



Peri-operative ovarian cancer guidelines: major intra-operative and post-operative bleeding and thromboembolic events

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Biography: Christina Fotopoulou is the Professor of Gynaecological Cancer Surgery in the Department of Surgery and Cancer, Faculty of Medicine of Imperial College London, UK. She is the Deputy director of the Ovarian Cancer Action Research Centre at Imperial College. She holds an honorary chair in the Gynaecology Department at the Charité' University of Berlin, where she was trained and then later took the role of the Vice Director of the Gynecological Department. Her surgical and scientific expertise focuses on the management of patients with advanced and relapsed ovarian cancer, profiling of tumor heterogeneity and integration of tumor biology factors with surgical effort under the umbrella of individualization of surgical care. She has served as the Chair of the guidelines committees of the British Gynaecological Cancer Society (BGCS) and of ESGO (European Society of Gynaecologic Oncology). She has been an elected member of the ESGO Council and is also a member of the German AGO- Ovarian Cancer Group. She is on the editorial board and reviewer of numerous international gynaecological and oncological journals and is a member of various international oncological committees, including BGCS, ASCO, ESGO, IGCS, ESMO, ENGOT, AGO, SGO and NOGGO.

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For 'Presented at statement' see end of article.

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Intra-operative and post-operative bleeding is not common in advanced ovarian cancer surgery. Nevertheless, a multidisciplinary major hemorrhage protocol should be adopted by any center performing cytoreductive procedures. Surgical, pharmacological, and interventional radiology options should be part

of the armamentarium, depending on each individual situation, timing, and available resources (Figure 1).

Surgical options include standardized maneuvers for prophylaxis and bleeding control, local hemostatic agents, and ligation of relevant feeding vessels.¹ Packing of the abdomen is seen as 'ultima ratio' in cases of

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Management in high risk patients with previous VTE

- In patients with recent VTE in the last 3 months, there is a high risk of VTE recurrence, requiring bridging of VKAs with heparin/LMWH at therapeutic doses [IV, B].
- In patients with recent VTE in the last 3–12 months, there is a moderate risk of VTE recurrence, allowing bridging of VKAs with heparin/LMWH at lower than therapeutic doses, for example in half therapeutic dose [IV, B].
- Therapeutic doses of LMWH should not be resumed sooner than 48 hours after surgery [III, A].
- Patients undergoing cytoreductive surgery for ovarian cancer with a previous VTE who are no longer on anticoagulation and patients with non-severe thrombophilia without previous VTE should receive preoperative (evening before surgery) and prolonged postoperative thromboprophylaxis for 28 days with LMWH at prophylactic doses similar to routine patients without thrombophilia or previous thrombosis [V, C].
- Patients with severe thrombophilia and previous VTE are already on long term anticoagulation and should be managed with bridging as per instructions above [V, B].

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Figure 1 The risk profile of patients with ovarian cancer who undergo radical cytoreductive procedures has evolved over time, bringing more challenges to the peri-operative care of such patients. A thorough understanding of aspects around thrombophilia and thrombogenesis is crucial to minimize surgical morbidity. LMWH, low molecular weight heparin; VKA, vitamin-K antagonists; VTE, venous thromboembolism.



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Video 1 The risk profile of patients with ovarian cancer who undergo radical cytoreductive procedures has evolved over time bringing more challenges to the peri-operative care of such patients. A thorough understanding of aspects around thrombophilia and thrombogenesis is crucial to minimize surgical morbidity.

uncontrollable bleeding and hemodynamic instability.^{2,3} Close interdisciplinary collaboration between anesthetists, interventional radiologists, surgeons, and hematologists⁴ is key for the successful management without excessive increase of morbidity and mortality.⁵

The same applies also for the prophylaxis and management of peri-operative thromboembolic events: restrictive use of inferior vena cava filters, prolonged post-operative prophylactic anticoagulation, increased use of NOAKs, postponing elective/non-emergency procedures after a fresh thromboembolic event, are some of the key principles of thromboembolic management.

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