The Management of Gastrointestinal Cancers
With Dr. Goodman

1. The risk of Radiation Induced Liver Disease (RILD) at 3 months is highest following SBRT in:
   A. Hepatocellular carcinoma (HCC), 700 cc liver receives 15Gy/3 fx
   B. Liver metastasis, 700 cc liver receives 15Gy/3 fx
   C. HCC, mean liver dose 13 Gy/6 fractions
   D. Biliary tumor, mean liver dose 18Gy/6 fx
   E. Liver metastasis, mean liver dose 18 Gy/6 fx

   Answer: A

   Rationale: HCC often arises in the setting of underlying liver dysfunction (i.e. cirrhosis). There is a greater risk of radiation induced liver toxicity in patients with liver dysfunction and therefore, the doses should be modified to minimize this risk. A is the correct answer because this is the highest dose given with higher dose per fraction in a patient with HCC and would therefore be highest risk for RILD.


2. In the RTOG 0529 Phase II study, intensity modulated radiotherapy planning when compared to conventional radiotherapy planning for definitive chemoradiation for patients with anal squamous cell carcinoma significantly reduces:
   A. Acute Grade 3+ hematologic toxicity
   B. Acute Grade 3+ gastrointestinal toxicity
   C. Late Grade 2+ gastrointestinal toxicity
   D. Late Grade 2+ genitourinary toxicity
   E. 2-year locoregional control

   Answer: B

   Rationale: RTOG 0529, a Phase II, multi-institutional study, prospectively evaluated IMRT as part of definitive chemoradiation with 5FU and MMC, and compared toxicity rates to those observed in the standard arm of RTOG 9811, a large randomized phase III trial. Among 52 analyzable patients, the investigators demonstrated that there was no substantial difference in the rate of Grade 2+ GI or GU toxicity observed, the authors did report significant improvement in the rates of Grade 2+ HT, Grade 3+ GI toxicity and Grade 3+ dermatologic toxicity with the use of IMRT.

   Reference:

3. Based on the CROSS trial, as compared to surgery alone, pre-operative chemoradiation for esophageal cancers reduces:
   A. Rates of positive resection margins
   B. Locoregional recurrence rates
   C. Rates of hematogenous spread
   D. Peritoneal recurrence rates
   E. All of the above

   Answer: E

   Rationale: In the patterns of failure analysis of the CROSS trial, there was a benefit for pre-operative chemoradiation for all of the sites of recurrence, locoregional, hematogenous, and peritoneal recurrence. There was also a reduction in the positive margin rate for patients who received pre-operative chemoradiation.

   Reference:

   Oppedijk V. et al., JCO 2014

4. According to the ARTIST trial, evaluating adjuvant chemotherapy with or without chemoradiation for patients with gastric cancer, the subgroups who benefited from the radiation in terms of disease free survival included:
   A. Tumors with diffuse type histology
   B. Node positive disease
   C. Multifocal tumors
   D. Patients with CDH-1 mutations
   E. Tumors with lymphovascular invasion

   Answer: B

   Rationale: The goal of the ARTIST (Adjuvant Chemoradiation Therapy in Stomach Cancer) trial was to compare postoperative treatment with capecitabine plus cisplatin (XP) versus XP plus radiotherapy (XRT) with capecitabine (XP/XRT/XP) in patients with stage II/III gastric cancer with curative R0 resection and extended D2 lymphadenectomy. This study demonstrated no benefit in OS for adjuvant XRT, but did show a DFS benefit in the subgroups of patients with node positive disease and intestinal type histology.

   Reference:

   Park S et al., J Clin Oncol, 2014
5. Unresectable pancreas cancer is defined by which of the following imaging characteristics:

A. Tumor abutment of the superior mesenteric artery of 170 degrees
B. Tumor abutment of the superior mesenteric vein of 170 degrees
C. Tumor abutment of the celiac axis of 270 degrees
D. Tumor abutment of the portal vein of 270 degrees
E. Short segment encasement of the common hepatic artery

Answer: C

Rationale: Radiologic characteristics for resectability have been defined and are outlined in the NCCN guidelines. These are primarily based on vascular involvement, in particular, involvement of the superior mesenteric artery and celiac artery, as well as unreconstructible involvement of the superior mesenteric vein and portal vein. The NCCN guidelines description of unresectable disease are as follows:

Solid tumor contact(>180°) of the SMA, CA or contact with the first jejunal SMA branch, or unreconstructible SMV/PV due to tumor involvement or occlusion, or contact with the most proximal draining jejunal branch into the SMV.

Borderline resectable disease is defined as solid tumor contact with SMV or PV of >180°

Reference:

NCCN guidelines