The levonorgestrel-releasing intrauterine device as an effective treatment for symptoms of persistent pelvic pain- regardless of laparoscopy or a diagnosis of endometriosis

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Introduction

Persistent pelvic pain (PPP) affects 5-27% of women and people assigned female at birth in their reproductive years and is estimated to cost $AUD 9.7 billion per year.

Although well reported, there is limited awareness of the following: 50% of women found to have endometriosis at laparoscopy have a recurrence of endometriosis within 5 years; no symptoms reliably predict the presence or absence of endometriosis; and there is no correlation between symptoms and site/severity of endometriosis. The quality of evidence to support long-term effectiveness of laparoscopic endometriosis excision for improving pain and quality of life is low.

The LNG-IUD reduces menstrual loss and improves symptoms including dysmenorrhea, non-cyclical pelvic pain, and dyspareunia in the selected group with endometriosis lesions at laparoscopy. Unfortunately, the 50% of women with PPP and a "negative" laparoscopy (no endometriosis found) are usually excluded from these studies.

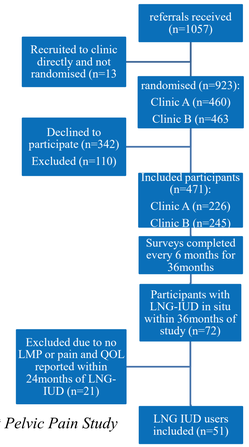
The calls for earlier and improved access to surgery to diagnose endometriosis does not address the requirement for symptom management and excludes the 50% of women who undergo a laparoscopy for identical pain symptoms who do not have endometriosis identified.

Aim

To investigate pain scores and overall satisfaction with symptom control in participants with PPP who utilised the levonorgestrel-intrauterine device 52mg (LNG-IUD), to explore the association between time since last menstrual period (LMP) and other potential factors on pain outcomes.

Method

- Prospective cohort study
- Participants between February 2015 and December 2017 following outpatient clinic referral for pelvic pain symptoms (dysmenorrhea, non-cyclic pelvic pain, dysuria, dyspareunia or dyschezia).
- Over 18 months, 72 participants had a LNG-IUD inserted, with 51 completing a follow-up questionnaire 6-18 months after insertion to assess pain outcomes.
- Pain scores were assessed using 6-point Likert scale for each of the included pain categories



Participant Recruitment Pelvic Pain Study

Results

Dysmenorrhoea (coefficient= -0.142, p<0.001), **dyspareunia** (coefficient=-0.079, p=0.037) and **overall satisfaction** with symptom control (coefficient=0.079, p=0.020) scores improved linearly with increased months since LMP in LNG-IUD users.

Of the 72 participants who had an LNG-IUD inserted during the first 18 months of the PPP study, 51 (70%) completed a follow-up questionnaire 6-18 months following LNG-IUD insertion. The median time to follow up questionnaire was 6 months (IQR 6-12 months).

Summary Baseline Statistics of Pain and independent variables.

Independent Variable		Summary Statistic	Respondents
Age at recruitment (years), mean (SD†)		32.06 (9.13)	51
Months since LMP, mean (SD)		4.49 (6.56)	51
Months since LNG-IUD first reported, median (IQR‡)		6.00 (0,12)	51
Age of Onset (by decade between 10 and 49), median (IQR)		1 (1,2)	47
Non-cyclic Pelvic Pain, median (IQR)		3 (1,4)	50
Dysuria, median (IQR)		1 (0,2)	51
Dyspareunia, median (IQR)		2 (0,4)	50
Dyschezia, median (IQR)		2 (0,4)	51
Dysmenorrhoea, median (IQR)		3.00 (1,4)	51
Overall satisfaction, median (IQR)		3 (1,4)	51
Previous Hormonal Treatment-	Yes	29	51
	No	22	
Previous Surgery	Yes	24	51
	No	27	

†Standard deviation, ‡Interquartile range

Univariate linear regression or unpaired T-test† of relevant independent variables with pain scores (P-values)

Independent Variable:	Dysmenorrhoea	Non-cyclic pelvic pain	Dysuria	Dyspareunia	Dyschezia	Overall satisfaction
Months since LMP	<0.001**	0.163*	0.162*	0.037**	0.36	0.011**
Age of Onset (years)	0.102*	0.36	0.61	0.23	0.142*	0.036**
Age at Referral (years)	0.78	0.93	0.86	0.46	0.74	0.27
Previous Surgery[a]	0.183*	0.97	0.46	0.50	0.99	0.113*
Previous Hormonal Treatment[a]	0.86	0.89	0.84	0.56	0.72	0.36

*[a]Unpaired t-test performed *Statistical significance p<0.2 to be considered for inclusion in multivariate analysis **Statistical significance P<0.05*

On multivariate analysis, age of onset of symptoms, laparoscopies prior to study entry or during the study period and a histological diagnosis of endometriosis did not have a significant relationship with pain outcome or overall satisfaction with symptom control.

Multivariate linear regression of pain scores with relevant independent variables

Dependent Variable	Independent Variable	Co-efficient	95% CI	P -value
Dysmenorrhoea	Months since LMP	-0.142	-0.201, -0.082	<0.001*
	Age of Onset	-0.278	-0.660, 0.104	0.15
	Previous Surgery	0.318	-0.475, 1.111	0.42
Overall satisfaction with symptom control	Months since LMP	0.079	0.013, 0.146	0.020*
	Age of Onset	0.102	-0.320, 0.525	0.63
	Previous Surgery	-0.737	-1.615, 0.141	0.10

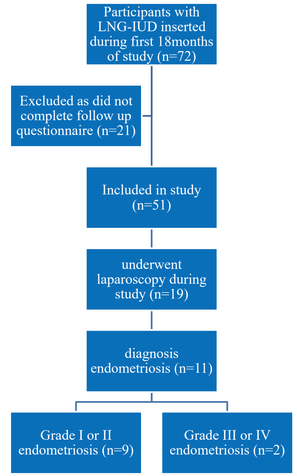
**Statistical significance P<0.05*

Twenty-four (47%) participants had previously undergone a laparoscopy prior to enrolment in the PPP study, with one participant undergoing a repeat laparoscopy during the study period.

Nineteen (37%) responding participants underwent laparoscopy during the observation period (one for the unrelated presentation of acute appendicitis).

Seventeen (89%) had the LNG-IUD inserted at the time of surgery, while the remaining two (11%) participants had an exchange of LNG-IUD at the time of surgery having had the LNG-IUD placed prior to surgery but during the study period.

Of these 11 (58%) had histologically proven endometriosis, with nine (82%) being grade I or II endometriosis.



Participants with LNG-IUD and the number diagnosed with endometriosis at laparoscopy during the study

Conclusion

This study demonstrates that suppression of menstruation with the LNG-IUD, regardless of a diagnosis of endometriosis, significantly improved pain scores for dysmenorrhea and dyspareunia, and improved overall satisfaction with management of PPP symptoms.

This supports the use of LNG-IUD as a primary treatment option for women presenting with PPP. Clinicians in the primary care and gynaecological setting can utilize hormonal suppression within the multidisciplinary approach to PPP symptom management.

In a climate where women can have significant delays waiting for a lesion focussed diagnosis of endometriosis prior to effective pain management interventions, it is imperative that there be a change to a focus on management options for symptom control.

Acknowledgements

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