BC Cancer Protocol Summary for Treatment of Advanced Non-Small Cell Lung Cancer (NSCLC) with Platinum and Gemcitabine

***Protocol Code**:* *LUAVPG*

***Tumour Group**:* *Lung*

***Contact Physician**:* *Dr. Christopher Lee*

ELIGIBILITY:

- Previously untreated patients with Stage IIIB or IV disease
  - May be used as second- or third-line therapy if prior treatment with immunotherapy or targeted agents.
- Also:
  - Previously untreated stage IIIA disease not amenable to combined modality therapy
  - Inoperable early stage disease
  - Recurrent disease, including individuals treated with adjuvant chemotherapy following resection of early stage disease or individuals treated with combined modality therapy for locally advanced disease
- Adequate hematologic, hepatic and renal function.
- Age greater than or equal to 18 years.
- ECOG performance status 0, 1 or 2.
- Protocol **NOT** to be delivered with concurrent radiotherapy.

TESTS:

- Baseline: CBC & Diff, creatinine, alkaline phosphatase, ALT, total bilirubin, LDH
  - C-reactive protein and albumin (optional, and results do not have to be available to proceed with first treatment)
- Before each treatment:
  - Day 1 – CBC & Diff, creatinine, alkaline phosphatase, ALT, total bilirubin, LDH
  - Day 8 – CBC & Diff, creatinine

PREMEDICATIONS:
Antiemetic protocol for highly emetogenic chemotherapy protocols (see protocol SCNAUSEA).

TREATMENT:

Drug	Dose	BC Cancer Administration Guideline
Gemcitabine	1000 mg/m^2/day on Days 1 and 8 (total dose per cycle = 2000 mg/m^2)*	IV in 250 mL NS over 30 min
CISplatin	75 mg/m^2/day on Day 1	Prehydrate with 1000 mL NS over 1 hour, then CISplatin IV in 500 mL NS with 20 mEq potassium chloride, 1 g magnesium sulfate, 30 g mannitol over 1 hour

*Patients that started treatment on gemcitabine 1250mg/m^2/day prior to Jan 1, 2025 may continue at same dose for the remainder of their treatment

- Repeat every 21 days x 4 to 6 cycles

DOSE MODIFICATIONS:

1. **Hematology**:

For gemcitabine day 1 of each cycle

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%
0.5 to less than 1.0	or	75 to less than 100	75%
less than 0.5	or	less than 75	**Delay***
Platinum also delayed			

For gemcitabine day 8 of each cycle

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%
0.5 to less than 1.0	or	75 to less than 100	75%
less than 0.5	or	less than 75	**Omit**
****Dose adjustment only for the day of treatment the CBC is drawn**			

2. **Renal Dysfunction**:

Calculated Creatinine Clearance (mL/min)	**CISplatin dose**	**gemcitabine dose**
greater than or equal to 60	100%	100%
45 to less than 60	80% CISplatin or go to CARBOplatin option (same prehydration as 75 mg/m^2 dose)	100%
less than 45	Hold CISplatin or delay with additional IV fluids or go to CARBOplatin option	75%
less than 30	Omit	Omit

3. **Other Toxicities**: for gemcitabine only

Grade	Stomatitis	Diarrhea	Dose
1	Painless ulcers, erythema or mild soreness	Increase of 2 to 3 stools/day	100%
2	Painful erythema, edema, or ulcers but can eat	Increase of 4 to 6 stools, or nocturnal stools	Omit until toxicity resolved then resume at 100%
3	Painful erythema, edema, or ulcers and cannot eat	Increase of 7 to 9 stools/day or incontinence, malabsorption	Omit until toxicity resolved then resume at 75%
4	Mucosal necrosis, requires parenteral support	Increase of greater than or equal to 10 stools/day or grossly bloody diarrhea requiring parenteral IV support	Omit until toxicity resolved then resume at 50%

Alternatively, CARBOplatin may be used instead of CISplatin:

DRUG	DOSE	BC Cancer Administration Guidelines
CARBOplatin	Dose† = AUC 5 x (GFR* + 25) on Day 1	IV in 100 to 250mL NS over 30 minutes.

†Patients that started treatment on carboplatin AUC 6 prior to 1 January 2025 may continue at same dose for the remainder of their treatment.

Repeat every 21 days x 4 to 6 cycles

*GFR preferably from nuclear renogram, if not possible use:

$$\text{GFR} = \frac{\text{N x (140-age in years) x wt (kg)}}{\text{serum creatinine (micromol/L)}}$$ N = 1.04 (women) or 1.23 (men)

The estimated GFR should be capped at 125 mL/min when it is used to calculate the initial CARBOplatin dose. When a nuclear renogram is available, this clearance would take precedence.

PRECAUTIONS:

1. **Neutropenia**: Fever or other evidence of infection must be assessed promptly and treated aggressively.
2. **Renal Toxicity**: Nephrotoxicity is common with CISplatin. Encourage oral hydration. Avoid nephrotoxic drugs such as aminoglycoside antibiotics. Irreversible renal failure associated with hemolytic uremic syndrome may occur (rare) with gemcitabine. Use caution with pre-existing renal dysfunction.
3. **Pulmonary Toxicity**: Acute shortness of breath may occur. Discontinue treatment if drug-induced pneumonitis is suspected.

Call Dr. Christopher Lee or tumour group delegate at (604) 930-2098 or 1-800-523-2885 with any problems or questions regarding this treatment program.

References:

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2. Non-small Cell Lung Cancer Collaborative Group. Chemotherapy in non-small cell lung cancer: a meta-analysis using updated data on individual patients from 52 randomized clinical trials. *BMJ* 1995;311:899-909.
3. Scagliotti GV, De Marinis F, Rinaldi M, et al. Phase III randomized trial comparing three platinum-based doublets in advanced non-small-cell lung cancer. *J Clin Oncol* 2002;20(21):4285-91.
4. Schiller JH, Harrington D, Belani CP, et al. Comparison of four chemotherapy regimens for advanced non-small-cell lung cancer. *N Engl J Med* 2002;346:92-98.
5. Zatloukal P, et al. Gemcitabine plus cisplatin vs. gemcitabine plus carboplatin in stage IIIb and IV non-small cell lung cancer: a phase III randomized trial. *Lung Cancer* 2003;41(3):321-31.
6. Van Moorsel CJA, Peters GJ, Pinedo HM. Gemcitabine: Future prospects of single-agent and combination studies. *The Oncologist* 1997;2:127-34.
7. Marilyn Bain, Medical Information Specialist. Personal Communication. Eli Lilly Canada Inc; 30 June 2005.