

IS THE LEVONORGESTREL INTRAUTERINE SYSTEM A FEASIBLE ALTERNATIVE TO HYSTERECTOMY?

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ABSTRACT

Objectives: (1) To reduce the number of total abdominal hysterectomies for menorrhagia due to dysfunctional uterine bleeding (DUB) and small sized fibroids by providing an alternative mode of treatment with Levonorgestrel Intrauterine System (LNG-IUS).

(2) To assess the acceptability of the alternative treatment.

Design: A prospective open trial.

Study Period: November 2004 to November 2007.

Study Site: Department of Obstetrics and Gynaecology, Post graduate medical institute, Hayatabad Medical Complex, Peshawar and Woman's Hospital, Peshawar.

Methodology: All women advised hysterectomy who met the inclusion criteria i.e. menorrhagia due to DUB or small fibroids not larger than 3cm were included in the trial. Patients were fully informed about both treatment modalities, and alternative treatment in the form of LNG-IUS was offered to them. These were compared to a matched pair of historical controls who underwent hysterectomy. The patients were followed up at 1,3 and 6 months. During follow up, status of satisfaction and side effects were noted.

Results: In the LNG-IUS group statistical decrease of menstrual blood loss as perceived by the patient and an increase in haemoglobin was noted. A total of 358 patients were scheduled for hysterectomy with DUB and small fibroids as an indication. Eighty one patients (22%) opted for LNG - IUS i.e. the total acceptance rate was 22.6% and the rest, 277 patients underwent hysterectomy. Hysterectomy rate for 3 consecutive years before the introduction of LNG-IUS was also noted. In these preceding years a total of 1108 total abdominal hysterectomies (TAHs) were performed. Five hundred (45%) were done for DUB and small

fibroids. With the introduction of LNG-IUS there was a decrease of 10% in hysterectomy rates, which was statistically significant. Patient satisfaction was equal in both groups. There were no major complications reported in either group.

Conclusion: LNG –IUS is a cost effective and feasible alternative to hysterectomy in premenopausal women with menorrhagia due to DUB and small fibroids and hence a wider application is called for in a resource poor setting, like ours.

Key Words: Levonorgestral, LNG-IUS, Hysterectomy.

INTRODUCTION

Hysterectomy is the most frequently performed operation on women second only to C-Section.¹ Abdominal Hysterectomy is the most common among hysterectomies. Around the world 100,000 hysterectomies are performed per year. According to Shergill et al, abnormal uterine bleeding is the most common symptom for performing hysterectomy.² In 40% of hysterectomy specimens the uterus is found to be normal on histological examination. No doubt hysterectomy is a definitive treatment for menstrual disorders but it is a major operation not without complications.³ The VALUE study showed that the complication rate with hysterectomy is 4.4% the risk being higher in younger women and with increasing parity.⁴ It also results in early menopause and has adverse consequences on skeletal system, skin, cardiovascular system, sexuality and ovarian function.⁵⁻⁷

Hysterectomy is also not an option for younger women desiring fertility and not all women who have completed their families are happy to lose their womb. Historically the uterus has been regarded as a regulator and controller of important physiological functions, a sexual organ, a source of energy and maintenance of youth. Many women now feel that hysterectomy is not desirable. Hence there is a need for an alternative therapy, for benign conditions, having a similar patient satisfaction. Medical treatment can be effective but again it is not feasible in the long term. Minimally invasive surgery in the form of transcervical endometrial resection, thermo ablation, laser, etc have all been tried with variable success. Most of these procedures are expensive and need training with a learning curve and are generally not available in the public health sector in Pakistan. Some of these procedures can also lead to damage of the endometrial lining that may be permanent.⁸ The LNG-IUS commercially marketed as Mirena® (Bayer Schering Pharma, Berlin, Germany) is now available in Pakistan and is being promoted as a treatment for menorrhagia due to DUB. It acts locally on the endometrium rendering it atrophic and as a result reducing the amount of menstrual blood loss without the systemic effects of progestogens.

Preliminary data has shown that hysterectomy rate for benign conditions can be reduced by the use of LNG IUS.^{9,10} In the long term & in the light of recent NICE recommendations¹¹ the wider application of less invasive techniques for benign indications would almost certainly result in a healthier female population. We based this study on the premise that women scheduled for hysterectomy might prefer a conservative alternative. Since minimally invasive surgery is not available in our hospital we decided to test the LNG-IUS.

Objective of this study was to reduce the number of total abdominal hysterectomies for menorrhagia due to DUB and small sized fibroids by providing an alternative mode of treatment (LNG-IUS) and to assess the acceptability of the alternative treatment.

METHODOLOGY

The study population was all patients scheduled for abdominal hysterectomy for menorrhagia due to DUB or small non-cavity deforming fibroids, not larger than 3cm, attending the Obs/Gynae departments of Hayatabad Medical Complex and The Woman's Hospital, Peshawar. Known cases or those with suspicion of malignancy, patients with adnexal tumours and patients with contraindication to the treatment were excluded from the trial. All patients who met the selection criteria were offered LNG-IUS as an alternative to hysterectomy. They were fully informed about both treatment modalities and written consent was taken. All the patients included had their history taken and initial examination performed according to a proforma. Those who opted for LNG-IUS, had the system inserted. These were compared to a matched pair of historical controls who underwent Hysterectomy for the same indication. Patients were followed up at 1st, 3rd and 6th months. During follow-up status of satisfaction and side effects were noted.

After data collection it was entered in SPSS version 10.0. Descriptive statistics were calculated. Results were then compiled keeping various parameters in observation to draw the conclusion regarding objectives of the study.

RESULTS

During the span of the study period, from Nov 2004 – Nov 2007 the total number of abdominal hysterectomies performed were 802. Out of these 358 (44.6%) had DUB and small fibroids as an indication. Eighty one patients (22%) opted for LNG - IUS i.e. the total acceptance rate was 22.6% and the rest, 277 patients under went hysterectomy (Table 1).

Eighty one historical controls were taken from this group i.e. the hysterectomy group who had this operation for the same indication.

For both modalities of treatment the commonest age group was 40 – 49 yrs. Forty four percent of the patients of this age group had LNG - IUS inserted while 56% of the patients had a hysterectomy. The youngest patient was 30 yrs old while the oldest was 54 yrs. Thirty four (41.9%) patients in the LNG - IUS group had associated medical problems versus 25 % from the hysterectomy group. Thirteen patients in the LNG - IUS group had either diabetes or hypertension or both. Thirteen patients were hepatitis B or C positive in the LNG - IUS group. Two patients had anaemia, 1 patient had asthma while 1 patient had congestive cardiomyopathy and was on warfarin. Furthermore, 1 patient was in chronic renal failure and 2 patients were diagnosed with thrombocytopenia (Table 2).

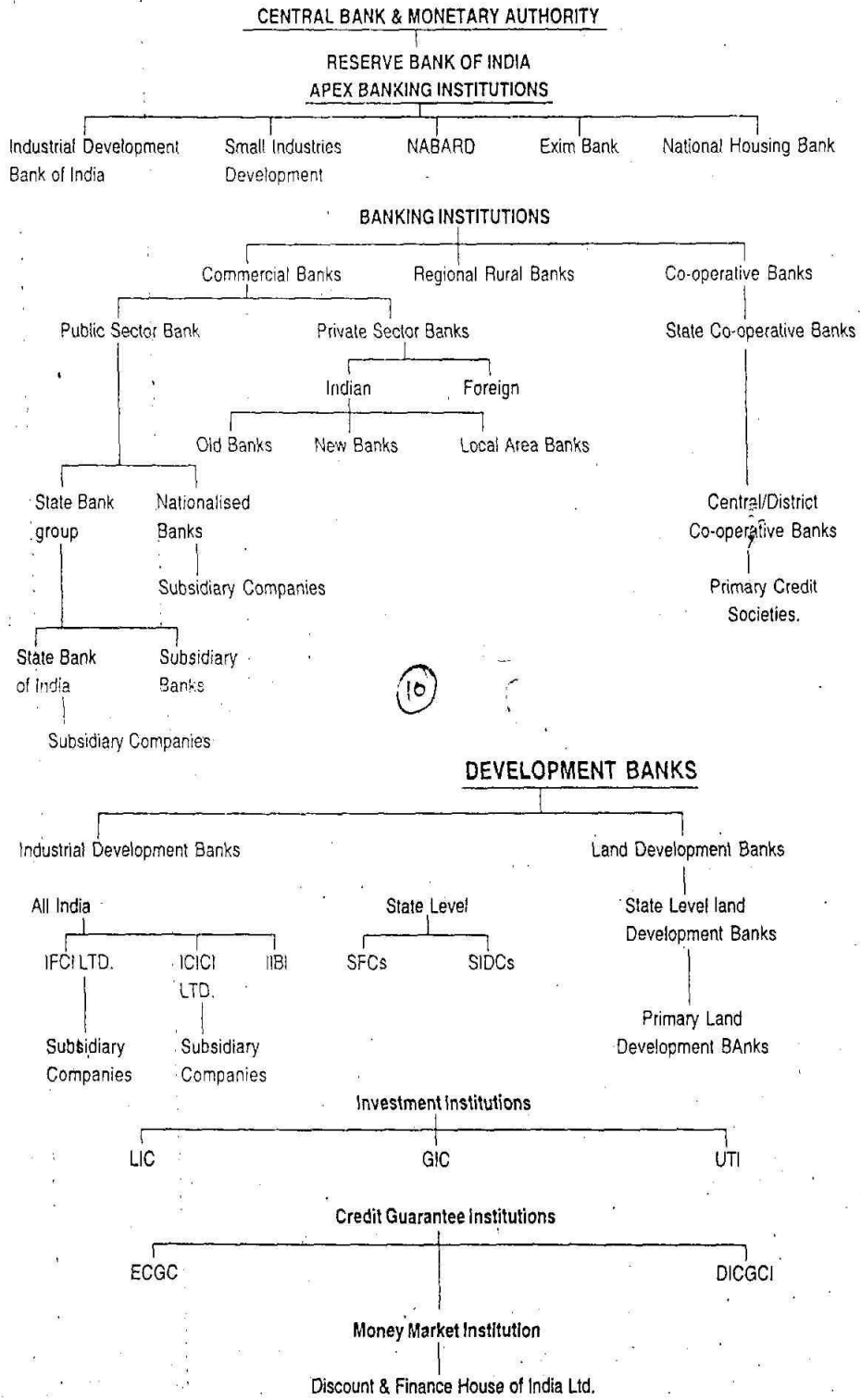
In the LNG – IUS group 72 patients had DUB while in the hysterectomy group 68 patients had DUB. Of those patients who had non cavity deforming fibroids, 9 had LNG - IUS inserted while 13 underwent total abdominal hysterectomy (Table 3).

There were no major complications both in the study and the control group. However, minor complications were noted as shown in Table 4. With LNG - IUS irregular bleeding, pain and backache were the common complaints. Expulsion/removal was in 6 cases, out of these 1 patient at 1 year wanted removal and desired to conceive while 4 patients had heavy profuse bleeding and were later advised hysterectomy. Mirena was reinserted in 1 patient. Five patients had amenorrhea for which they were counseled and reassured. In the hysterectomy group the common side effects were pain and backache, UTIs, wound infections, depression and fever. On the whole there were no major complications in this group. However, satisfaction of the patients was equal in both groups.

Patients with hysterectomy had hospital stay for about a week while those with LNG - IUS stayed for a few hours.

Hysterectomy rate for 3 consecutive years before the introduction of LNG-IUS was also noted. In these preceding years a total of 1108 TAHs were performed. Five hundred (45%) were done for DUB and small fibroids. With the introduction of LNG-IUS there was a decrease of 10% in hysterectomy rates.

CHART SHOWING INDIAN BANKING SYSTEM



10

B26.2.5 Radius of curvature (If curved) : Front Door glass:R1767mm
: Rear Door glass:R1786mm

B26.3 Rear Window

B26.3.1 Make and Country of origin (if imported) : Asahi India Pvt Ltd

B26.3.2 Identification No. / Part No. : 73200-T4V-K01 (E,SX,EX,S)
: 73200-T4T-T01 (VX,V)
: Curved, tinted, Tempered

B26.3.3 Type (Flat / curved, clear/ tinted, toughened / laminated)

B26.3.4 Thickness mm : 3.1

B26.3.5 Radius of curvature (If curved) : Rear Window glass:R2631mm

B27.0 Rear view mirror :

B27.1 Left

B27.1.1 Make and Country of origin (if imported) : SMR AUTOMOTIVE
: SANDHAR LOCKING DEVICES LTD.

B27.1.2 Type : Tilting type, Square type

B27.1.3 Class of mirror : Class III

B27.1.4 Manufacturer's Identification No. for mirror : M48(VX,V)
: TG2(E,SX,EX,S)

B27.1.5 Trade name or mark and location : Mark at bottom of mirror

B27.1.6 Sketch showing dimensions of mirror and radius of curvature of reflecting surface : Enclosed Annexure B27.1.6

B27.1.7 Sketch showing mounting details and dimensions of mirror : Enclosed Annexure B27.1.7

B27.1.8 Dimension & radius of curvature : Effective dimension 143.5 x 197mm (E) ;
126 x 157mm (SX, S, EX)
124.5 x 157.5mm (VX, V)
radius 1400 ± 150mm (E), 1300 ± 100mm (SX, VX, EX, S, V)

B27.2 Right

B27.2.1 Make and Country of origin (if imported) : SMR AUTOMOTIVE
: SANDHAR LOCKING DEVICES LTD.

B27.2.2 Type : Tilting type, Square type

B27.2.3 Class of mirror : Class III

B27.2.4 Identification No. / Part No. : M48(VX,V)
: TG2(E,SX,EX,S)

B27.2.5 Trade name or mark and location : Mark at bottom of mirror

B27.2.6 Sketch showing dimensions of mirror and radius of curvature of reflecting surface : Enclosed Annexure B27.1.6 / B27.1.7

B27.2.7 Sketch showing mounting details and dimensions of mirror : Enclosed Annexure B27.1.7 / B27.1.7

B27.2.8 Dimension & radius of curvature : Effective dimension 143.5 x 197mm (E) ;
126 x 157mm (SX, S, EX)
124.5 x 157.5 (VX, V)
radius 1400 ± 150mm (E), 1300 ± 100mm (SX, VX, EX, S, V)

B27.3 Inside

B27.3.1 Make and Country of origin (if imported) : KRUSHNA ISHEZAKI AUTO LTD.

B27.3.2 Type : Yielding type, Countermeasures to prevent glare.

B27.3.3 Class of mirror : Class I

B27.3.4 Identification No. Part No. : 851B

B27.3.5 Trade name or mark and location : Back of Housing

B27.3.6 Sketch showing dimensions of mirror and radius of curvature of reflecting surface : Enclosed Annexure B27.1.7 / B27.1.7

B27.3.7 General view from the front, rear and the passenger compartment, showing where rear view mirrors are fitted as applicable : Enclosed Annexure B27.3.7

B27.3.8 Dimension & radius of curvature : Rectangular, 60 x 211, Plane.

B27.4 Sketch showing mounting details and dimensions of mirrors : Enclosed Annexure B27.1.6

B28.0 Information on safety belt / restraint system

B28.1 Safety belt

B28.1.1 Make of seat belt : TAKATA INDIA PVT LTD

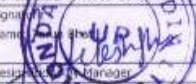
B28.1.2 Type and configuration : Front type 2, ELR (P/T,emergency lock retractor : SX, VX)
Front type 2, ELR (emergency lock retractor: E, EX, S, V)
Rear Side Type 2, ELR, Rear Centre Lap Type

B28.1.3 Identification No. / Part No. : Front : Belt Assy out
FR R : 81450-TG2 -D03 (SX, VX), D12 (E, EX, S, V)
: Belt Assy out
FR L : 81850-TG2 -D02 (SX, VX), D12 (E, EX, S, V)
: Belt Assy inner
FR R : 81455-TG2-D01 (E, EX), D05 (SX, VX, S, V)
: Belt Assy inner FR L : 81855-TG2 -D01
Rear : Belt Assy out RR R : 82450-T4V-D01
: Belt Assy out RR L : 82850-T4V-D01
: Belt Assy CTR RR R : 82855-T4V-D01

B28.2 Restraint system

B28.2.1 Make and Country of origin (if imported) : TAKATA INDIA PVT LTD

B28.2.2 Type and configuration : Same as 28.1.2

Manufacturer : Honda Cars, India Ltd.	Document No : HSCF/NA/B001/27PMT/12	Test Agency :	Cert No :
Signature : 	Sheet No. 9 of 15	Signature	
Designation : Manager	Date: 07.11.2012	Date of Issue	Page No. 9 of 15

hysterectomy rates but it does effectively postpone hysterectomy which can be an advantage. Only four of the study group in our study had hysterectomy as opposed to 42 % in a study by *Hurskainen et al.*¹⁰ this difference is probably due to longer follow up in the latter study. We had many requests for removal of the system due to various reasons but lengthy counseling sessions prevailed. Whether this can be repeated in a non study environment remains to be seen.

A study by *Hurskainen et al.* concludes that LNG – IUS is an appropriate alternative to Hysterectomy for all women who perceive their menstrual blood loss to be heavy.¹⁰

The use of LNG – IUS as a treatment for menorrhagia in the perimenopausal age group allows a smooth transition into menopause and can be further used as progestogen arm of HRT. In our study the commonest age group to which LNG –IUS was offered was 40 – 49 yrs. *Halmesmaki* found that hysterectomy but not the LNG-IUS increases FSH levels leading to hotflushes.⁷

About 41.9% in the LNG – IUS group had medical problems. By being in this group they effectively avoided the risks associated with general anesthesia and a major operation at the same time receiving an equally effective treatment for the menstrual problem. A randomized controlled trial carried out by *Petta et al* showed that LNG – IUS causes a significant decrease in pain scores for women suffering from endometriosis.¹³ Similarly, another study by *Cho et al* showed the effectiveness of the system in decreasing the debilitating symptoms of adenomyosis.¹⁴ Both studies had a three year and one year follow- up respectively and the vast majority of women continued with the use of the LNG –IUS indicating favorable long term compliance rates.¹⁵ Similarly, another study carried out in Brazil also showed that LNG-IUS can be used as an alternative for treating endometriosis, adenomyosis and chronic pelvic pain or dysmenorrhea.¹⁶ A number of patients in our study had associated medical problems with DUB or menorrhagia including two patients who had thrombocytopaenia. Recent data is therefore particularly encouraging as LNG-IUS has been used quite successfully in women with inherited bleeding disorders.¹⁷ Other studies have also expanded the candidacy of the system by demonstrating its acceptable use in nulliparous women, adolescents and women with immunocompromised conditions such as HIV.¹⁸⁻²⁰

In our study the most frequent side effects of LNG-IUS were irregular bleeding, pain, backache and amenorrhoea. The results echo the findings of many other studies examining the common complaints presented by LNG-IUS users.²¹ All the side effects with LNG-IUS were well- tolerated by women. Five patients had amenorrhoea and we found that it was imperative to counsel them in order to quell their anxiety and also to point out the beneficial

effects associated with amenorrhoea such as an increase in haemoglobin levels. All study participants were repeatedly made aware of these side effects and were reassured through the duration of the study and the follow up period. A case study from the UK did show the development of endometrial adenocarcinoma following LNG-IUS insertion.²² The study concluded that the system was still a safe modality of use but since most patients present with a certain degree of irregular vaginal bleeding following its use one should proceed with caution. However, Jaakkola found through the course of their study that compared to long cycle/ sequential estradiol-progestagen therapy (EPT), the use of estradiol plus LNG-IUS actually decreases the risk of developing endometrial carcinoma.²³ With hysterectomy pain, backache, UTIs, wound infections, depression and fever were the main complaints. Concurring with our findings, a Finnish study with a 10 year follow up, compared the effects of hysterectomy and LNG-IUS on lower urinary tract symptoms and showed that hysterectomy increases the risk of incomplete bladder emptying, lower UTI's and stress urinary incontinence.²⁴ However, for the duration of our study no major complications came to light in this group.

Milsom concluded that despite a great reduction in blood loss (86-97%) and a 40% reduction in overall costs compared to hysterectomy but not enough physicians are considering medical alternatives and in particular the use of LNG-IUS prior to performing a hysterectomy.⁹ Therefore more physicians need to be made aware of the beneficial effects of LNG-IUS so that a conservative approach may be taken when treating a patient with menstrual problems. Patient satisfaction was equal in both groups. LNG – IUS is a cost effective method and with an already burdened health system it proves to be a good alternative to hysterectomy as patients with hysterectomy stayed for about a week while those with LNG-IUS stayed for few hours. Our findings are in concordance with various studies including a Cochrane based review, which also attested to the cost effectiveness and quality of life, compared to those patients undergoing a hysterectomy.^{25,26}

Since the follow up period in our study was only up to three years it is likely that the number of women who ultimately have a hysterectomy will increase. These women can be offered the option of re- insertion which also shows promising results in women who qualify for consideration.²⁷

CONCLUSION

LNG-IUS is a cost effective and feasible alternative to hysterectomy in pre-menopausal woman with menorrhagia due to DUB and small fibroids and hence a wider application is called for in a resource poor setting.

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