleeding before the procedure, 74 had moderate bleeding and 16 patients had severe bleeding that needed uterine artery embolization. After UAE, from a total of 28 patients, only 1 patient with mild bleeding have had persitent bleeding. In the case of the other

patients with moderate bleeding, the symptoms persisted in the case of 2 patient. The most unresponsive symptoms were found in 5 of the 16 patients with severe bleeding. Regarding the effect of embolization on pelvic pain and discomfort the following results (figure 2) were obtained: of the 118 patients included in the study, 49 had mild pelvic pain and discomfort, 68 patients had moderate pain and 11 patients experienced severe pain and discomfort. Post-embolization of uterine arteries in only 2 patients with mild pain the symptoms persisted. In the case of patients with moderate symptoms, the pain and discomfort was still encountered at 2 of the patients. Also in the severe pain group, 6 patients from a total of 11 complained of the same amount of discomfort or pain. The persistence of the same symptomatology was accused by 12 subjects from a total of 18. The last 6 accused worsening symptoms which had required emergency surgery. The surgeries that were conducted consisted on hysterectomy or myomectomy (figure 3), with the prevalence of hysterectomy. Following the data obtained it was concluded that uterine artery embolization had a major impact on the patients' quality of life by improving it considerably (figure 4). The impact on life quality was evaluated with the questionnaire in Table 2. The responses were given before and after the procedure and afterward compared to see the evolution. After this type of treatment for the uterine fibroids, there has been a substantial improvement both in symptoms and in the quality of life. One of the limits of the uterine artery embolization in patients who wish to preserve fertility is represented by the lacking of studies in this field. An undesired result of impaired embolization is the necessity of post-procedure surgery. It is necessary to well established the criteria of inclusion and exclusion in order to have a successful embolization. Also, it is important to know that the procedure is followed by significant pain that improves within 24 hours with the help of pain relievers and non steroidal anti inflammatory drugs.

CONCLUSIONS

Uterine artery embolization offers a safe and effective therapeutic alternative to improve the symptoms caused by uterine fibroids. It gives a significant increase in the quality of life by reducing the number of surgeries. After uterine artery embolization rapid recovery of patients is leading to an immediate social reintegration. Also the cost benefit of intervention achievement compares favorably with surgery, making it increasingly more often call it the treatment of uterine fibroids.

Acknowledgment *This work was cofinaced from the European Social Fund through Sectoral Operational Programme - Human Resources Development 2007-2013", project number POSDRU/1871.5/S/155605, entitled "Scientific excelence, knowledge and innovation through doctoral programs in priority areas", Beneficiary – University of Petrosani*

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