Optimizing Perioperative Care with ERAS in Gynecologic Oncology Surgeries

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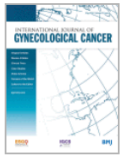

Original Article

Guidelines for perioperative care in gynecologic/oncology: Enhanced Recovery After Surgery (ERAS) Society recommendations—2019 update

Gynecologic Oncology 173 (2023) 58–67

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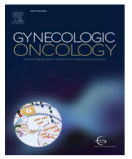

Enhanced recovery after surgery (ERAS®) society guidelines for gynecologic oncology: Addressing implementation challenges - 2023 update

G. Nelson [a,*], C. Fotopoulou [b], J. Taylor [c], G. Glaser [d], J. Bakkum-Gamez [d], L.A. Meyer [c], R. Stone [e], G. Mena [f], K.M. Elias [g], A.D. Altman [h], S.P. Bisch [a], P.T. Ramirez [i], S.C. Dowdy [d]

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The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 750

Committee on Gynecologic Practice

This document is endorsed by the American Urogynecologic Society. This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Gynecologic Practice in collaboration with committee member Amanda N. Kallen, MD.

Obstetrics & Gynecology 132(3):p e120-e130, September 2018

演講內容聲明

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前言

隨著人口老化、少子化與國人罹癌人數逐年增加，婦科癌症手術的複雜度、風險與術後照護挑戰日益提升。婦科腫瘤患者常需接受大型手術，例如完整的癌症分期手術，包括全子宮切除、雙側卵巢及輸卵管切除、骨盆腔淋巴結摘除，以及切除腫瘤侵犯的部位如腸道或大網膜等[1]。術後常見疼痛、恢復緩慢，並可能出現感染、功能性腸阻塞、血栓等併發症，不僅延長住院時間，也影響整體生活品質與康復進程。為提升臨床照護品質與與國際接軌，台灣術後加速康復學會邀集婦科腫瘤、麻醉、護理、營養與物理治療等跨專業領域專家，參考國際ERAS Society[2] [3]與 ACOG[4]等最新指引，並考量亞洲族群特性與本地臨床現況，制定本份「婦科癌症手術加速康復照護共識建議」，涵蓋手術前、中、後全期照護策略，提供加速恢復之臨床依據，期望能提升台灣婦癌患者術後照護品質。

手術環境的複雜及團隊合作的重要性

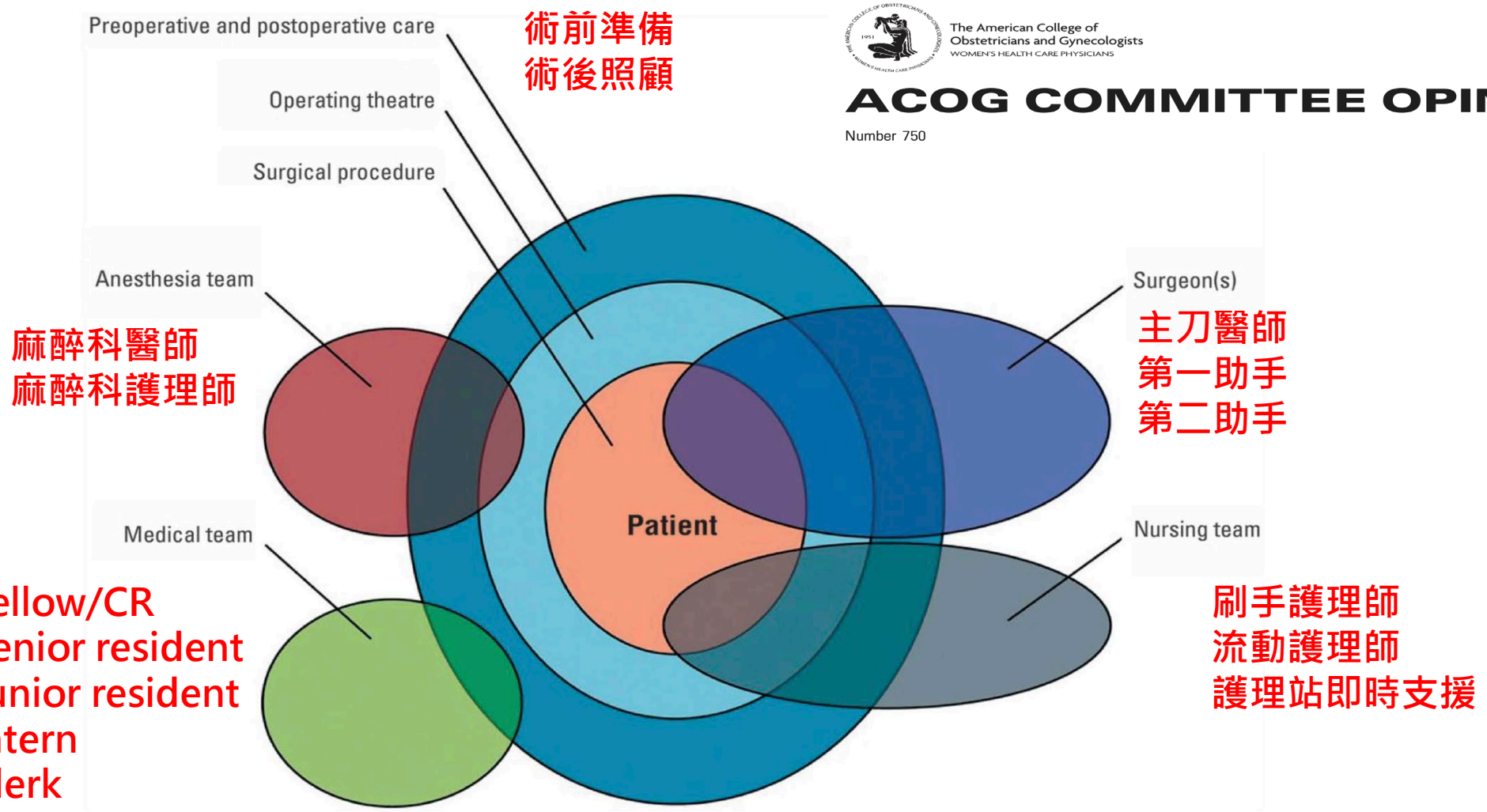

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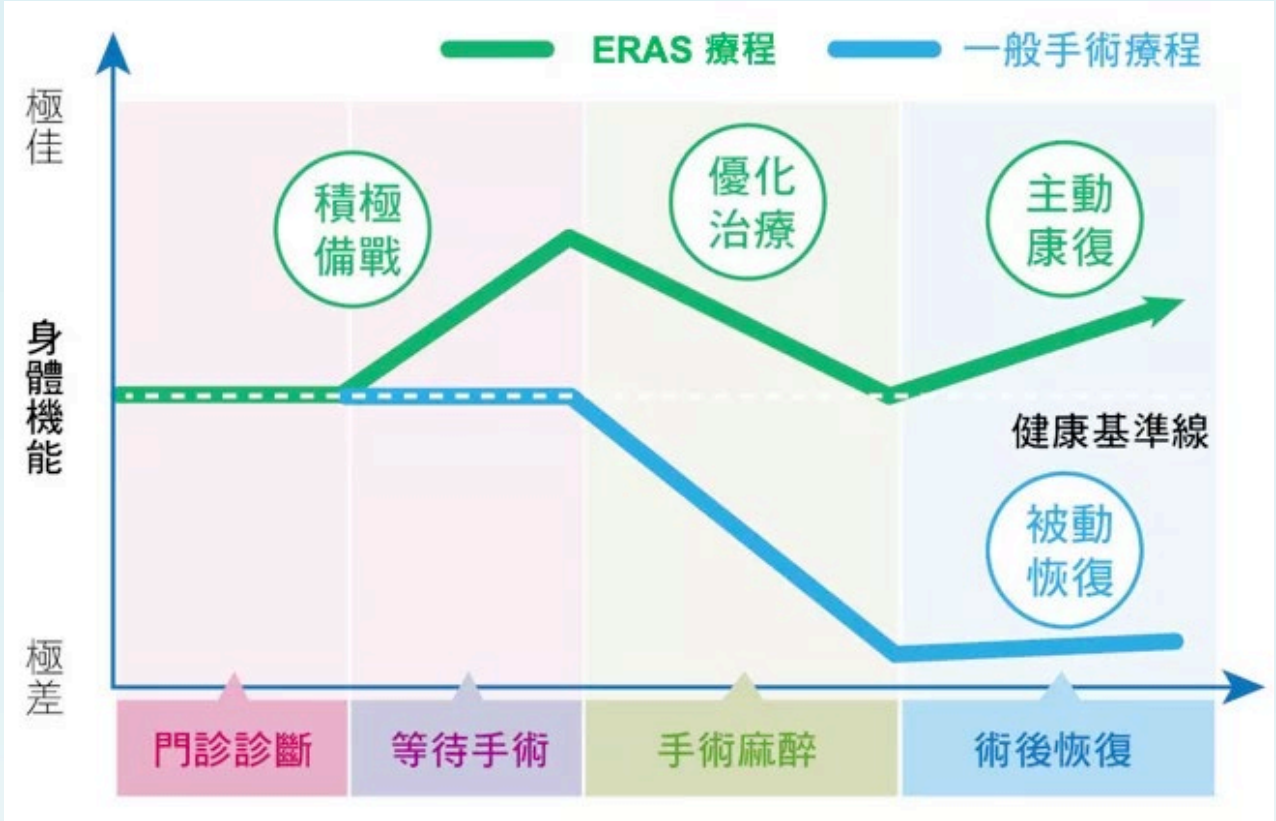
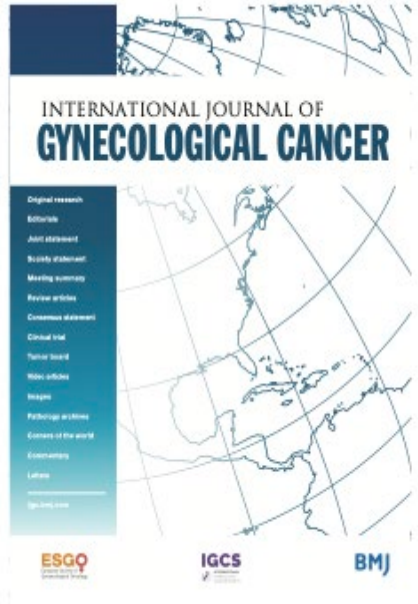
Figure 1. The complex surgical environment. (Modified from Ergina PL, Cook JA, Blazeby JM, Boutron I, Clavien PA, Reeves BC, et al. Challenges in evaluating surgical innovation. Lancet 2009;374:1097–104.)

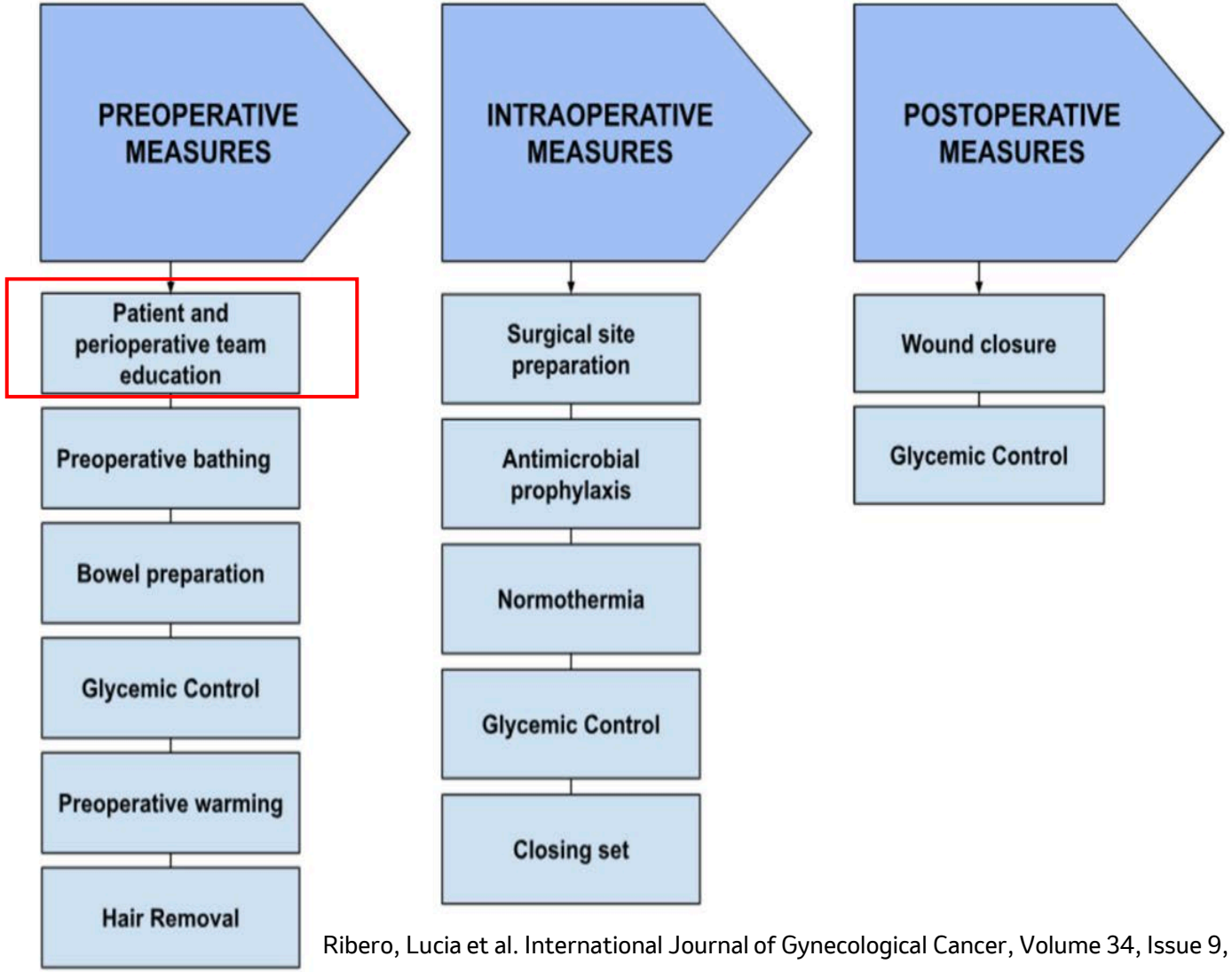
ERAS 的基本概念

- 術前：相關衛教與營養準備
- 術中（圍手術期）：感染預防、維持液體平衡、手術中保持正常體溫
- 術後：減少使用opioid類止痛藥物、早期移除導尿管、鼓勵下床活動、適當的血栓預防

ERAS 與一般術後療程的差異







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住院前衛教與諮詢

- 應於住院前接受照護團隊各參與職類 (包含婦癌醫師、麻醉科醫師、個案管理師、營養師、物理治療師與藥師等) 的全面性評估與療程說明。

- 對高風險患者，提供必要介入措施，並在需要時考慮延後手術，以確保患者的安全與手術成效。

住院前衛教與諮詢

增加病人對ERAS了解與預期：術前提供書面衛教單張可幫助病人縮短住院天數、減少疼痛與止痛藥使用，並讓病人更了解手術及術後康復過程。

for the delivery of contrasting information. A multidisciplinary information booklet issued prior to admission could help reduce such confusion and help streamline the information process, thus helping surgical candidates prepare effectively for their impending surgery.

Findings of our study support the use of preoperative information leaflet to prepare patients for a surgical procedure. In fact our results highlight a benefit in terms of reduction of hospitalization days, lower postoperative pain experienced and use of pain medications. Written information is not sufficient on its own but is a valuable aid to patients who want to understand what is happening to them throughout their stay in hospital, and later during their recovery period.

The provision of clear multidisciplinary written information serves not only as an aide memoire, but acts as a point of discussion for patients and continues to act as a point of reference once the patient has left the preoperative consultation. The use of written information also maximizes health professionals' time and helps reduce time spent on repetition of routine information which can be easily be delivered in written format.

The use of structured and comprehensive teaching programmes will result in patients who are more informed and are consequently able to participate more in their care, thus resulting in

國泰醫院範例

1. Angioli R, et al. Eur J Obstet Gynecol Reprod Biol. 2014 Jun;177:67-71.
2. Cavallaro PM, et al. Am J Surg. 2018 Oct;216(4):652-657.

住院前風險評估

- 可逆危險因子應於住院前透過完整評估與檢查及早發現並進行介入。
- 建議於住院前完成手術與併發症風險分級、麻醉訪視評估、藥物使用諮詢(包含雲端藥歷查核)、及戒菸戒酒等衛教與諮詢，以降低入院後才決定延後手術的可能性。

抽菸與飲酒之危害衛教

- 吸菸與飲酒對於術後併發症的高風險密切相關。
- 在圍手術期，酒精對心臟功能、凝血機制、免疫功能及手術壓力反應亦具有不良影響，進而增加術後併發症的發生風險。
- 建議患者在住院前應接受完整的戒菸、戒酒諮詢與介入，並盡可能於術前停止吸菸與飲酒達四週以上，以期達到較佳的術後恢復與臨床預後。

1. Nelson G, et al. Guidelines for pre- and intra-operative care in gynecologic/oncology surgery: Enhanced Recovery After Surgery (ERASR) society recommendations--Part I. Gynecol Oncol 2016;140:313-22.

手術前一天避免過度禁食

- 過長的空腹時間可能增加脫水、低血糖、胰島素阻抗等風險。
- 對於無腸阻塞等禁忌症之患者：
  - 可以進食固體食物 (regular diet) 至手術前 6 小時
  - 可飲用清流質液體(clear liquid) 至手術前 2 小時
- 術前2到3小時clear liquid 200 – 250 mL，並不會增加麻醉中 aspiration 的風險。

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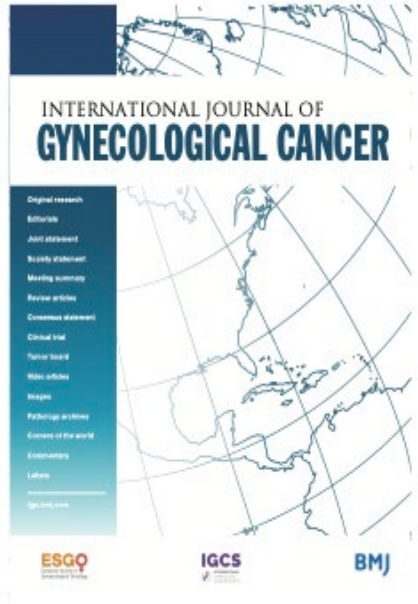

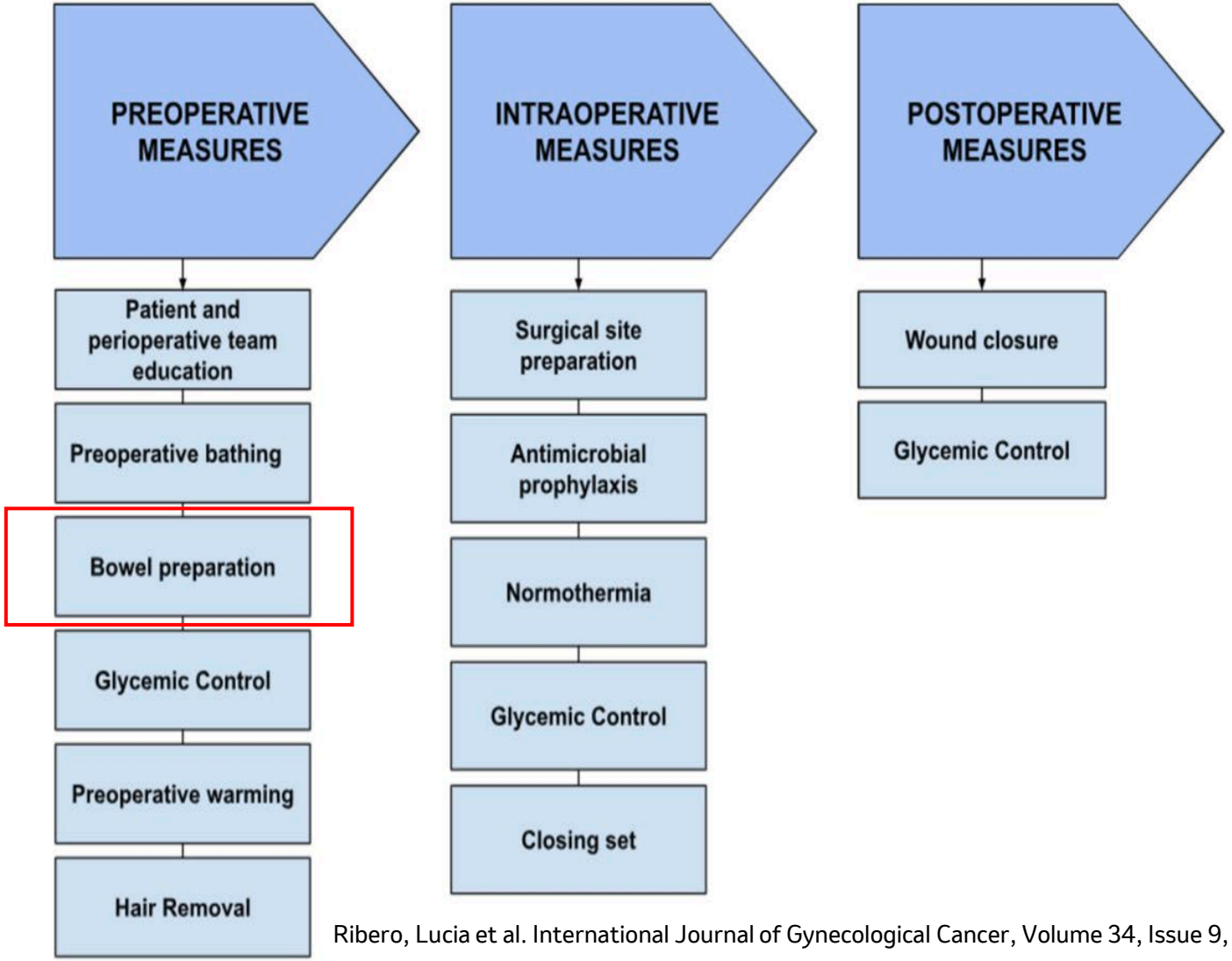

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術前避免常規腸道準備

Summary and Recommendation:
Routine pre-operative bowel preparation should not be used before minimally invasive gynecologic surgery. Its use is **similarly discouraged before open laparotomy in gynecologic surgery/gynecologic oncology,** especially within an established ERAS pathway. Surgeons who feel bowel preparation is necessary should limit its use to patients in which a colon resection is planned. In these cases the use of oral antibiotics alone should be considered or combined with mechanical bowel preparation. High quality data from the colorectal literature have shown that **mechanical bowel preparation alone does not decrease post-operative morbidity and should thus be abandoned**.

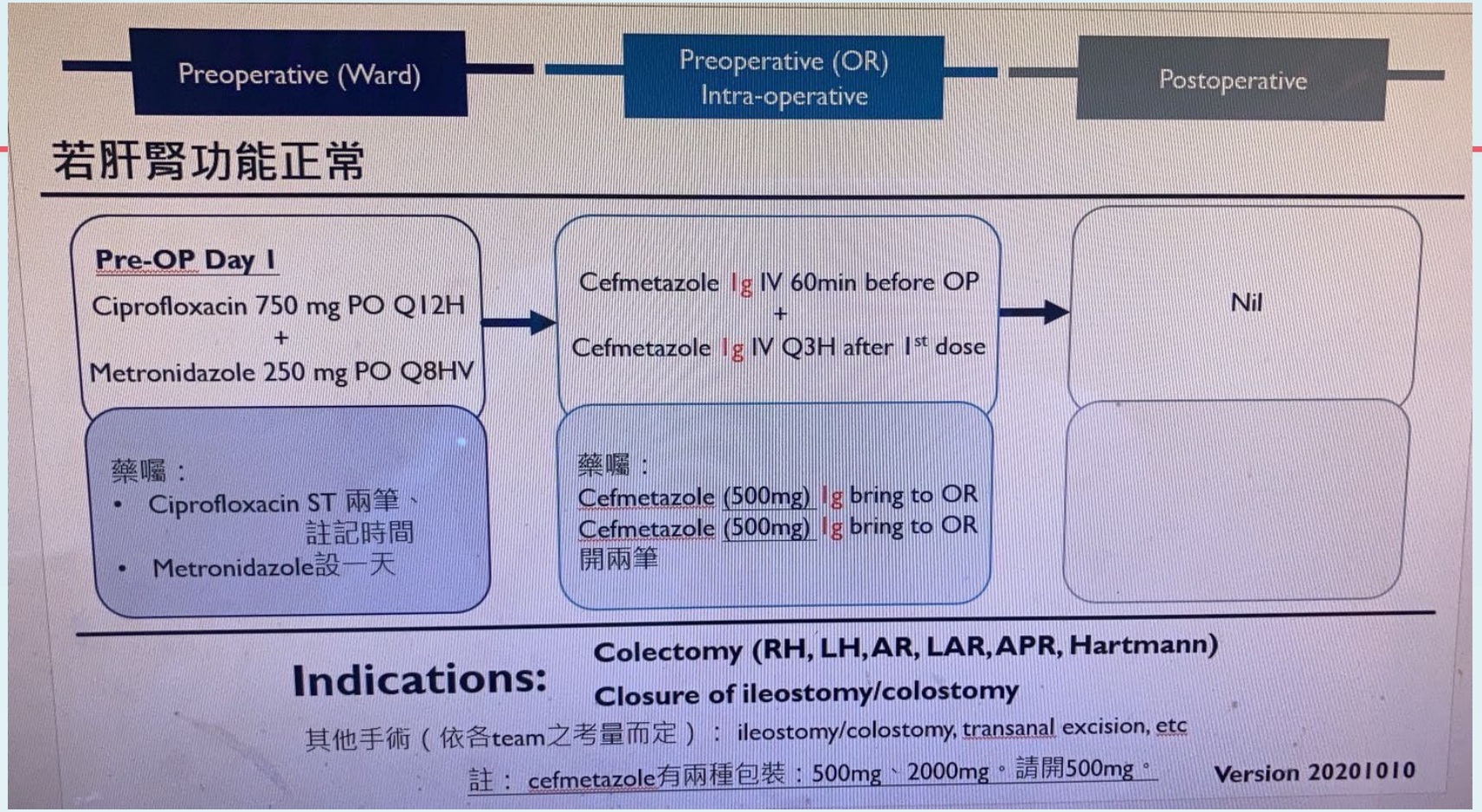
Evidence level: moderate
Recommendation grade: strong

- 單純使用傳統機械性備腸（如EVAC或Bowklean）無法降低術後感染或併發症（anastomotic leakage）風險，故不建議常規進行。
- 若預計手術涉及腸道切除，建議優先考慮使用術前口服抗生素。

Recommendation
- Neomycin 500 mg - total dose 3000 mg the day prior to surgery.
- Metronidazole 500 mg - total dose 1500 mg the day prior to surgery.

- +/- 機械性備腸應視病患個別情況使用。

Nelson G, et al. Int J Gynecol Cancer 2019;29:651–668



北榮CRS建議：
手術前一天吃Ciprofloxacin 750 mg Q12H + Metronidazole 250 mg Q8HV
下刀前Cefmetazole 1 g IV + Cefmetazole 1 g IV Q3H

北榮大腸直腸外科備腸方法

口服抗生素 + 機械性備腸 (無腸阻塞情形)

一天法(Klean-prep)

a、手術前一天，服食 Klean-prep 2~3 包(1000cc 水/包)，約每 15 分鐘喝 250cc。若不能適應而嘔吐者，則不勉強。亦可採用鎂、磷酸製劑(Fleet)清腸。

b、清流飲食。

c、 給予口服 ciprofloxacin 750mg q12h 和 metronidazole 250mg q8hv。手術當日劃刀前 1 小時內給予 cefmetazon 1g iv；手術開始後每 3 小時後需再給予另一劑 cefmetazon 1g iv，術後不用再給予任何抗生素。

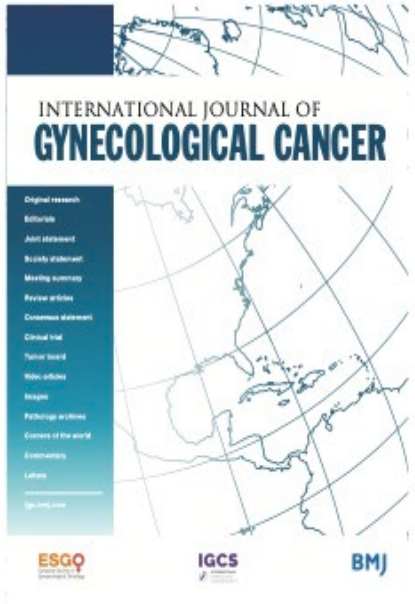
d、若無腹瀉時，夜間給予溫水清潔灌腸(cleansing enema)。已經充分腹瀉者，可免灌腸。

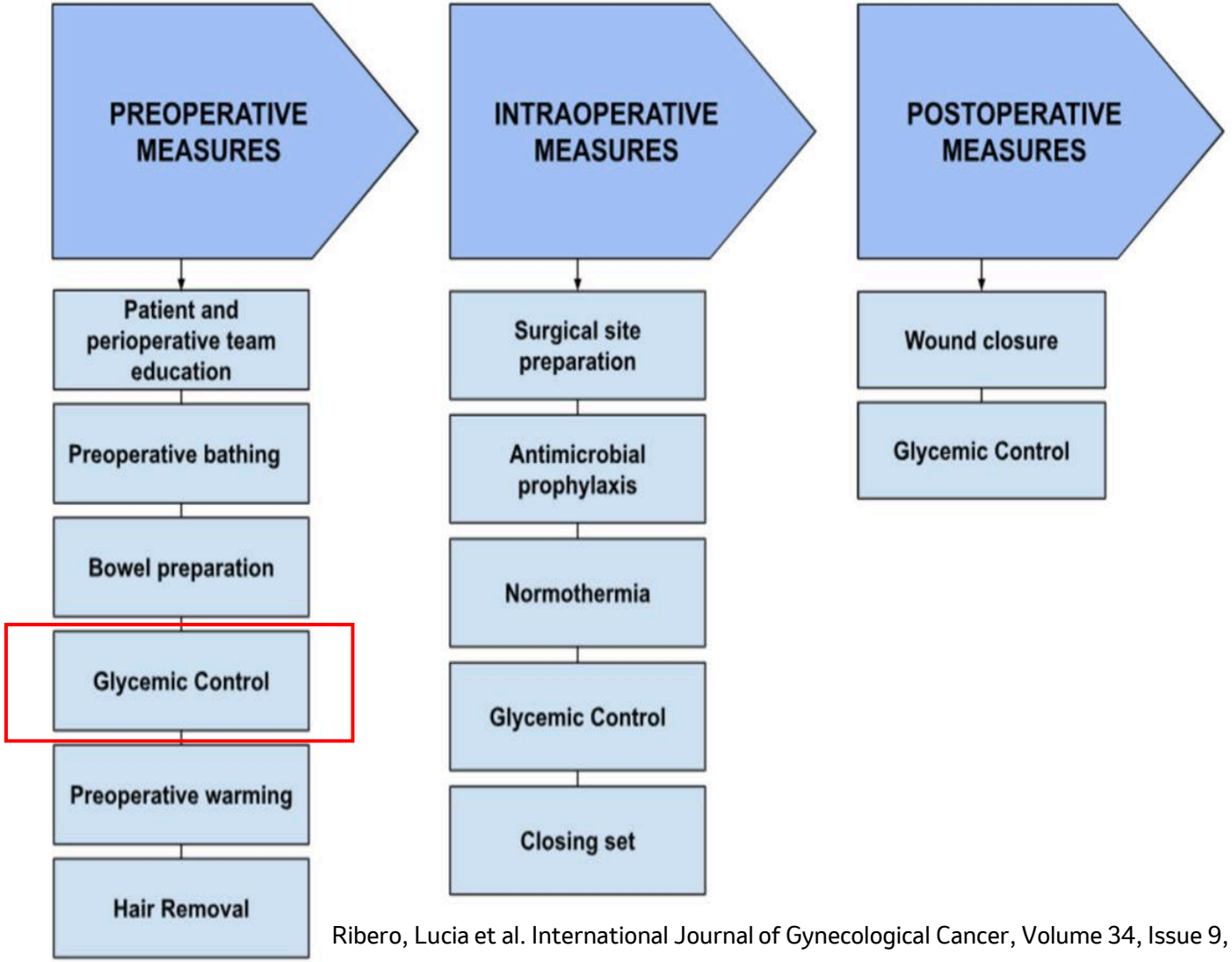
1、 傳統式三天法

a、手術前三天，低渣飲食。

b、手術前兩天，低渣飲食。

c、手術前一天，清流飲食，Dulcolax 六顆，或 Golytely 製劑 2000~3000ml。給予口服 ciprofloxacin 750mg q12h 和 metronidazole 250mg q8hv。手術當日劃刀前 1 小時內給予 cefmetazon 1g iv；手術開始後每 3 小時後需再給予另一劑 cefmetazon 1g iv，術後不用再給予任何抗生素。





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圍手術期間之血糖控制

- 術中stress response導致血糖升高與術後感染風險增加密切相關，故建議於圍手術期間定期監測血糖。
- 無論患者是否罹患糖尿病，建議控制perioperative blood glucose低於 200 mg/dL。

8.1. Summary and recommendation

ERAS elements that reduce metabolic stress should be employed to reduce insulin resistance and the development of hyperglycemia. Perioperative maintenance of blood glucose levels (<180–200 mg/dL) results in improved perioperative outcomes. Glucose levels above this range should be treated with insulin infusions and regular blood glucose monitoring to avoid the risk of hypoglycemia.

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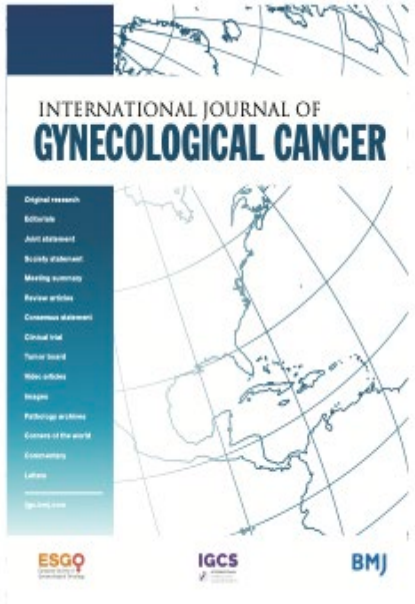

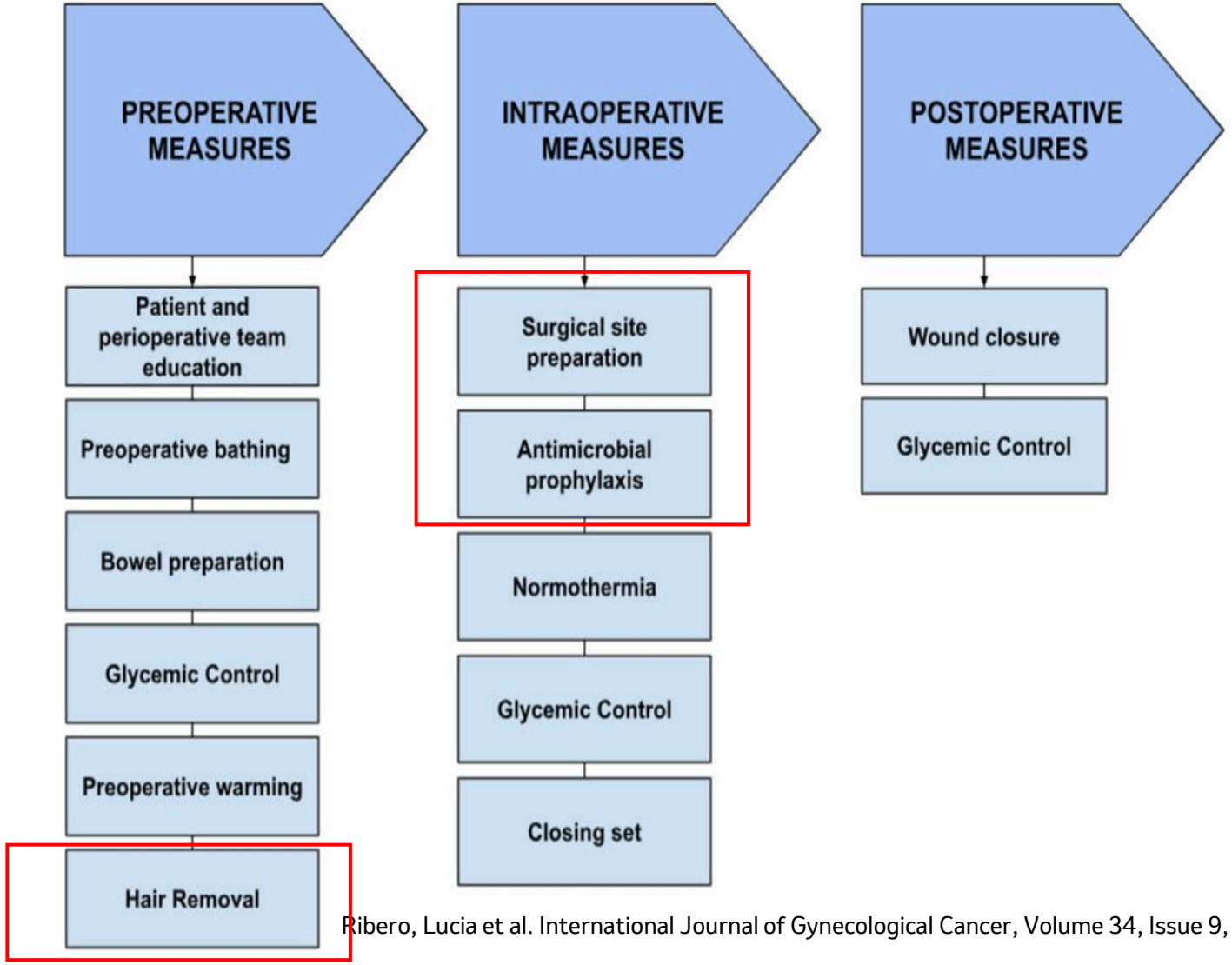

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術前抗生素使用與消毒

- 常規使用預防性抗生素並正確消毒，可有效降低手術後感染風險。
- 建議於下刀前 60 分鐘內給予預防性抗生素 (優先選用第一代 cephalosporin 1 g IV)，劑量應依體重調整，若手術時間長或出血多，應追加給藥 。
- 皮膚消毒優先使用含酒精的氯己定 (chlorhexidine)消毒液，優於傳統優碘。
- 術前建議病人使用含chlorhexidine之肥皂沐浴。
- 經陰道手術者亦可考慮術前陰道沖洗或優碘塞劑。

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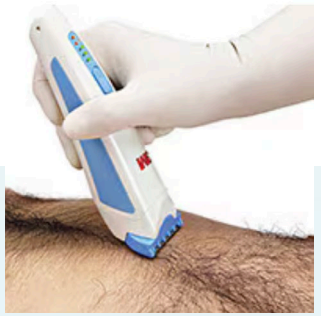
- First-generation cephalosporin or amoxicillin-clavulanic acid within 60 minutes before skin incisions

  Cefazolin 2 g if BMI ≥ 30 or BW ≥ 80 Kg
- Increase prophylactic antibiotic dosage in obese patients (BMI [calculated as weight in kilograms divided by height in meters squared] greater than or equal to 30)
- Additional intraoperative doses if heavy blood loss (>1,500 mL) or for lengthy procedures

  Additional doses every 4 hours or blood loss > 1500 ml
- Skin cleansing: Use an alcohol-based agent unless contraindicated
- Vaginal cleansing: Use either 4% chlorhexidine gluconate or povidone-iodine
- Hair clipping (rather than shaving)



手術方式考量—微創手術

- 對早期子宮內膜癌患者，微創手術能減少感染率、出血、靜脈栓塞、住院天數與疼痛等，且不影響預後，故NCCN 建議為 standard surgical method。
- 但對於其他婦科癌症仍具爭議，需術前照會婦癌專科。

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National Comprehensive Cancer Network®

NCCN Guidelines Version 3.2025
Endometrial Carcinoma

- **TH/BSO and lymph node assessment may be performed by any surgical route (eg, laparoscopic, robotic, vaginal, abdominal), although the standard in those with apparent uterine-confined disease is to perform the procedure via a minimally invasive approach. Randomized trials, a Cochrane Database Systematic Review, and population-based surgical studies support that minimally invasive techniques are preferred in this setting due to a lower rate of surgical site infection, transfusion, venous thromboembolism, decreased hospital stay, and lower cost of care, without compromise in oncologic outcome.[4-9]**

避免常規引流管置放

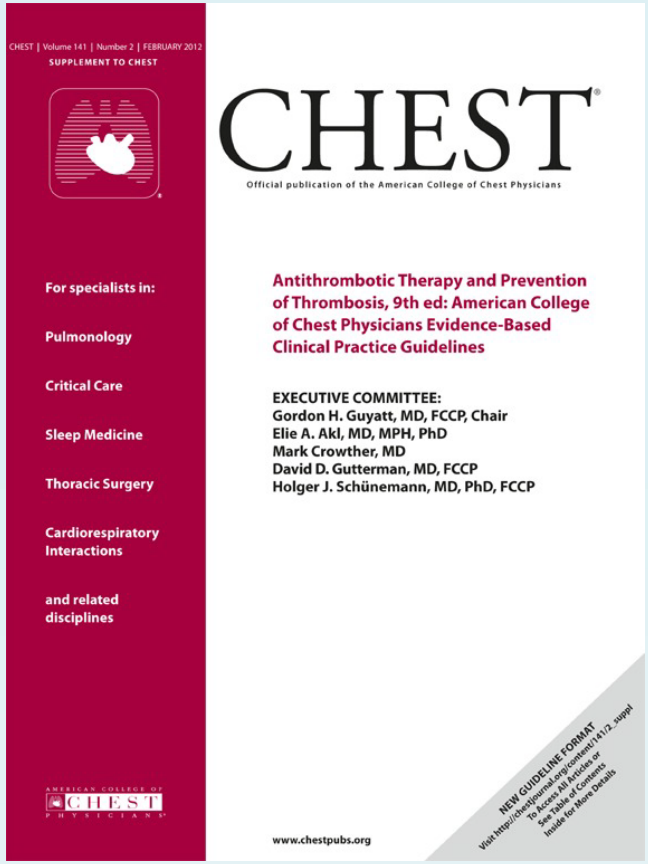
- 常規使用引流管可能增加患者不適，限制術後活動。
- 除非有明確適應症，不建議常規放置腹腔或皮下引流管及鼻胃管。
- 使用引流管應個別化，根據術中情形而定，如需放置引流管，則建議及早移除。

Nelson G, Bakkum-Gamez J, Kalogera E, Glaser G, Altman A, Meyer LA, et al. Guidelines for perioperative care in gynecologic/oncology: Enhanced Recovery After Surgery (ERAS) Society recommendations-2019 update. Int J Gynecol Cancer. 2019;29(4):651-68.

預防靜脈栓塞

- 婦科腫瘤患者普遍屬靜脈栓塞（VTE）之高風險族群。
- 子宮內膜癌 3-4%，子宮頸癌 4-9%，卵巢癌之 VTE 風險高達 17-38%。
- 婦癌應常規實施圍手術期（perioperative）機械性預防（如間歇性氣壓裝置）。
- 建議對高風險之病患給予機械性預防或合併抗凝血藥物預防（如LMWH），並於麻醉誘導前開始給予，持續至住院期間。
- 資料來源多來自西方國家，需注意不同種族生理差異，個別評估藥物預防的適用性。

Nelson G, et al. Int J Gynecol Cancer 2019;29:651-668



Box 1. Caprini Score to Assess Risk of Venous Thromboembolism

1 point for each of the following:

Age 41–60 years
Minor surgery
BMI greater than 25 kg/m^2
Swollen legs
Varicose veins
Pregnancy or postpartum state
History of unexplained or recurrent pregnancy losses (greater than three)
Oral contraceptive, hormone replacement, or selective estrogen receptor modulator use*
Sepsis (less than 1 month)
Serious lung disease, including pneumonia (less than 1 month)
Abnormal pulmonary function
Acute myocardial infarction
Congestive heart failure (less than 1 month)
History of inflammatory bowel disease
Medical patient on bed rest

Age = 1

2 points for each of the following:

Age 61–74 years
Major open surgery (greater than 45 minutes)
Laparoscopic surgery (greater than 45 minutes)
Malignancy
Confined to bed (greater than 72 hours)
Central venous access

Major open surgery = 2

Malignancy = 2

3 points for each of the following:

Age 75 years or older
History of VTE
Family history of VTE
Factor V Leiden
Prothrombin 20210A
Lupus anticoagulant
Anticardiolipin antibodies
Elevated serum homocysteine
Heparin-induced thrombocytopenia
Other congenital or acquired thrombophilia

5 points for each of the following:

Stroke (less than 1 month)
Elective arthroplasty
Hip, pelvis, or leg fracture
Acute spinal cord injury (less than 1 month)

Abbreviations: BMI, body mass index; VTE, venous thromboembolism.

*Cronin M, Dengler N, Krauss ES, Segal A, Wei N, Daly M, et al. Completion of the updated Caprini Risk Assessment Model (2013 version). Clin Appl Thromb Hemost 2019;25:3.

Adapted from Gould MK, Garcia DA, Wren SM, Karanicolas PJ, Arcelus JI, Heit JA, et al. Prevention of VTE in nonorthopedic surgical patients: antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines [published erratum appears in Chest 2012;141:1369]. Chest 2012;141(suppl 2):e227S–77S.

5分以上為高風險
建議：
加壓器+抗凝血藥物

Table 1. Recommended Thromboprophylaxis by Risk Level

Risk of symptomatic VTE	Caprini score	Risk of major bleeding complications*	
		Average risk (~1%)	High risk (~2%)
Low (~1.5%)	1–2	Mechanical prophylaxis, preferably with IPC	
Moderate (~3.0%)	3–4	LDUH, LMWH, or mechanical prophylaxis, preferably with IPC	Mechanical prophylaxis, preferably with IPC
High (~6.0%)	5 or greater	Pharmacologic prophylaxis (LDUH or LMWH) plus mechanical prophylaxis (preferably with IPC)	Mechanical prophylaxis, preferably with IPC, until risk of bleeding diminishes and pharmacologic prophylaxis can be added
High-risk cancer surgery	5 or greater	LDUH *or* LMWH plus mechanical prophylaxis (preferably with IPC) and extended-duration prophylaxis with LMWH postdischarge	Mechanical prophylaxis, preferably with IPC, until risk of bleeding diminishes and pharmacologic prophylaxis can be added
High risk, LDUH and LMWH contraindicated or not available	5 or greater	Fondaparinux or low-dose aspirin (160 mg)†; or mechanical prophylaxis, preferably with IPC; or both	Mechanical prophylaxis, preferably with IPC, until risk of bleeding diminishes and pharmacologic prophylaxis with fondaparinux can be added

Abbreviations: IPC, intermittent pneumatic compression; LDUH, low-dose unfractionated heparin; LMWH, low-molecular-weight heparin; VTE, venous thromboembolism.

*Major bleeding complications are defined as complications such as wound hematoma formation and reoperation for postoperative bleeding.

†Low-dose aspirin has been studied only in the orthopedic population and may not be adequate prophylaxis for the gynecologic surgery patient.

Modified from Gould MK, Garcia DA, Wren SM, Karanicolas PJ, Arcelus JI, Heit JA, et al. Prevention of VTE in nonorthopedic surgical patients: antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines [published erratum appears in Chest 2012;141:1369]. Chest 2012;141(suppl 2):e227S–77S.

2分
彈性襪 或 加壓器 擇一

3-4分
彈性襪+加壓器
或
彈性襪+LMWH

5分以上
彈性襪+加壓器+抗凝血藥物

Box 2. Risk Factors for Major Bleeding Complications

嚴重沾黏
腸道切除＋吻合

- Active bleeding
- Acute stroke
- Complex surgery (defined as two or more procedures, difficult dissection, or more than one anastomosis)
- Concomitant use of anticoagulants, antiplatelet therapy, or thrombolytic drugs
- Known, untreated bleeding disorder
- Lumbar puncture, epidural, or spinal anesthesia within previous 4 hours or next 12 hours
- Malignancy
- Previous major bleeding
- Severe renal or hepatic failure
- Thrombocytopenia
- Uncontrolled systemic hypertension

Adapted from Gould MK, Garcia DA, Wren SM, Karanicolas PJ, Arcelus JI, Heit JA, et al. Prevention of VTE in nonorthopedic surgical patients: antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines [published erratum appears in Chest 2012;141:1369]. Chest 2012;141(suppl 2):e227S–77S.

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 232 *(Replaces Practice Bulletin Number 84, August 2007)*

Committee on Practice Bulletins—Gynecology. This Practice Bulletin was developed by the American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Gynecology in collaboration with Daniel L. Clarke-Pearson, MD; Emma L. Barber, MD, MS; and Lisa M. Landrum, MD, PhD.

Prevention of Venous Thromboembolism in Gynecologic Surgery

▶ For gynecologic surgery patients who are at high risk of both VTE and bleeding complications, mechanical prophylaxis (preferably with intermittent pneumatic compression) is recommended until the risk of bleeding decreases and pharmacologic prophylaxis can be added.

如果出血風險高→優先使用間歇性氣壓裝置
出血狀況穩定之後再決定要不要加上藥物預防

延長使用抗凝血藥物預防血栓
Extended Use of Thromboprophylaxis

- 婦科惡性腫瘤（如卵巢癌）患者術後長達數週內均處於高凝血狀態（hypercoagulability），國際指南如 SGO 及 ACOG 建議此類高風險患者在出院後繼續給予預防性抗凝至術後 28 天。
- 亞洲人種或子宮內膜癌接受微創手術者可酌情考量。

Summary and Recommendation:
Patients at increased risk of VTE should receive dual mechanical prophylaxis and chemoprophylaxis with either low molecular weight heparin or unfractionated heparin. **Prophylaxis should be initiated pre-operatively and continued post-operatively. Extended chemoprophylaxis (28 days post-op) should be prescribed to patients who meet high-risk ACCP criteria, including patients with advanced ovarian cancer.** Further studies on extended post-operative prophylaxis with direct-acting oral anticoagulants, and guidelines on VTE prophylaxis during ambulatory chemotherapy for gynecologic cancer, are needed.

Evidence Level:
Stockings, pneumatic compression devices, low molecular weight heparin: high
Pre-operative administration: moderate
Post-operative extended prophylaxis with low molecular weight heparin: high
Post-operative extended prophylaxis with direct-acting oral anticoagulants: low

Recommendation Grade:
Perioperative deep venous thrombosis prophylaxis: strong
Extended (28-day) prophylaxis in high-risk patients: strong
Direct-acting oral anticoagulant prophylaxis: weak

Nelson G, et al. Int J Gynecol Cancer 2019;29:651-668
Gynecologic Oncology 173 (2023) 58-67

預防術中低體溫
Prevention of intraoperative hypothermia

- 術中低體溫已被證實與手術部位感染及心血管事件風險增加有關。
- 建議採用連續型核心體溫量測與恆溫系統，包含主動式充氣保溫裝置與輸液加溫器等。

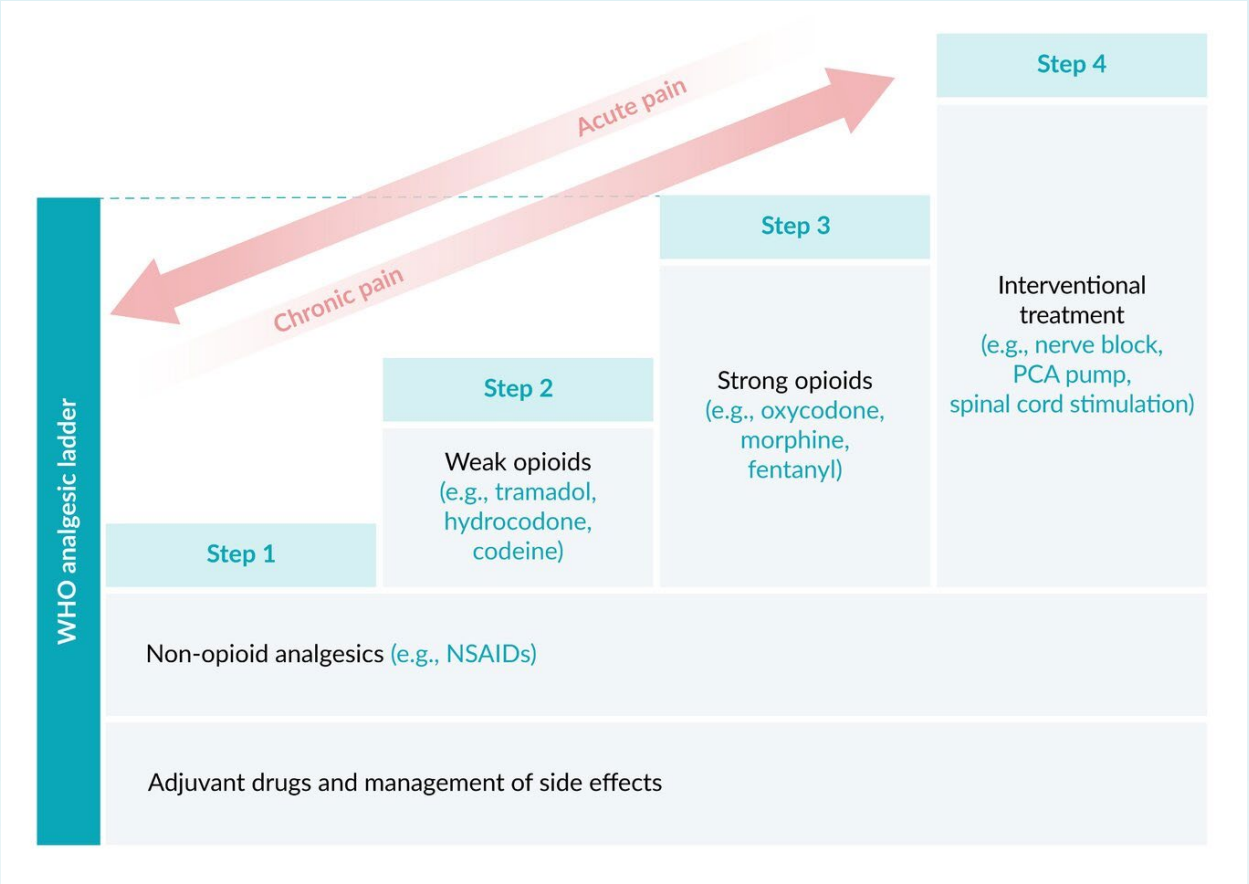
6.3 Prevention of Hypothermia

Intra-operative hypothermia has been linked to an increased risk of surgical site infections and cardiac events.[104] Various methods to avoid intraoperative hypothermia have been evaluated including forced air blanket devices, underbody warming mattresses, and warmed intravenous fluid administration.[104] In a randomized clinical trial comparing intraoperative warming only (control group) versus additional warming 2 hours before and after surgery (warming group) among patients undergoing major abdominal surgery, the rate of surgical site infections was decreased by half among those who were normothermic.[104] The CDC endorses perioperative normothermia as a category 1A recommendation.[102]

Summary and Recommendation:
Maintenance of **normothermia should be incorporated into all ERAS programs.**

術後多模式止痛
Multimodal postoperative analgesia

- 合併使用非類固醇抗發炎藥（NSAIDs）及乙醯胺酚（Acetaminophen）為原則，目標減少鴉片類（opioid）藥物使用。
- 止痛計畫應同時涵蓋持續性疼痛與突發性疼痛控制需求。



手術後輸液與電解質

- 過量的靜脈輸液與腸道功能恢復延遲、術後腸阻塞、術後噁心嘔吐，以及住院天數延長有關。
- 術後靜脈輸液不宜過量（≥ 1.2ml/kg/hour），體重60 kg者約 1800 mL，且若經口攝取量已可達 600 mL，則可考慮停止靜脈輸液。
- 若需持續使用靜脈輸液，建議選擇平衡性晶體溶液（如Lactated Ringer），優於 0.9% 生理食鹽水，以降低高血氯酸中毒風險 。

1. D.N. Lobo et al. Perioperative nutrition: Recommendations from the ESPEN expert group. Clin Nutr. 2020 Nov;39(11):3211-3227.
2. Nelson G, et al. Guidelines for postoperative care in gynecologic/oncology surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations--Part II. Gynecol Oncol. 2016 Feb;140(2):323-32.

早期移除導尿管

- 及早移除導尿管有助於降低尿路感染風險並促進病人早期下床活動。
- 微創手術患者建議當天移除導尿管，開腹手術則應於術後 24 小時內移除。
- 若病患接受根除性子宮切除（Radical Hysterectomy）或涉及泌尿道修補、泌尿系統重建手術，則需依臨床情況延長導尿管留置時間。

Nelson G, Bakkum-Gamez J, Kalogera E, Glaser G, Altman A, Meyer LA, et al. Guidelines for perioperative care in gynecologic/oncology: Enhanced Recovery After Surgery (ERAS) Society recommendations-2019 update. Int J Gynecol Cancer. 2019;29(4):651-68.

術後預防腸阻塞

- 婦科腫瘤手術後，腸蠕動遲滯（功能性腸阻塞）的發生率可達 30%，術後早期經口進食可促進胃腸功能恢復、縮短住院時間。
- 建議 24 小時內進食、儘早下床活動、多模式止痛與避免過度輸液。
- 惟若手術涉及腸道切除、修補、吻合或造口，則應依外科醫師專業判斷，個別調整進食時機與處置方式。

J Chin Med Assoc

ORIGINAL ARTICLE

Early oral diet may enhance recovery from benign gynecologic surgery: A single center prospective study

Szu-Ting Yang[a,b,c], Shu-Chen Kuo[d], Hung-Hsien Liu[e], Kuan-Min Huang[a], Chia-Hao Liu[a,b,c], Shu-Fen Chen[d,f,*], Peng-Hui Wang[a,b,c,g,*]

[a]Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC; [b]Faculty of Medicine, School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, ROC; [c]Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, ROC; [d]Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan, ROC; [e]Department of Medical Imaging and Intervention, Tucheng Hospital, New Taipei City, Taiwan, ROC; [f]Graduate Institute of Life Sciences, National Defense Medical Center, Taipei, Taiwan, ROC; [g]Female Cancer Foundation, Taipei, Taiwan, ROC

Table 2

Differences in outcomes for participants receiving early and conventional diet

	Early diet (40)	Conventional diet (38)	*p*
Fever	0 (0%)	3 (7.9%)	0.111
VAS score	3.48 ± 1.11	4.34 ± 1.21	0.001
Equivalent total morphine dose, mg	23.58 ± 11.03	22.34 ± 10.86	0.621
Antiemetic dose	0.03 ± 0.16	0.26 ± 0.45	0.003
Length of hospital stay, d	2.58 ± 0.93	4.16 ± 1.13	<0.001

VAS = visual analog scales.

The early-diet group demonstrated significantly reduced length of hospital stay (the early-diet group, 2.58 ± 0.93 days; conventional-diet group, 4.16 ± 1.13 days; p < 0.001).
No increase in postoperative complications was observed in the early-diet group.

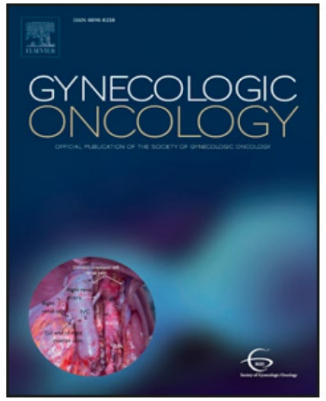
Yang et al. Journal of Chinese Medical Association. (2023) 86: 917-922.

術後早期下床活動

- 長時間臥床會增加血栓、肺部併發症及肌肉流失等風險。
- 建議患者應於術後儘早（理想情況下為 24 小時內）開始下床活動，並於翌日逐步增加活動。
- 對於高齡或行動不便者，若因特殊因素無法立即活動，亦應在病情允許時儘早提供協助（照會復健科介入）。

建議進行資料蒐集與統計及定期團隊會議

- 建議由專責個管師蒐集病人圍術期各項臨床參數，以利進行長期趨勢分析與統計，包含 ERAS 項目執行率 、術後住院天數 (length of stay，LOS)、術後併發症發生率、30 天內再住院率等。
- 定期 (至少每季一次) 召開團隊會議，檢視過去一期各項照護臨床指標與 ERAS 項目之執行率，並對尚未執行之 ERAS 項目進行討論、建立臨床共識與制定導入計畫。

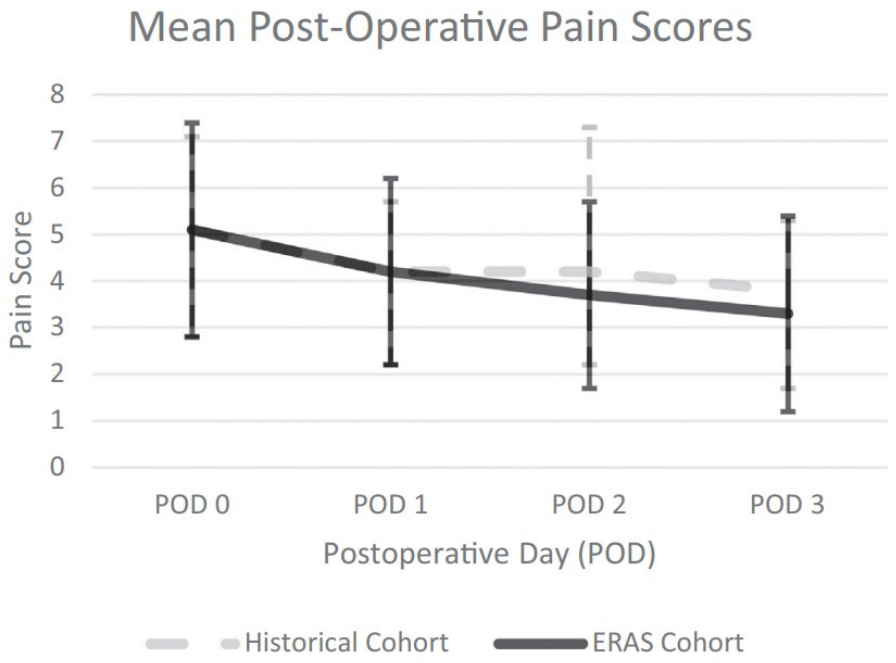


RESEARCH ARTICLE| VOLUME 149, ISSUE 3, P554-559, JUNE 2018

Narcotics reduction, quality and safety in gynecologic oncology surgery in the first year of enhanced recovery after surgery protocol implementation☆

Jennifer E. Bergstrom [a], Marla E. Scott [a], Yewande Alimi [b], Ting-Tai Yen [a], Deborah Hobson [b],

	Historical cohort $N = 158$	ERAS cohort $N = 109$	p-value
Age, mean (SD)	51.7 (14.5)	55.2 (12.6)	0.04
BMI, mean (SD)	29.5 (9)	29.9 (8.4)	0.77
Race/ethnicity			
White, N (%)	91 (57.6%)	67 (61.5%)	0.63
Asian, N (%)	10 (6.3%)	9 (8.3%)	
Black, N (%)	47 (29.7%)	26 (23.9%)	
Hispanic, N (%)	4 (2.5%)	1 (0.9%)	
Unknown, N (%)	6 (3.8%)	6 (5.5%)	
Malignant disease, N (%)	108 (68.4%)	75 (68.8%)	0.92
Complexity of Procedure			0.60
Straightforward[a]	51 (32.3%)	34 (31.2%)	
Moderate[b]	52 (32.9%)	42 (38.5%)	
Complex[c]	55 (34.8%)	33 (30.3%)	
Surgical time (min), mean (SD)	238 (132)	285 (135)	<0.01
Intra-operative fluid volume (mL)			
Total, mean (SD)	3822 (2147)	3796 (2087)	0.95
Crystalloid, mean (SD)	3509 (1873)	2984 (1715)	0.02
Colloid, mean (SD)	330 (469)	847 (1228)	<0.01



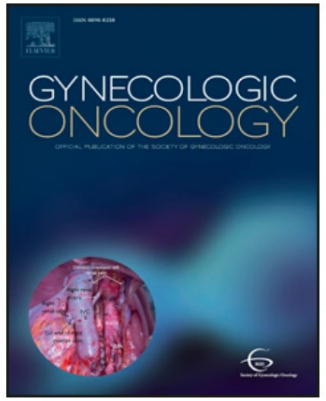


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Table 3
Patient outcomes.

	Historical Cohort	ERAS Cohort	p-value
Length of hospitalization in days, median (IQR)	5 (3.0–7.0)	5 (3.0–7.0)	0.60
30-day readmission, N (%)	15 (9.5%)	13 (11.9%)	0.54
Index hospitalization major complication, N (%)	32 (20.3%)	15 (13.8%)	0.17
Postoperative narcotic use in first 72 h after surgery [oral morphine equivalents], median (IQR)	127.4 (56.6–271.0)	70.4 (27.3–180.4)	<0.01
PCA required, n (%)	80 (50.6%)	35 (32.1%)	<0.01

Benefits of ERAS pathways

- 縮短住院天數
- 降低術後併發症率（如感染、血栓、功能性腸阻塞）
- 減少術後疼痛與鴉片類止痛藥需求
- 加速腸胃功能恢復（如提早下床、提早進食）
- 促進病人早期活動，降低靜脈血栓風險
- 提高病人滿意度與術後生活品質
- 降低醫療成本（因住院日與併發症減少）

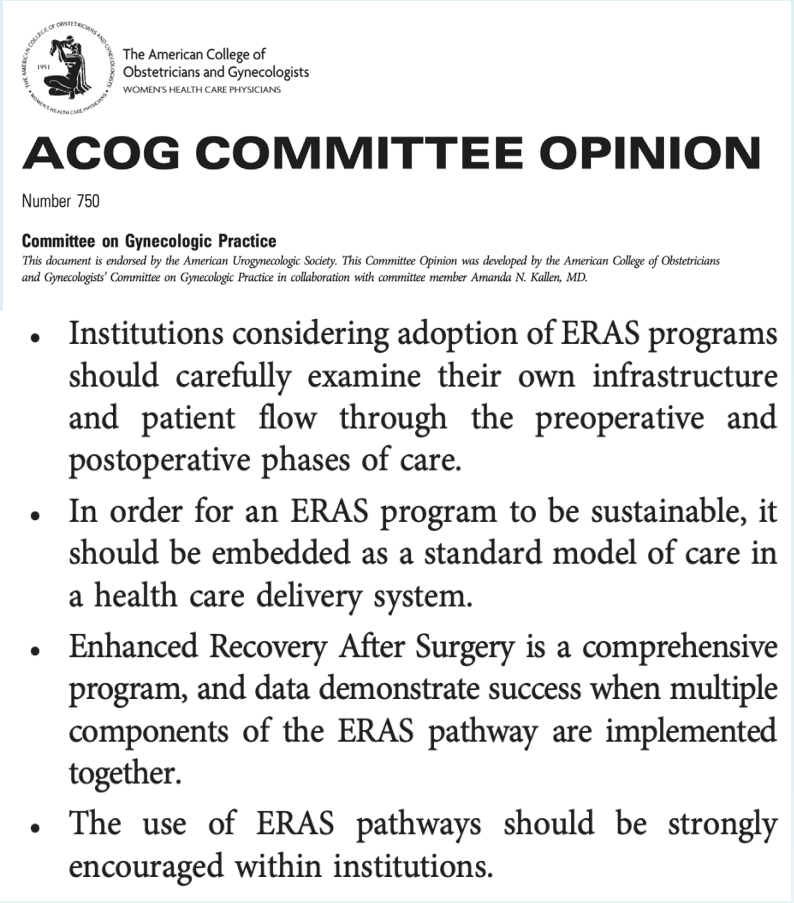
ERAS 婦科手術：挑戰與建議

- 飲食：術前2小時可飲用clear liquid → 提升滿意度與舒適度
- 導尿管：盡早移除（MIS手術術日、開腹術POD1）
- VTE 預防：高風險者 → 機械性加壓器 + 藥物預防；高風險或開腹手術 → 延長至28天
- 止痛：多模式減少鴉片類藥物，建議使用 NSAIDs（但老年人需謹慎）、Acetaminophen；PCA僅作為備案

ERAS 推動障礙：觀念改變、跨專業合作、人力問題。

ACOG 對於ERAS應用於婦科重大手術的建議

- 建議將ERAS納入醫療服務中，作為standard照護模式。
- ERAS為綜合型的團隊計畫，當多項元素同時落實時，成效最佳。
- 建議醫療院所審視現有資源，推動並廣泛應用ERAS 。



The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG COMMITTEE OPINION

Number 750

Committee on Gynecologic Practice

This document is endorsed by the American Urogynecologic Society. This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Gynecologic Practice in collaboration with committee member Amanda N. Kallen, MD.

- Institutions considering adoption of ERAS programs should carefully examine their own infrastructure and patient flow through the preoperative and postoperative phases of care.
- In order for an ERAS program to be sustainable, it should be embedded as a standard model of care in a health care delivery system.
- Enhanced Recovery After Surgery is a comprehensive program, and data demonstrate success when multiple components of the ERAS pathway are implemented together.
- The use of ERAS pathways should be strongly encouraged within institutions.

謝謝聆聽
敬請各位專家先進 不吝指教