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BRIEF REPORT

Blood transfusion after vaginal hysterectomy for pelvic organ prolapse

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Abstract

Background and aims Hysterectomy is a commonly performed gynaecological procedure, and vaginal hysterectomy for the treatment of pelvic organ prolapse will become more common as our population ages. Red cell transfusion after hysterectomy has been reported in the literature as between 2.5 and 4.3%. This paper aimed to review the rate of red cell transfusion after vaginal hysterectomy for pelvic organ prolapse in three university-affiliated teaching hospitals.

Methods We reviewed 108 vaginal hysterectomies performed across three teaching hospitals to determine the rate of post-operative blood transfusion.

Results A total of 1.9% (2/108) of women received at least one unit of red cells after their vaginal hysterectomy in our cohort. The mean drop in haemoglobin was 2.0 (95% CI, 1.8–2.3, $P < 0.001$).

Conclusions Red cell transfusion remains lower than international figures. This may form part of patient counselling when discussing the route of hysterectomy in the future.

Keywords Blood transfusion · Hysterectomy · Prolapse · Surgical complications

Background

Hysterectomy is one of the most common gynaecological procedures, with over 600,000 performed in the USA each year [1]. Vaginal hysterectomy remains the least invasive of the hysterectomy techniques and evidence supports its use as the preferred method in benign gynaecological disease such as pelvic organ prolapse [2]. Approximately one in five women will undergo some form of surgery for pelvic organ prolapse during their lifetime [3], and this is likely to increase as our population ages.

International research reports that the rate of blood transfusion following vaginal hysterectomy is between 2.5 and 4.3% [1, 4]. A recent US study investigated the effect of trainee involvement on post-operative complications after hysterectomy [4]. Blood transfusion was significantly more likely if a trainee was involved in the procedure, regardless of the surgical approach used [4]. Our study reviews the rate of red cell transfusion after vaginal hysterectomy for pelvic organ prolapse, across three teaching hospitals.

Methods

We reviewed all vaginal hysterectomies performed for pelvic organ prolapse over a 2-year period in three university-affiliated teaching hospitals within our healthcare group in Dublin, Ireland. All cases were performed and/or supervised by a urogynaecologist with subspecialty training in reconstructive pelvic floor surgery. Haemoglobin levels before and after each procedure were extracted, and whether a woman received a blood transfusion. This was a service audit, and was deemed not to require ethical approval. Difference between means was assessed using Student's paired *t* test in R 3.4.3 (R Centre for Statistical Computing, Vienna, Austria).

Results

Between January 2013 and December 2015, 108 vaginal hysterectomies were performed for pelvic organ prolapse in our three centres. Details of the procedures performed during the study period are shown in Table 1. 1.9% (2/108) of women

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Table 1 Procedures performed during the study

Procedure	*N*	(% total)
Vaginal hysterectomy with uterosacral vaginal vault suspension and anterior and posterior colporrhaphy	99	91.7
Vaginal hysterectomy with uterosacral vaginal vault suspension and anterior and posterior colporrhaphy with concomitant mid-urethral sling	9	8.3
	108	

received a post-operative blood transfusion. The mean (± SD) pre-operative and post-operative haemoglobin (g/dL) was 13.4 (± 0.9) and 11.4 (± 1.3), respectively. There was a statistically significant mean decrease in haemoglobin of 2.0 (95% CI, 1.8–2.3, $P < 0.0001$).

Discussion

Our study demonstrates that blood transfusion after vaginal hysterectomy is an uncommon clinical entity. All centres in this study were university-affiliated hospitals and trainees were involved to a degree in almost all cases. Trainee involvement in vaginal hysterectomy increases incidence of both major and minor post-operative complications [4]. Despite this, blood transfusion in our cohort remains low when compared to international figures [1, 4]. Discussion of post-operative complication rates forms part of informed consent, and post-operative satisfaction has been linked to pre-operative expectation [5]. Thus, any information that can better inform the woman should improve their satisfaction after the procedure.

Pelvic organ prolapse already represents a large proportion of surgery performed in the USA [3], and will only increase as our population ages. Thus, the incidence of vaginal hysterectomy—a commonly performed procedure for the treatment of prolapse—will rise in tandem. Women need to be aware of the potential risks, and studies such as ours may help with counselling women prior to surgery.

Elimination of a pre-operative group and screen is not likely to be viable, even with the low level of transfusion in our cohort. Pelvic haemorrhage, while thankfully rare, occurs rapidly and blood products need to be available immediately.

There are some limitations to this paper. Our analysis is limited to haemoglobin levels and the presence of red cell transfusion. Further risk factors may be important in cases which required transfusion. Trainee involvement in each case was not possible to measure and will have varied from case to case. Quantifying trainee involvement is difficult, and could form the basis of further research. The low rate of transfusion in our cohort may be due to the involvement of a subspecialist surgeon, and could be higher when performed by a generalist. Research comparing outcomes between general gynaecologists and specialist urogynaecologists is warranted. Nevertheless, this study represents a consistently managed caseload of vaginal hysterectomies. All cases were performed for pelvic organ prolapse rather than other benign disease (e.g. fibroids or dysfunctional uterine bleeding), and had a high level of trainee involvement.

While a smaller study, we have shown that blood transfusion following vaginal hysterectomy may be lower than previously thought, even with extensive trainee involvement. This may form part of patient counselling when discussing the route of hysterectomy in the future.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This was a retrospective service audit and was deemed not to require ethical approval.

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