


Management of Diabetes in Individuals with Cancer Part 2






MD Anderson
Cancer Center

Celia Levesque, MSN, RN, CNS-BC, NP-C, CDE, BC-ADMN
Advanced Practice Registered Nurse, Endocrine Neoplasia and HD
clevesqu@mdanderson.org

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Objectives

-  Describe affects of Ca tx on BG
-  Discuss tx options for managing DM in individuals with Ca
-  Manage DM in individuals with Ca

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What we will cover

- Ca meds causing hyperglycemia/DM**
 - Immune checkpoint inhibitors
 - M-TOR inhibitors
- Mgt of DM for individuals with Ca receiving steroids**
 - Low dose steroids vs High dose steroids
 - Oral agents vs Insulin therapy
 - Insulin regimens for steroids
- Mgt of DM for individuals with Ca receiving TPN**
 - Dosing insulin in the bag

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What we will cover

Mgt of DM for individuals with Ca receiving TF

- Determining the CHO content of common TF
- Calculating insulin doses for TF
- Managing basal requirements

Surgical Mgt of DM for individuals with Ca

- Taking a history
- Creating a DM plan based on the history

Managing insulin drips

- Transitioning IV to SC insulin

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Checkpoint Inhibitors

Cytotoxic T-cell-associated antigen (CTLA-4)

- Ipilimumab

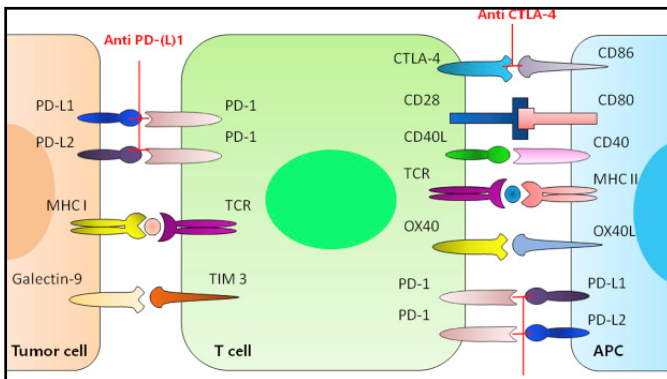
Programmed cell death protein-1 (PD-1)

- Nivolumab
- Pembrolizumab
- Cemiplimab

Programed cell death ligand-1 (PD-L1)

- Atezolizumab
- Avelumab
- Durvalumab

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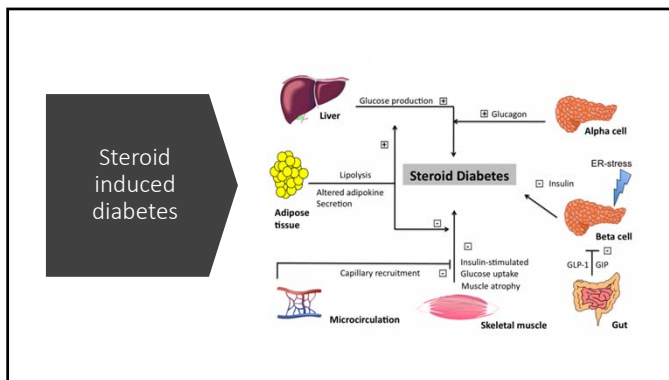
P13K-AKI-mTOR inhibitors

Act on mTOR signaling pathway which plays role in cell growth, lipid and glucose metabolism

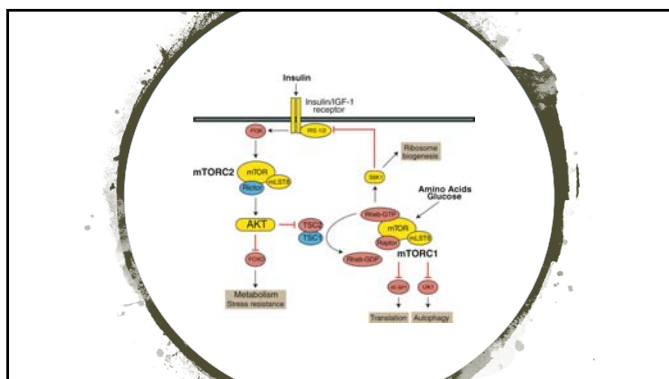
Associated with 13-50% incidence of hyperglycemia/new onset diabetes

- Everolimus/Afinitor
- Temsirolimus/Torisel
- Sirolimus/Rapamune

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STEROID	EQUIVALENT	ONSET	DURATION
Dexamethasone	0.75 mg	Rapid	48-72 hours
Hydrocortisone	20 mg	Rapid	12-24 hours
Methylprednisolone	4 mg	Rapid	30-36 hours
Prednisolone	5 mg	Rapid	18-36 hours
Prednisone	5 mg	Rapid	30-36 hours

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Steroids: ac
BG < 200
mg/dL

If no hx DM, DM well controlled on OA, or low dose steroids

- Metformin
- Sulfonylurea
- TZD
- DPP-4
- GLP-1 RA

If persistent hyperglycemia, add insulin

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Steroids:
Adding Insulin

If no fasting hyperglycemia, start with prandial insulin: 0.1 unit/kg per meal

- Rapid acting insulin if no snacking
- Regular insulin if snacking

If fasting hyperglycemia: start basal insulin 0.1-0.3 units/kg/day

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Steroids

Low Dose: < 40 mg dex qd




- 40% basal
- 60% bolus

High Dose: \geq 40 mg dex qd

- 25% basal
- 75% bolus





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Adjustment of Insulin

-  **> 200 MG/DL:**
INCREASE DOSE 20%
-  **> 300 MG/DL:**
INCREASE DOSE 30%
-  **> 400 MG/DL:**
INCREASE DOSE 40%

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TPN

-  Calculate grams of carbohydrate per bag
-  Start with 1 unit Regular insulin per 10 gm CHO to be put into the bag. Adjust dose as needed
-  Correctional scale
-  If ICR is correct, the it won't make a difference if it is continuous or cycled

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Tube Feeding

Osmolite 1.2	158 gms CHO/L
Fibersource HN	160 gms CHO/L
Isosource 1.5	170 gms CHO/L
Diabetisource AC	100 gms CHO/L
Novosource Renal	200 gms CHO/L
Vivonex RTF	175 gms CHO/L
Peptamen AF	107 gms CHO/L
Peptamen 1.5	188 gms CHO/L
Resource Breeze	230 gms CHO/L or 53 for 240 ml can
Glytrol	100 gms CHO/L or 24 for 240 ml can

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Calculating CHO in Tube Feeding

Multiply rate of TF x hrs to get total mL

Multiply mL by the CHO content per 1 liter

Example: Osmolite 1.2 (158 gm/L) at 60 mL/hr continuous 24 hrs per day

- 60 mL/hr x 24 hrs = 1440 mL per 24 hrs
- 1440 x 0.158 = 227 gms CHO per 24 hrs

Match insulin regimen to needs

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Calculate Insulin dose for TF

Calculate amt of CHO for time TF running

1 unit per 6-8 gm CHO:

Calculate a correctional scale

If pt has a basal need, factor that in

If pt is eating, may need prandial insulin

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Insulin Regimens for TF

- Basal/bolus
- Reg or 70/30 insulin q 6 hrs
- Rapid acting insulin q 3-4 hrs





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Surgery: History

- Type and duration of DM
- DM complications
- Other co-morbid conditions
- Glycemic control
- Hypoglycemia hx
- Type and duration of surgery
- Duration of surgery
- Duration of fasting

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Surgery

-  If low C-Peptide will still need basal insulin but after 16 hrs of fasting, liver glucose drops and may need reduced dose
-  No prandial insulin
-  Correctional insulin for hyperglycemia
-  Avoid stacking short/rapid acting insulin

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Transiting
off Insulin
Drip

Determine avg hourly rate over past 8 hours

Multiply x 24 hrs to get total daily dose

Convert 70% of the daily IV dose to SC insulin

- 50% basal insulin
- 50% bolus (divide by 3 meals)
- If enteral feedings: use regular insulin and divide by 4 and give every 6 hours
- Order correction insulin
