

BC Cancer Protocol Summary for Treatment of Platinum Resistant or Refractory Epithelial Ovarian Cancer with Bevacizumab and Vinorelbine

Protocol Code

GOOVBEVV

Tumour Group

Gynecologic Oncology

Contact Physician

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ELIGIBILITY:

Patients must have:

- Epithelial ovarian cancer, primary peritoneal, or fallopian tube carcinoma

Patients should have:

- Neutrophils greater than or equal to $1.0 \times 10^9/L$,
- ECOG 3 or less,
- Adequate hematologic, liver and cardiac function

Notes:

- Any number of prior lines of treatment permitted
 - Eligible patients include those with disease that is:
 - Platinum resistant (progression within six months of completing a platinum-containing treatment protocol), or
 - Platinum refractory (cancer progresses while being treated with a platinum), or
 - Platinum sensitive* (progression-free interval since platinum-containing treatment of 6 months or longer)
- * Only for rare situations where patient cannot be re-challenged with a platinum agent due to relative contraindication (i.e., allergy, severe intolerance or toxicity)

EXCLUSIONS:

Patients must not have:

- Progressed while being treated on prior bevacizumab therapy,
- Major surgery within 4 weeks,
- Uncontrolled hypertension,
- Pregnancy or breastfeeding,
- Bleeding diathesis,
- History of bowel obstruction or unresolved bowel obstruction (see note in Precautions section, below)

CAUTIONS:

- Hepatic dysfunction (see DOSE MODIFICATIONS, below),
- Pre-existing motor or sensory neuropathy greater than grade 2,
- Uncontrolled arterial or venous thromboembolism,
- MI or CVA within 4 months,
- Avoid NSAIDs and ASA if possible,
- At risk of bowel obstruction (see note in Precautions section, below)

TESTS:

- Baseline: CBC & Diff, platelets, creatinine, ALT, alkaline phosphatase, total bilirubin, sodium, potassium, dipstick or laboratory urinalysis for protein, blood pressure (BP) measurement, imaging as appropriate, tumor markers as appropriate. If clinically indicated: GGT.
- Before each treatment: CBC & Diff, platelets, dipstick or laboratory urinalysis for protein, blood pressure measurement, any initially elevated tumor marker
- If clinically indicated: creatinine, ALT, alkaline phosphatase, total bilirubin, GGT, LDH, protein level, albumin
- No labwork required prior to treatment on Day 8
- 24 hour urine for protein if occurrence of proteinuria (dipstick urinalysis shows 2+ or 3+ or laboratory urinalysis for protein is greater than or equal to 1 g/L)
- Blood pressure measurement to be taken pre- and post-dose in first three cycles, and then pre-dose only subsequently
- For patients on warfarin, weekly INR until stable warfarin dose established, then INR at the beginning of each cycle
- Weight at baseline and every scheduled physician's visit
- Imaging (at physician's discretion)

PREMEDICATIONS:

- Antiemetic protocol for chemotherapy with rare emetogenicity (see [SCNAUSEA](#))

TREATMENT:

DAY 1:

Drug	Drug	BC Cancer Administration Guideline
vinorelbine	25 mg/m ²	IV in 50 mL NS over 6 min, then flush line with 75 to 125 mL NS prior to removing/capping IV access
bevacizumab	15 mg/kg*	IV in 100 to 250 mL NS over 30 minutes to 1 hour**

DAY 8:

Drug	Drug	BC Cancer Administration Guideline
vinorelbine	25 mg/m ²	IV in 50 mL NS over 6 min, then flush line with 75 to 125 mL NS prior to removing/capping IV access

* bevacizumab dose does not need to be recalculated after Cycle 1 even if weight changes

** first infusion over 60 minutes; subsequent infusions over 30 minutes. Observe for fever, chills, rash, pruritus, urticaria, or angioedema and stop infusion and contact the physician if any of these occur. Infusion reactions should be treated according to severity. If the bevacizumab infusion is restarted then it should be given at an initial rate to complete after 60 minutes or longer.

If acute hypertension (increase in BP measurement of greater than 20 mmHg diastolic or greater than 150/100 if previously within normal limits) occurs during bevacizumab infusion – stop treatment. Resume at half the original rate of infusion if blood pressure has returned to pretreatment range within one hour. If blood pressure does not return to pretreatment range within one hour – hold bevacizumab; subsequent infusions of bevacizumab should be given over 3 hours. Acute hypertension that is symptomatic (e.g.,

onset of headaches or change in level of consciousness) or BP measurement of greater than 180/110 that does not improve within one hour of stopping bevacizumab is an urgent situation that requires treatment.

Use only normal saline for line priming and flushing.

Repeat every 21 days until disease progression (usual treatment 6 cycles); may continue bevacizumab alone if unacceptable toxicity to vinorelbine occurs.

DOSE MODIFICATIONS:

1. Hematological: prior to new cycle (Day 1)

ANC (x 10 ⁹ /L)		Platelets (x 10 ⁹ /L)	Dose
Greater than or equal to 1.0	and	Greater than or equal to 100	100%
Less than 1.0	or	Less than 100	Delay until recovery; then give 100% and change interval to 28 days

2. Proteinuria:

There are 3 different measures of proteinuria that may be used to assess the need for modification of bevacizumab therapy – urine dipstick analysis (measured in + values), laboratory urinalysis for protein (measured in g/L) and 24-hour urine collections for protein (measured in g/24 hours)

Urine dipstick analysis or laboratory urinalysis for protein should be performed at baseline and then prior to each cycle:

Degree of Proteinuria	
Neg or 1+ dipstick or less than 1 g/L laboratory urinalysis for protein	Administer Bevacizumab dose as scheduled
2+ or 3+ dipstick or greater than or equal to 1 g/L laboratory urinalysis for protein	Administer Bevacizumab dose as scheduled. Collect 24-hour urine for determination of total protein within 3 days before the next scheduled bevacizumab administration. Adjust Bevacizumab treatment based on the table below.
If urine dipstick shows 4+ at baseline or during treatment	Withhold Bevacizumab and proceed with 24 hour urine collection

24-Hour Urine Total Protein (g/24 hours)	Bevacizumab Dose
Less than or equal to 2	100%
Greater than 2 to 4	Hold dose and recheck 24-hour urine every 2 weeks. When less than or equal to 2 g/24 hour, resume therapy at 10 mg/kg
Greater than 4	Withhold/Discontinue bevacizumab

3. Hypertension:

Blood Pressure (mmHg)	Bevacizumab Dose
Less than or equal to 150/100	100%
Greater than 150/100 asymptomatic	100% Notify physician and start or adjust antihypertensive therapy*
Hypertensive crisis	Discontinue therapy

- Antihypertensive therapy may include hydrochlorothiazide 12.5 to 25 mg PO once daily, ramipril (ALTACE®) 2.5 to 5 mg PO once daily, or amlodipine (NORVASC®) 5 to 10 mg PO once daily.

****Any patients presenting with chest pain, significant leg swelling, shortness of breath, new severe headaches or new neurologic symptoms, must be re-assessed by a physician before receiving further bevacizumab infusions.***

4. Hepatic:

Total bilirubin (micromol/L)	Vinorelbine dose
Less than 35	100%
36 to 50	50%
Greater than 50	25%

5. **Non–Hematologic Toxicities:** may include
 - Constipation
 - Venous irritation: if severe, consider central venous access device (PICC or PORTACATH®)
 - Hair thinning: total hair loss uncommon. Alopecia is a cumulative toxicity.
 - Neuropathy: Mild to moderate peripheral neuropathy, usually reversible on discontinuation of therapy.

PRECAUTIONS:

1. **Bowel-related Toxicities:** Use of bevacizumab carries a risk of bowel perforation and other serious bowel problems. In the AURELIA study, the bowel-related exclusion criteria were: history of bowel obstruction (including subocclusive disease) related to underlying disease, a history of abdominal fistula, GI perforation or intra-abdominal abscess, evidence of rectosigmoid involvement by pelvic examination, bowel involvement on CT imaging, or clinical symptoms of bowel obstruction.
2. **Neutropenia:** Fever or other evidence of infection must be assessed promptly and treated aggressively.
3. **Extravasation:** Vinorelbine causes pain and tissue necrosis if extravasated. It is recommended to flush thoroughly with 75 to 125 mL NS after infusing vinorelbine. Refer to BC Cancer Extravasation Guidelines.
4. **Gastrointestinal perforations and wound dehiscence:** Can be fatal. Typical presentation is reported as abdominal pain. Bevacizumab should be discontinued in patients with gastrointestinal perforation or wound dehiscence.
5. **Hemorrhage:** Bevacizumab has been associated with hemorrhage. Cases of CNS hemorrhage, some with fatal outcome, have been observed. Patients should be monitored for signs and symptoms of CNS bleeding. If Grade 3/4 hemorrhage occurs, discontinue bevacizumab. Patients with significant bleeding diatheses should not receive bevacizumab. Platelet inhibitory medications such as NSAIDS (including ASA at doses greater than 325 mg/day) should be discontinued prior to institution of bevacizumab. COX-2 inhibitors are permissible.
6. **Thrombosis:** A history of arterial thromboembolic events or age greater than 65 years is associated with an increased risk of arterial thromboembolic events with bevacizumab. If Grade 3 thromboembolic event or incidentally discovered pulmonary embolus arises, hold bevacizumab for 2 weeks, then consider resumption of bevacizumab if risks of tumour-related hemorrhage are judged low AND the patient is on a stable dose of anticoagulant. If a second Grade 3 thrombosis occurs, or if a Grade 4 thrombosis occurs, discontinue bevacizumab. Patients on warfarin should have INR checked frequently, at least once every 2-3 weeks, while receiving bevacizumab.
7. **Proteinuria:** Has been seen in all clinical trials with bevacizumab to date and is likely dose-dependent. If proteinuria of greater than or equal to 2 g/24 h persists for more than 3 months, consider further investigations - possibly a renal biopsy.
8. **Hypertension:** Has been seen in all clinical trials with bevacizumab to date and is likely dose-dependent. The most commonly used therapies are calcium channel blockers, ACE inhibitors and diuretics. Blood pressure should be monitored through routine vital signs evaluations. If hypertension is poorly controlled with adequate medication, discontinue bevacizumab.

9. **Reversible Posterior Leukoencephalopathy Syndrome (RPLS):** Rarely, patients may develop seizures, headache, altered mental status, visual disturbances, with or without associated hypertension consistent with RPLS. May be reversible if recognized and treated promptly.
10. **Congestive Heart Failure:** Has been reported in up to 3.5% of patients treated with bevacizumab. Most patients showed improvement in symptoms and/or LVEF following appropriate medical therapy.

Call Dr. Jenny Ko or tumour group delegate at (604) 877-6000 or 1-800-663-3333 with any problems or questions regarding this treatment program.

References:

1. Pujade-Lauraine E, et al. Bevacizumab combined with chemotherapy for platinum-resistant recurrent ovarian cancer: the AURELIA open-label randomized phase III trial. *J Clin Oncol* 2014; 32(13):1302-8.