

Updates for management of postpartum hemorrhage

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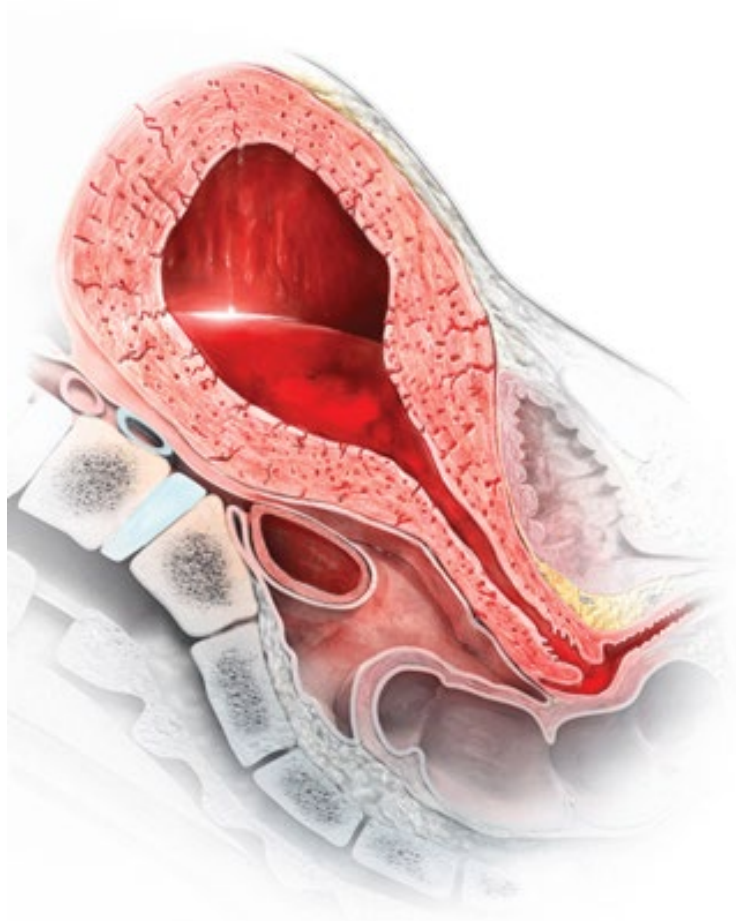
Disclosures

▶ None

Objectives

- ▶ Learn how to properly identify and diagnose postpartum hemorrhage.
- ▶ Review current trends in postpartum hemorrhage
- ▶ Understand the available treatment options for management of postpartum hemorrhage.

ACOG revitalize program



- ▶ 1,000 mL
- ▶ Blood loss + hypovolemia

Stages of Postpartum Hemorrhage

Stage 0 - Every patient giving birth

**Stage 1 - Blood loss > 500 mL for a vaginal delivery
or > 1000 mL for a Cesarean delivery
Vital Signs Unstable with continued bleeding**

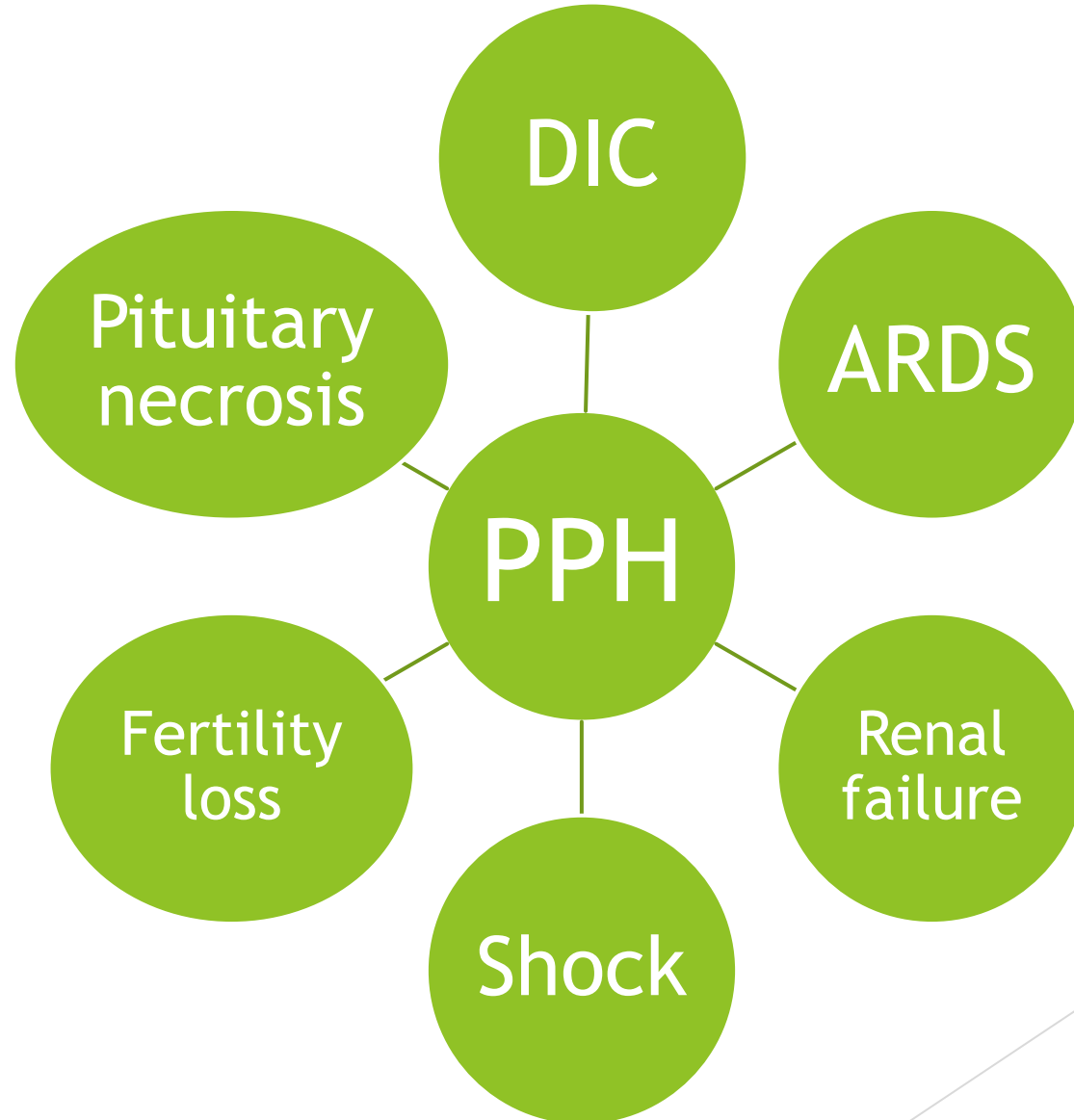
**Stage 2- Blood loss 1000 - 1500 mL with continued
bleeding**

**Stage 3 - Blood loss greater than 1500 mL,
Transfusion of 2 Units PRBC's, Vital Signs unstable,
Suspicious for DIC**

Why does this matter?



Why does this matter?



Risks factors for postpartum hemorrhage

- ▶ Prolonged oxytocin use
- ▶ High parity
- ▶ Intraamniotic infection/Chorioamnionitis
- ▶ General anesthesia
- ▶ Multi fetal gestation
- ▶ Macrosomia
- ▶ Polyhydramnios
- ▶ Cesarean delivery
- ▶ Fibroids
- ▶ AMA

Postpartum hemorrhage trends

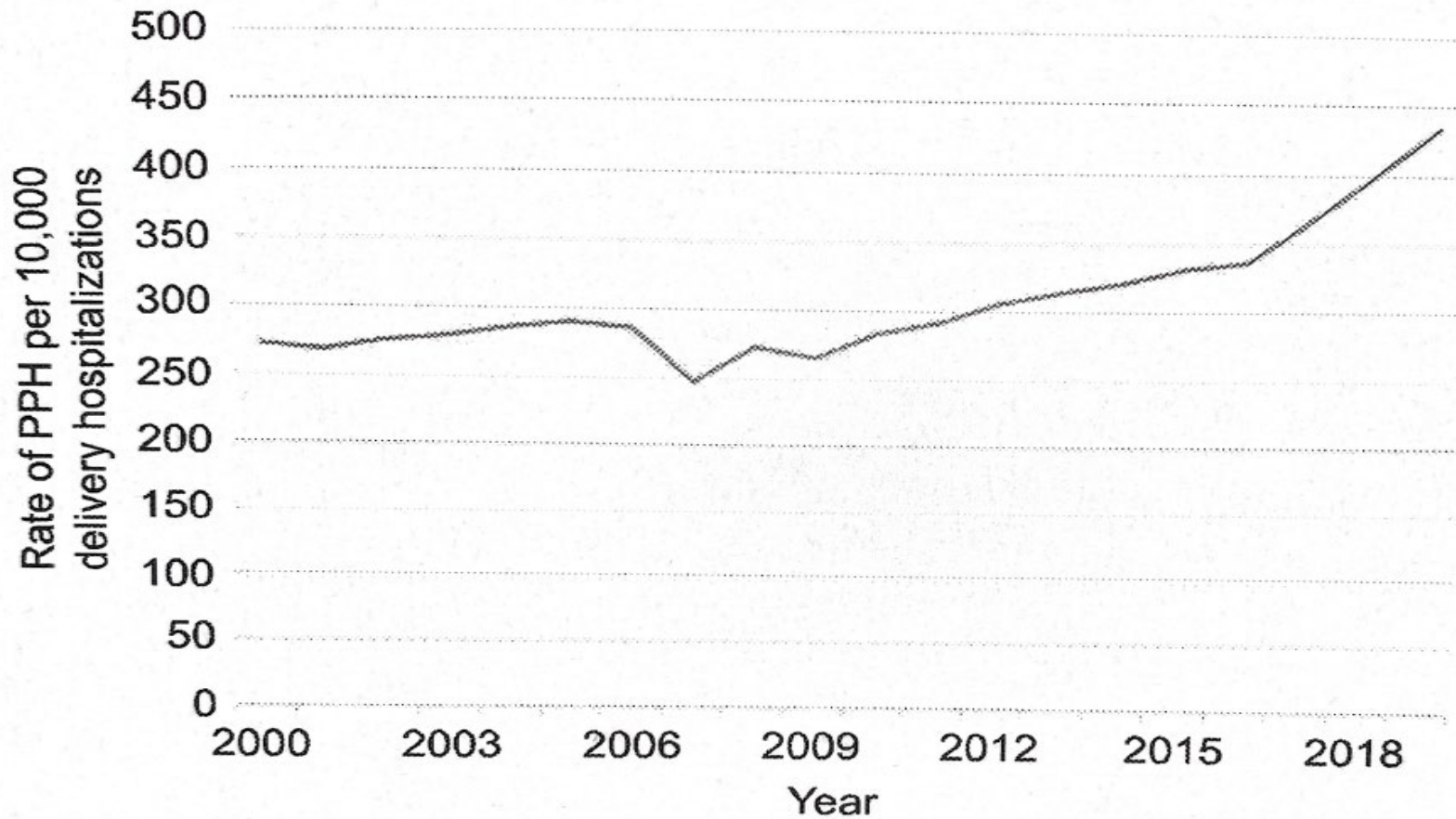
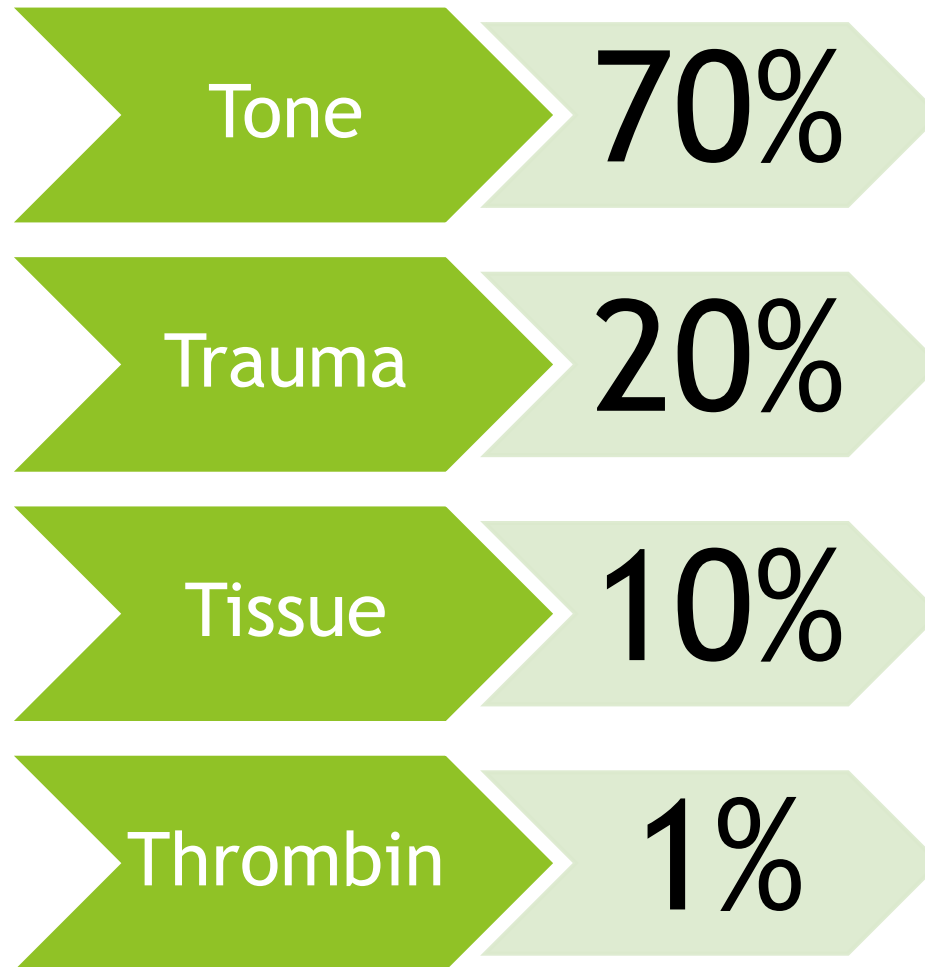


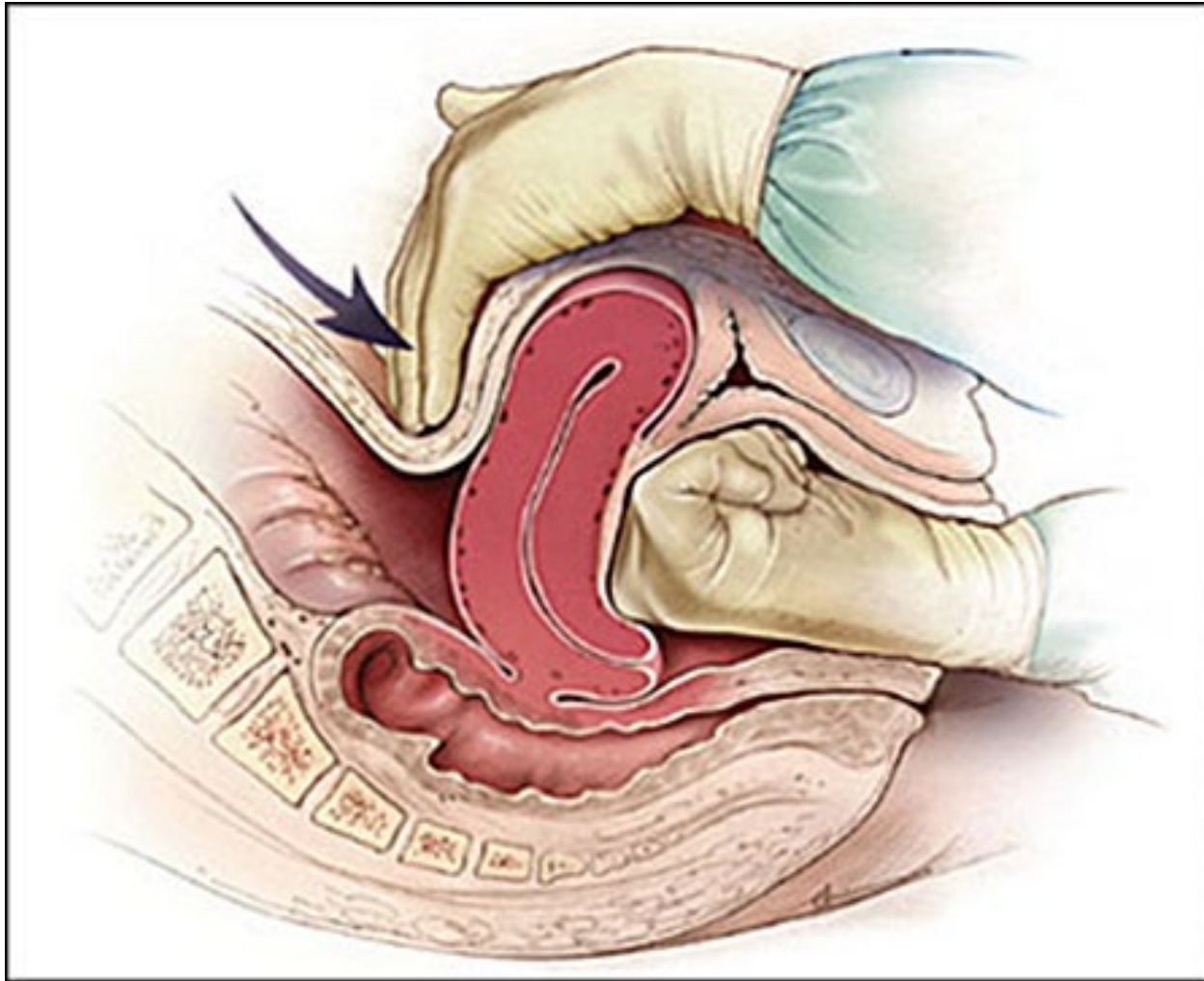
Fig. 2. Trends in postpartum hemorrhage (PPH) per 100,000 delivery hospitalizations by year over the 20-year study period.

Corbetta-Rastelli. Postpartum Hemorrhage Trends and Outcomes. Obstet Gynecol 2023.

Cause of postpartum hemorrhage 4 T's



Treatment of postpartum hemorrhage



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Treatment of postpartum hemorrhage



- ▶ IV: 10-40 units per 1,000 mL
- ▶ IM: 10 units
- ▶ Contraindications
 - ▶ Hypersensitivity

Treatment of postpartum hemorrhage



- ▶ IM every 2-4 hours
- ▶ Contraindications
 - ▶ Hypertension
 - ▶ Preeclampsia
 - ▶ Cardiovascular disease

Treatment of postpartum hemorrhage



- ▶ IM every 15-90 minutes
- ▶ Contraindications
 - ▶ Asthma
 - ▶ Pulmonary disease

Treatment of postpartum hemorrhage



- ▶ Oral, rectal or sublingual 600-1,000 mcg once
- ▶ Contraindications
 - ▶ hypersensitivity

Treatment of postpartum hemorrhage



**Cochrane
Library**

Cochrane Database of Systematic Reviews

Uterotonic agents for first-line treatment of postpartum haemorrhage: a network meta-analysis (Review)

Parry Smith WR, Papadopoulou A, Thomas E, Tobias A, Price MJ, Meher S, Alfirevic Z, Weeks AD, Hofmeyr GJ, Gülmezoglu AM, Widmer M, Oladapo OT, Vogel JP, Althabe F, Coomarasamy A, Gallos ID

Treatment of postpartum hemorrhage

- ▶ Take home points from this Cochrane review
 - ▶ Oxytocin is probably more effective than misoprostol and has less side effects
 - ▶ Misoprostol plus oxytocin likely does not improve effectiveness
 - ▶ Evidence for most available drugs used as first line in treatment of postpartum hemorrhage is limited.

Treatment of postpartum hemorrhage



- ▶ Fibrinolysis inhibitor
- ▶ Contraindications
 - ▶ Active thromboembolic disease

Treatment of postpartum hemorrhage

Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial

*WOMAN Trial Collaborators**
Lancet 2017; 389: 2105-16

Treatment of postpartum hemorrhage

- ▶ Take home points from the WOMAN trial
 - ▶ Death due to bleeding was significantly reduced in women given tranexamic acid (especially when given within 3 hours)
 - ▶ Hysterectomy was not reduced with tranexamic acid
 - ▶ Adverse events (including thromboembolic events) did not differ significantly in the tranexamic acid versus placebo group.

Treatment of postpartum hemorrhage

ORIGINAL ARTICLE

Tranexamic Acid for the Prevention of Blood Loss after Vaginal Delivery

Loïc Sentilhes, M.D., Ph.D., Norbert Winer, M.D., Ph.D., Elie Azria, M.D., Ph.D., Marie-Victoire Sénat, M.D., Ph.D., Camille Le Ray, M.D., Ph.D., Delphine Vardon, M.D., Franck Perrotin, M.D., Ph.D., Raoul Desbrière, M.D., Florent Fuchs, M.D., Ph.D., Gilles Kayem, M.D., Ph.D., Guillaume Ducarme, M.D., Ph.D., Muriel Doret-Dion, M.D., Ph.D., Cyril Huissoud, M.D., Ph.D., Caroline Bohec, M.D., Philippe Deruelle, M.D., Ph.D., Astrid Darsonval, Pharm.D., Jean-Marie Chrétien, M.Sc., Aurélien Seco, M.Sc., Valérie Daniel, Pharm.D., and Catherine Deneux-Tharaux, M.D., Ph.D., for the Groupe de Recherche en Obstétrique et Gynécologie*

- ▶ No difference between groups in primary outcome of blood loss of 500 mL or more

Treatment of postpartum hemorrhage

ORIGINAL ARTICLE

Tranexamic Acid for the Prevention of Blood Loss after Cesarean Delivery

L. Sentilhes, M.V. Sénat, M. Le Lous, N. Winer, P. Rozenberg, G. Kayem, E. Verspyck, F. Fuchs, E. Azria, D. Gallot, D. Korb, R. Desbrière, C. Le Ray, C. Chauleur, F. de Marcillac, F. Perrotin, O. Parant, L.J. Salomon, E. Gauchotte, F. Bretelle, N. Sananès, C. Bohec, N. Mottet, G. Legendre, V. Letouzey, B. Haddad, D. Vardon, H. Madar, A. Mattuizzi, V. Daniel, S. Regueme, C. Roussillon, A. Benard, A. Georget, A. Darsonval, and C. Deneux-Tharaux, for the Groupe de Recherche en Obstétrique et Gynécologie*

- ▶ “Significantly lower incidence of calculated estimated blood loss greater than 1000 ml or red-cell transfusion by day 2”

Treatment of postpartum hemorrhage

The NEW ENGLAND JOURNAL of MEDICINE

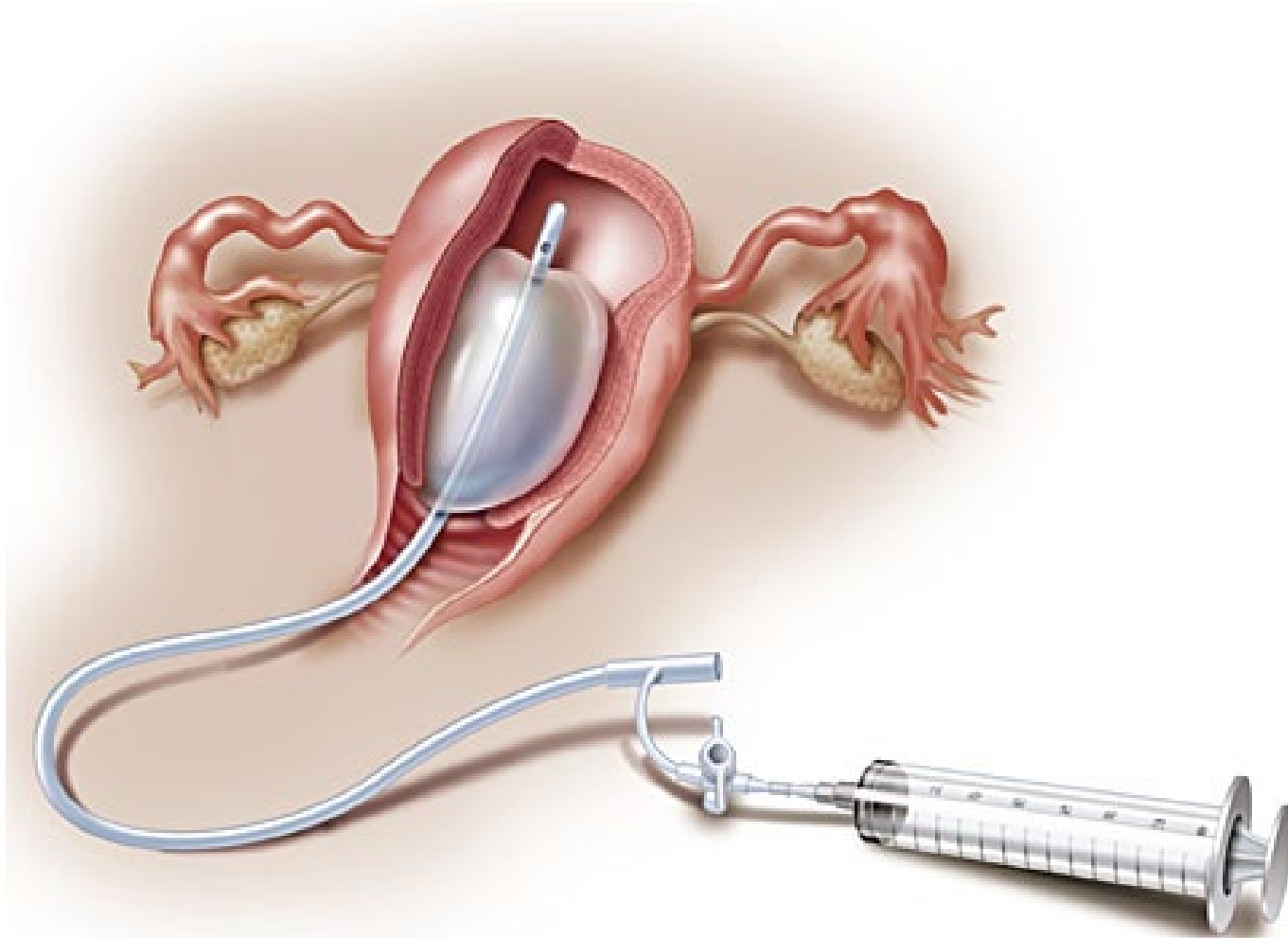
ORIGINAL ARTICLE

Tranexamic Acid to Prevent Obstetrical Hemorrhage after Cesarean Delivery

L.D. Pacheco, R.G. Clifton, G.R. Saade, S.J. Weiner, S. Parry, J.M. Thorp, Jr., M. Longo, A. Salazar, W. Dalton, A.T.N. Tita, C. Gyamfi-Bannerman, S.P. Chauhan, T.D. Metz, K. Rood, D.J. Rouse, J.L. Bailit, W.A. Grobman, H.N. Simhan, and G.A. Macones, for the Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network*

- ▶ “Prophylactic use of tranexamic acid during cesarean delivery did not lead to a significantly lower risk of a composite outcome of maternal death or blood transfusion than placebo”

Treatment of postpartum hemorrhage



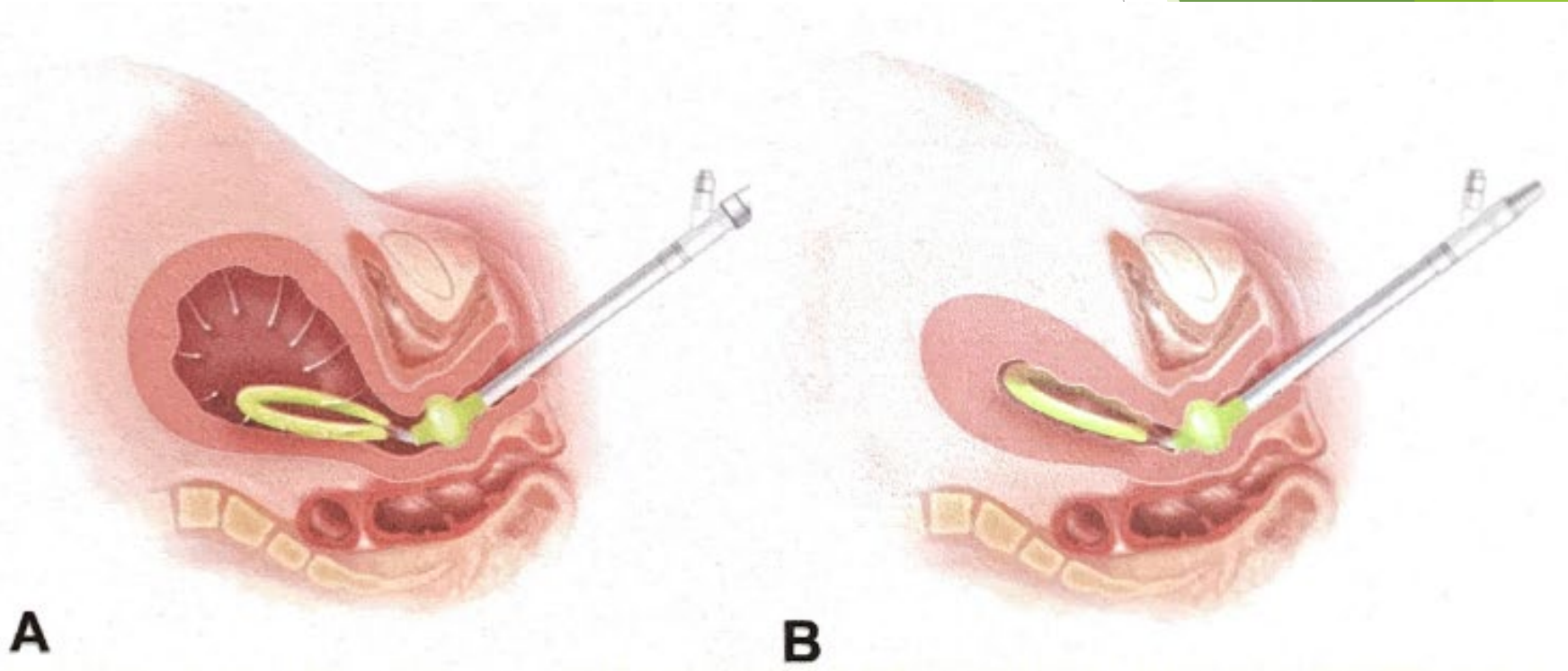
Treatment of postpartum hemorrhage



Treatment of postpartum hemorrhage

Fig. 2. Placement of intrauterine vacuum-induced hemorrhage-control device with low-level vacuum connected (A) and uterine contraction (B). Images courtesy of Alydia Health. Used with permission.

D'Alton. Vacuum Device for Postpartum Hemorrhage. Obstet Gynecol 2020.



Treatment of postpartum hemorrhage

▶ Jada insertion steps

- ▶ Connect syringe and remove air from cervical seal
- ▶ Squeeze intrauterine loop and insert into the uterine cavity with the cervical seal at the external os
- ▶ Fill cervical seal with 60-120 cc of sterile fluid
- ▶ Turn vacuum on and set to 80 mm Hg
- ▶ Connect Jada to vacuum tubing



Treatment of postpartum hemorrhage

► The PEARLE study

Intrauterine Vacuum-Induced Hemorrhage-Control Device for Rapid Treatment of Postpartum Hemorrhage

Mary E. D'Alton, MD, Kara M. Rood, MD, Marcela C. Smid, MD, Hyagriv N. Simhan, MD, MS, Daniel W. Skupski, MD, Akila Subramaniam, MD, Kelly S. Gibson, MD, Todd Rosen, MD, Shannon M. Clark, MD, Donald Dudley, MD, Sara N. Iqbal, MD, Michael J. Paglia, MD, PhD, Christina M. Duzynj, MD, MPH, Edward K. Chien, MD, Karen J. Gibbins, MD, Kathryn D. Wine, MPH, Nana Ama A. Bentum, MD, Michelle A. Kominiarek, MD, Methodius G. Tuuli, MD, and Dena Goffman, MD

Treatment of postpartum hemorrhage

▶ The PEARLE study

- ▶ Multicenter, prospective single arm treatment study
- ▶ Enrolled 107 patients
- ▶ Primary endpoint was proportion of participants in whom the device controlled bleeding without requiring additional interventions

Treatment of postpartum hemorrhage

► The PEARLE study

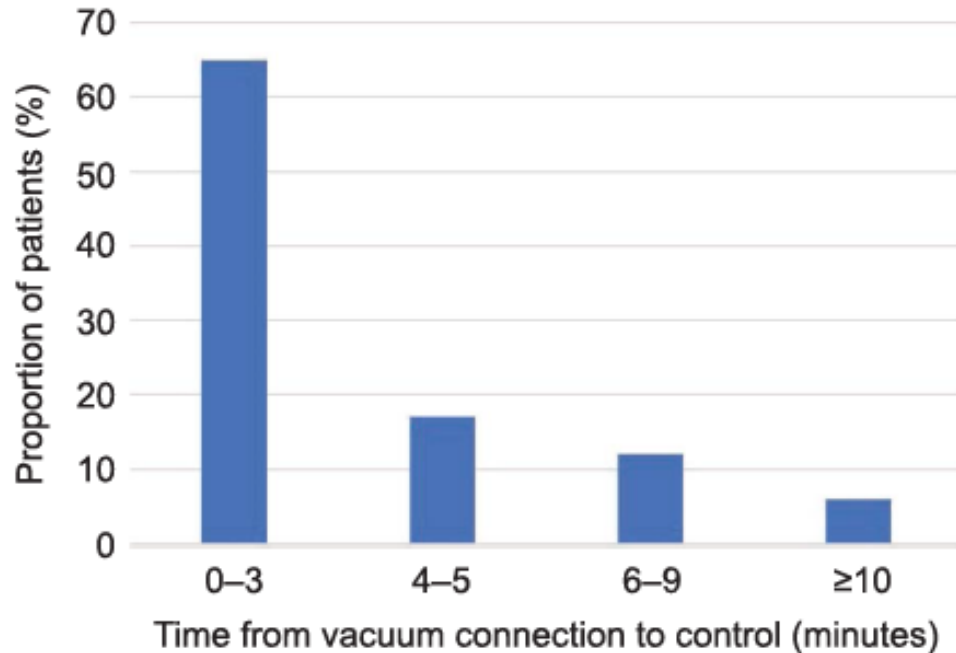


Fig. 4. Time to control abnormal bleeding or postpartum hemorrhage (minutes).

D'Alton. Vacuum Device for Postpartum Hemorrhage. Obstet Gynecol 2020.

Treatment of postpartum hemorrhage

- ▶ The PEARLE study
 - ▶ Postpartum bleeding controlled in 100/106 patients (94%)
 - ▶ 5 patients required additional treatment for atony (uterine tamponade balloon x 2, B-Lynch with Jada, B-Lynch → hysterectomy, Hysterectomy)
 - ▶ 1 patient required repair of unrecognized cervical laceration
 - ▶ 40 patients required a blood product

Treatment of postpartum hemorrhage

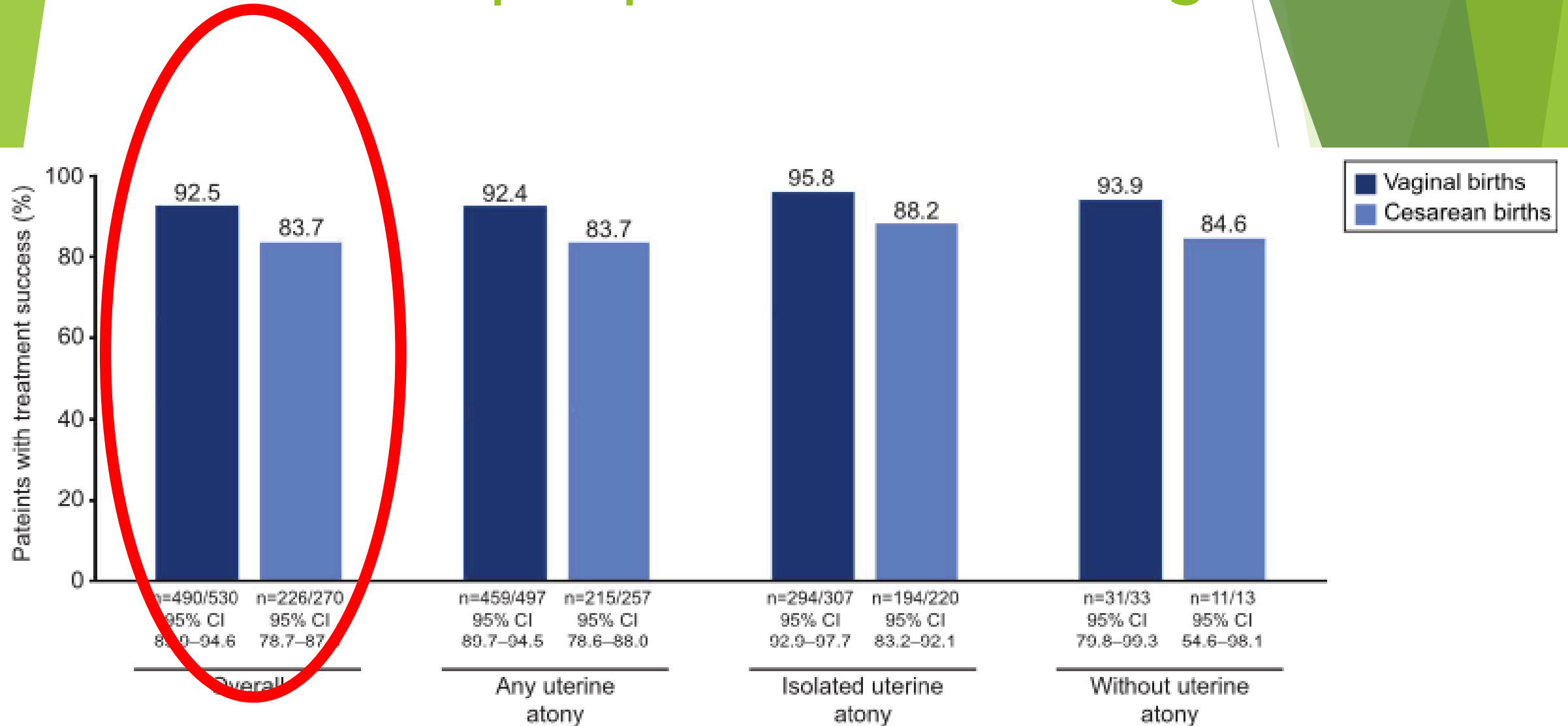
The RUBY Study

Original Research

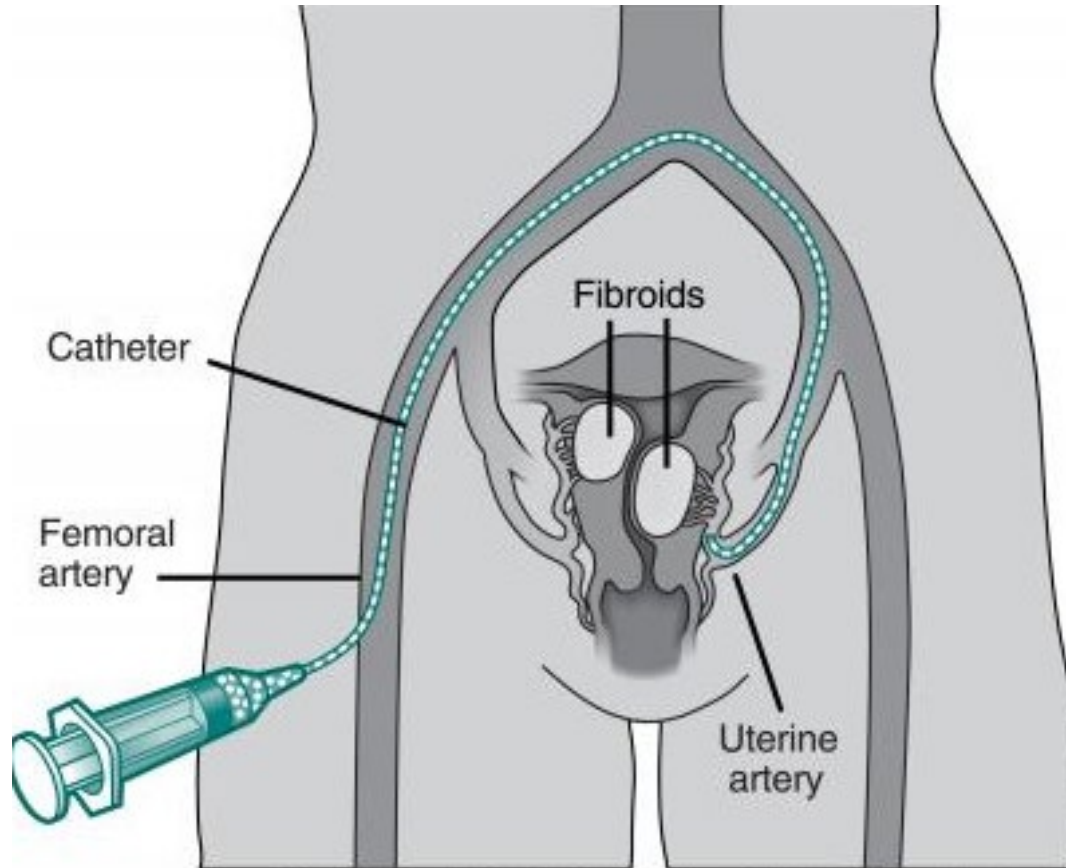
Real-World Utilization of an Intrauterine, Vacuum-Induced, Hemorrhage-Control Device

Dena Goffman, MD, Kara M. Rood, MD, Angela Bianco, MD, Joseph R. Biggio, MD, MS, Paul Dietz, MD, Kelly Drake, MSN, RNC, Erica Heilman, MD, Maeve Hopkins, MD, Monique De Four Jones, MD, Tyler Katz, MD, Courtney Martin, DO, Mona Prasad, MD, Marcela C. Smid, MD, Kathryn D. Wine, MPH, Robert Ryan, MS, Candice Yong, PhD, Patricia I. Carney, MD, and Hyagriv N. Simhan, MD, MS

Treatment of postpartum hemorrhage



Treatment of postpartum hemorrhage



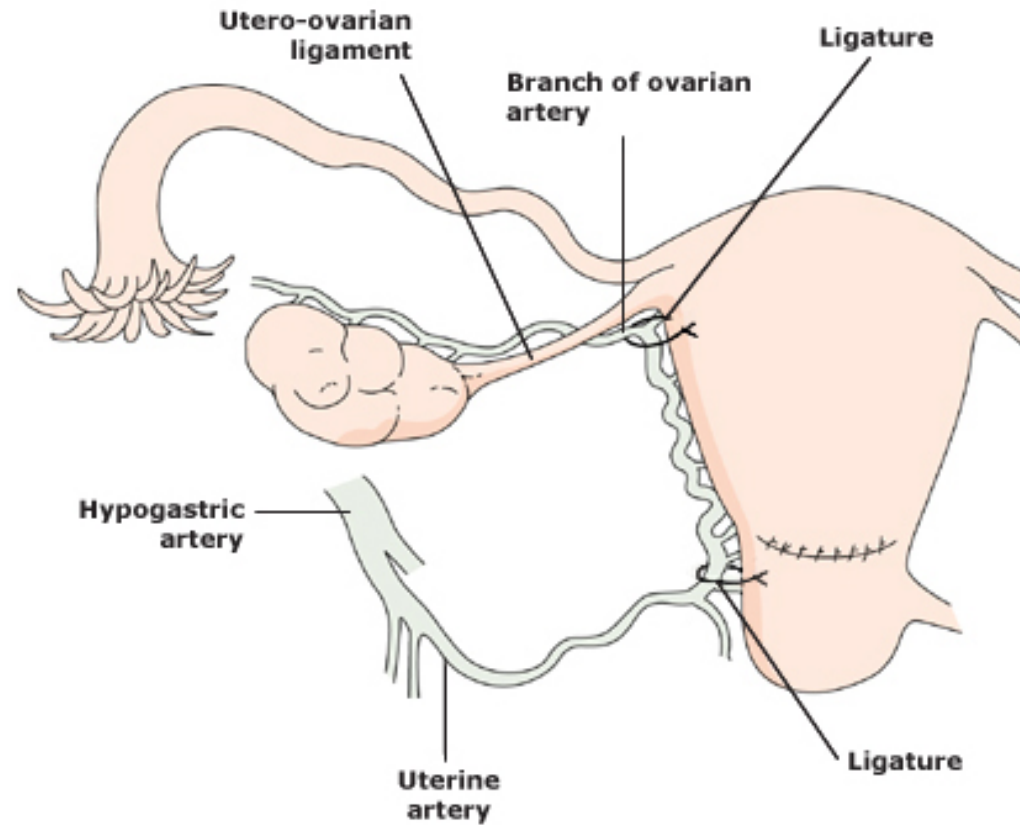
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Success rate of 89% (range 58-98%)

Treatment of postpartum hemorrhage

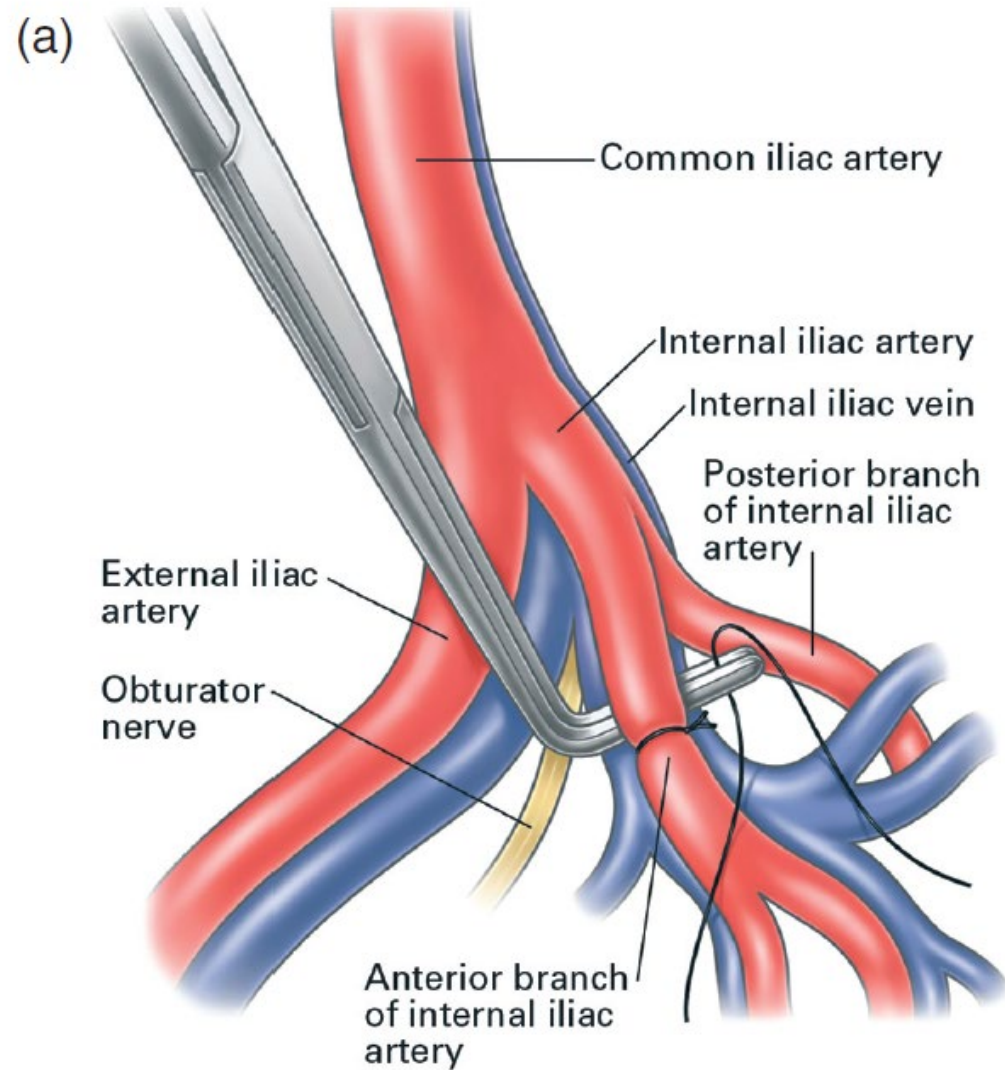
- ▶ Surgical management
 - ▶ Vascular ligation
 - ▶ Uterine compression sutures
 - ▶ B Lynch & O'Leary
 - ▶ Hysterectomy

Uterine artery ligation

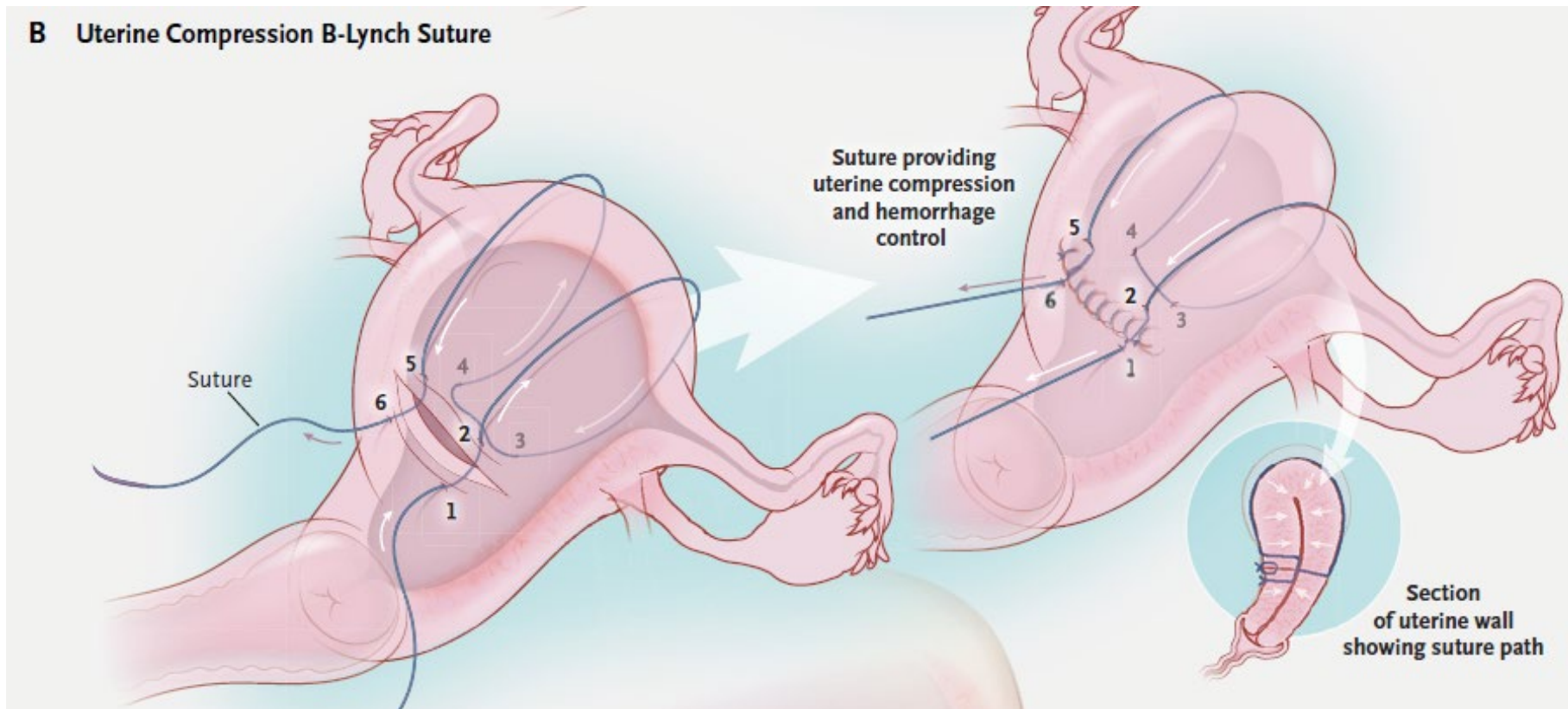


Sutures are placed to ligate the ascending uterine artery and the anastomotic branch of the ovarian artery. The procedure should be performed on each side.

Treatment of postpartum hemorrhage

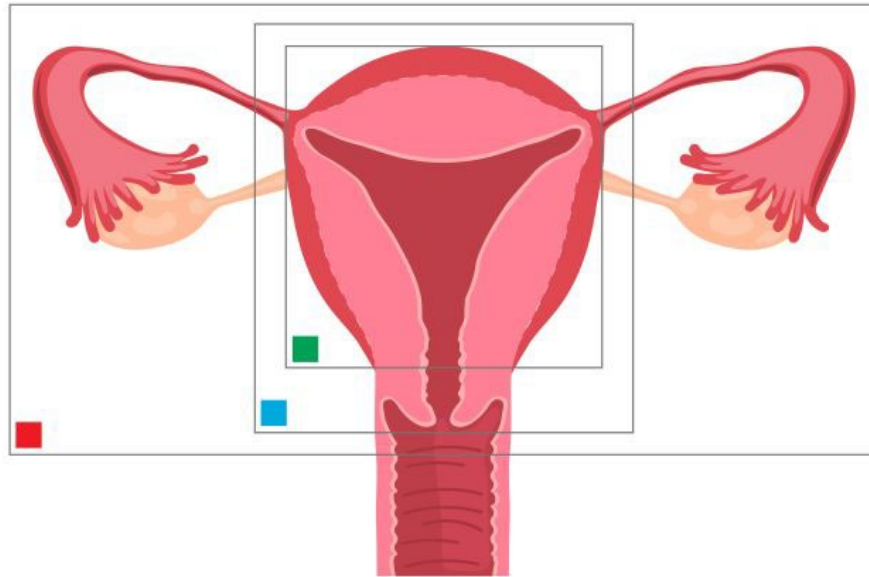


Treatment of postpartum hemorrhage



Treatment of postpartum hemorrhage

TYPES OF HYSTERECTOMY



- Partial Hysterectomy (Removes 2/3 of uterus)
- Total Hysterectomy (Removes uterus and cervix)
- Radical Hysterectomy (Removes uterus, cervix and vagina)

Questions?



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