

Evaluation of a Polysaccharide Haemostatic System in Obstetrics and Gynaecology

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Abstract

Introduction

Adjuvant haemostatic agents are useful in surgery over broad areas of diffuse ooze, or where there is a risk of thermal injury from electrocautery. Repetitive strain injuries amongst surgeons are increasing, highlighting the importance of ergonomics. This study evaluated the ease of use and efficacy of an absorbable polysaccharide haemostat powder in obstetric and gynaecological surgery.

Methods

Prospective cohort study of 50 surgeries where HaemoCer Plus was used. The surgeon recorded their ease of use of the product and its efficacy.

Results

Caesarean section represented 84% of the procedures performed (42/50). The haemostatic powder was reported as 'easy' or 'very easy' to use by 98% of participants (49/50). It was reported as 'effective' by 82% (41/50), and 'very effective' by a further 16% (8/50).

Conclusions

HaemoCer Plus was easy to use and was considered an effective haemostatic agent by obstetricians and gynaecologists. This was consistent across both obstetric and gynaecological procedures.

Keywords

Topical haemostatic agents, obstetrics, gynaecology, surgery, ergonomics

Introduction

Intraoperative bleeding is associated with prolonged operative times, blood transfusion, and protracted hospital admission. Topical haemostatic agents are used in over 30% of surgeries¹ as an adjunct to promote clotting and stop bleeding. Their use has increased from 10 – 21% in obstetrics and gynaecology².

The rate of caesarean section continues to rise³, causing increased intra-abdominal adhesions. Topical haemostats are useful over broad areas of diffuse ooze where suturing may be impractical, or when there is a risk of thermal injury to adjacent structures from electrocautery^{2,4}. Moreover they may have a beneficial effect on wound healing; animal models suggest a reduction in postoperative adhesions⁴.

We are increasingly aware of the prevalence of work-related injuries among surgeons with as much as 88% reporting injuries⁵⁻⁷. Instruments that are easy and comfortable to use reduce surgeon injury, and hopefully intraoperative complications for women. This study aims to evaluate the operating surgeon's ease of use and perceived effectiveness of an absorbable polysaccharide haemostat powder in obstetric and gynaecological surgeries.

Methods

HaemoCer Plus (BioCer, Germany) is a haemostatic powder made from inert polysaccharide material. It accelerates the formation of a haemostatic plug by rapidly dehydrating blood to increase the concentration of platelets, red blood cells and coagulation proteins. Additionally, it forms a gelled matrix that acts as a tamponade and as a barrier to postoperative adhesions. The powder is deployed using one hand to operate a squeeze-and-release chamber, dispelling the product through a nozzle. No adverse reactions have been reported and the product is licensed for use within the European Union.

This prospective cohort study examined 50 consecutive obstetric and gynaecological procedures where HaemoCer Plus was used. There were no exclusion criteria. The primary operating surgeon completed a questionnaire detailing the ease of use and perceived efficacy of the product. Data on the number of units used, whether additional haemostatic measures were required, type of surgery, grade of the operating surgeon, and patient age were recorded. The study was undertaken in a public university-affiliated regional hospital that delivers approximately 3,500 women per year.

Results

Between July 2017 – April 2018 there were fifty consecutive obstetrics and gynaecology cases where HaemoCer Plus was used. 84% (42/50) were lower segment caesarean sections, see Table 1. Non-consultant hospital doctors were the primary operator in 70% (35/50) of cases, while the remaining 30% (15/50) were performed by consultants. The median age of women undergoing surgery was 33 (range 19 – 48 years).

Table 1. Procedures where *HaemoCer Plus* was used.

Procedure	No	(%)
Lower Segment Caesarean Section	42	84%
Laparoscopic Ovarian Cystectomy	3	6%
Total Abdominal Hysterectomy	2	4%
Laparoscopic Bilateral Salpingo-oophorectomy	1	2%
Myomectomy	1	2%
Laparoscopically assisted vaginal hysterectomy	1	2%

The haemostatic powder was reported as 'easy to use' by 76% (38/50) and 'very easy' by 22% (11/50) of participants. One participant did not report ease of use. Efficacy was reported as 'effective' by 82% (41/50), 16% (8/50) reported it as 'very effective', and one case did not document effectiveness.

A single unit of HaemoCer Plus was used in 94% cases (47/50), while two units were used in the remainder. Additional modes of haemostasis were recorded in 72% (36/50) of cases. Electrocautery was used in 67% (24/36) of cases where additional haemostatic support was required. No adverse reactions were recorded.

Discussion

This study found that HaemoCer Plus is easy to use and is considered an effective haemostatic agent by the operating surgeon. While most data regarding topical haemostatic agents is derived from other specialties, the findings support its use in obstetrics and gynaecology.

Caesarean Section made up 84% of the operations, while the remainder were gynaecological procedures. This case-mix is representative of the workload of general obstetrics and gynaecology practitioners⁸.

Additional haemostatic manoeuvres were required in 72% cases, the most common being electrocautery (67%) and sutures (24%). Electrocautery is used in almost all modern operative procedures, so this result is not surprising. The use of sutures may reflect different sources of bleeding; sutures being effective for significant bleeds from an identifiable vessel, while haemostatic powder is useful across broader areas of ooze.

Between 44 – 88% of laparoscopic gynaecological surgeons experience physical discomfort, especially neck, shoulder, and back pain^{6,7}. This emphasizes the importance of ergonomics and a need to identify solutions to minimize work-related injuries. Cumbersome instruments are linked to repetitive strain injury⁹, so identifying techniques and products that are comfortable for its operators is important.

Topical haemostatic agents are an effective adjunct in surgery and their use is increasing across multiple disciplines. This study showed that it was considered effective and easy to use by obstetricians and gynaecologists.

Declaration of Conflicts of Interest:

The authors have no conflicts of interest to declare.

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