

High-Dose Interleukin-2 Administration in the Oncology Medical-Surgical Setting – An Innovation to Impact Cost Efficiencies, Clinical Outcomes and the Ideal Patient Experience

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7C Hematology/Oncology Unit Staff Members
Lehigh Valley Health Network, Allentown, PA

Objective

Discuss program components for successful administration of high-dose IL-2 outside the traditional step-down or critical care setting, in a 20-bed medical-surgical hematology/oncology unit.

Evidence and Background

IL-2

- Biotherapy that stimulates immune reaction
- Durable and complete responses in metastatic melanoma & renal cell carcinoma

Routine Administration

- Step-down or critical care unit
- No published reports in medical-surgical setting

Methods and Interventions

Goal

- Administer a maximum of 14 IL-2 doses

Staffing

- 2 patients to 1 nurse

Consistent Timed Therapy - q 8 hours

- 3:00 pm; 11:00 pm; 7:00 am

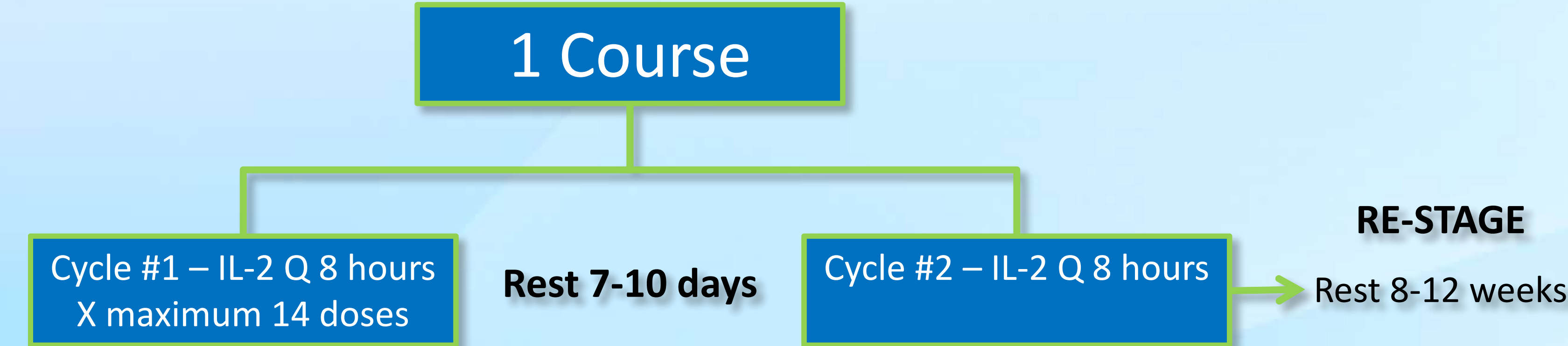
Managed Solely by Attending Physician

- No residents or fellows

Routine Administration

- Strict fluid management
- Electrolyte replacement
- Oxygen titration
- Antiemetic administration
- Aggressive side effect management to allow next dose

Treatment Plan



IL-2 Assessment Criteria

IL-2 Assessment Criteria					
System	Relative Criteria	Yes		No	
		Yes	No	Yes	No
Cardiac	ST 120-130			ST > 130*	
				EKG Ischemia	
				Atrial Fibrillation	
Dermatologic	Frequent PVCs			Bigeminy, V Tach.	
				Elevated CPK-MB	
				Ment. Desquamation	
GI	Diarrhea >100cc/shift			Refractory vomiting	
	Abdominal distention			Severe abdominal distention affecting breathing	
				Unrelenting abdominal pain	
Hemodynamic				Pressors needed for blood pressure	
				Frank blood in stools, sputum	
				Platelets < 30,000	
Immune	Guaiac +Stools, sputum or emesis			Strong clinical suspicion or documented	
	Platelets < 50,000			Mental status changes	
				Disorientation, Vivid dreams or emotional lability	
Neurologic				3-4 L for sat > 95%	
				Crackles 1/3 up chest	
				Crackles 1/2 up chest	
Pulmonary	Resting SOB			40% O2 mask for sat > 95%	
	Crackles 1/3 up chest			3-4 L for sat > 95%	
	Crackles 1/2 up chest			Crackles 1/3 up chest	
Renal	Urine output < 160ml/8 hrs			Urine < 30ml/8hr	
	Creatinine 2.5 - 2.9			Imitation	
	Creatinine at or > than 3				
Weight Gain	15 % over baseline				

Hold dose if any relative criteria are checked. Take corrective action and reassess next scheduled time. D/C therapy if 3 or > relative criteria are checked, 1 absolute criteria or dose held x3.

Patient Teaching Information

ALDESLEUKIN - HIGH DOSE IL-2

POSSIBLE SIDE EFFECTS:

- Allergic reactions are rare but signs of reactions are shortness of breath, wheezing, rash, itching, tightness/pressure or palpitations.
- Flu like symptoms: fever, headache, chills, muscle and joint aches, along with fatigue.
- Decrease in the number of white blood cells, red blood cells and platelets. This will increase your risk of fatigue, infection and bleeding.
- Soreness in the mouth and throat.
- Moderate to severe nausea and vomiting.
- Diarrhea
- Rash on your legs, arms, back or chest.
- Itching - dry skin
- Decreased appetite
- Rectal Bleeding
- Effects on the heart
 - Chest pain
 - Rapid irregular beat
 - Heart attack - this is rare
- Urine that is dark or foamy/cloudy
- Irritability, restlessness or agitation
- Hallucinations
- Confusion
- Trouble sleeping or nightmares
- Difficulty concentrating
- Head build up in your lungs with difficulty catching your breath
- Weight gain - this is temporary
- Swelling of the hands and the face
- Low blood pressure
- Changes in your liver enzymes

WHAT YOU CAN DO:

- Do your mouth care after each meal and before going to bed.
- Avoid mouth washes with alcohol in them.
- Stand up slowly and catch your balance before changing position.
- Let us know if you are feeling confused, having nightmares or having difficulty with mood shifts.
- Keep your skin moist - use non-steroid lotion may times a day.
- Let us know if you are having diarrhea, constipation or blood in your stools.
- Take no medications over or under the counter without letting us know.
- Stay in bed only to sleep - keep mobile.

References:

- Yost, C.S., Daud, A., Gropper, M.A. (2010). Implementation of a High-Dose Interleukin-2 Immunostimulation Biotherapy Program. *Sage Journals*.
- Eisenberg, S. (2012). Biologic Therapy. *Journal of Infusion Nursing*. 35(5), 301-313.

Key Factors for Success

- Private rooms
- Flexible staffing patterns to support 1: 2 nurse/ patient ratio
- Clinical practice guidelines with nurse driven protocols
- Commitment between nurses, providers and ancillary personnel to prioritize communication for the IL-2 patient
- Promotion of family presence - at patient's bedside 24/7 and participate as partner in care

Outcomes

Patients Treated

- 43 stage-4 melanoma and 23 stage-4 renal cancer patients

Mortality During Treatment

- 0%
- 4 patient transfers to higher level of care
- 8 patients disease-free, equal to NCI national experience

PICC Line Infections

- 0% (n=300)

Average Length of Stay

- 4 days, comparable to the national average

Patient Satisfaction Scores

- Consistently mid-90's, > peer group and Magnet™ hospital scores

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