Tumor Lysis Syndrome

Definition

> Simultaneous death of many cancer cells produces release to blood of enormous quantities of products of their destruction.

When?

> May particularly occur during initial phase of treatment of pts. w/ large chemosensitive tumors

Symptoms

> Hyperphosphatemia
> Hyperuricemia
> Hyperkalemia (life-threatening: cardiac arrhytmias)
> Hypocalcemia secondary to formation of calcium phosphate: tetany, mental agitation, seizures
> Acute renal failure

Diagnosis

> Based on development of
> -increased lvl. of serum uric acid (8mg%) , phosphate (4,5 mg%) , and potassium (6mg%)
> -decreased levels of serum calcium (7mg%)
> -increased serum creatinine (1,5 x upper normal limit)
> -cardiac arrhythmias or death, seizures

Management:

> • Forced diuresis 3 L/m^2 PWE + furosemide
> • Allopurinol to fight hyperuricemia (protein degradation).
> • Novel agent: rasburicase

Hypercalcemia - Clinical Symptoms

Pts. w/ Ca. conc. b/w 10.5 & 12 mg/dl usually asymptomatic	Clinical manife-stations appear w/ higher lvls.
Renal	polyuria nephrolithiasis (chronic HC)
GI	anorexia nausea vomiting constipation pancreatitis
Neuro-psych	weakness fatigue confusion stupor coma
CV	shortened QT interval on ECG bradyarrhythmias heart block cardiac arrest
Ocular	band keratopathy (chronic HC)

Local Radiotherapy

Teleradiotherapy

> tumor irradiated from a distant (usually ~ 1m) source

Brachytherapy

> irradiation source is placed @ direct vicinity of irradiated tissue
> (aka. Curietherapy)

Brachytherapy

Contact or intracavital irradiation

> Installation of radiation source into cavity or through a natural route

Interstitial irradiation

> Insertion of the radioactive source inters-titially

LDR (low-dose-rate)

> Currently, most freq. = Cesium 137
> --> dose rate: 1 cGy/min
> Intracavital: most freq. cervical ca.
> Interstitial: oral cavity ca. , pharyngeal ca. , prostate ca. , sarcoma

HDR (high-dose-rate)

> Currently, most freq. = Iridiuim 192
> --> dose rate: 100 cGy/min
> Intracavital: vaginal ca. , oesophageal ca. , lung ca. , sarcoma
> Interstitial: prostate ca.

Teleradiotherapy

Conventional

> orthovolt (125-500 kV)
> -can only be used for palliative tx. of superficially located metastases
> --> practically not used these days

Megavolt

> telecobaltotherapy, photons & electrons from linear accelerator, neutrons from either neutron generator or cyclotrone
> --> energy: 4 - 20 MeV

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Renal Ca. - Clinical Presentation

Typical Triad	**hematuria** **abd. pain** **flank / abd. mass** *(palpable tumor)*
Less freq.	fever weight loss anemia varicocele (abn. enlargement of pampiniform venous plexus) PARANEOPLASTIC SYNDROMES: --> erythrocytosis --> hypercalcemia --> nonmetastatic hepatic dysfunc. (Stauffer's synd.) --> acquired dysfibrinogenemia

Pancreatic cancer

Notes

- Freq. site = Head of pancreas
- No screening test available
- 5-year survival < 5%
- Median age of diag. = 72 y/o
- Peak incidence - 65-84 y/o
- Males > Females

Clinical Features

- Pain
- Obstructive Jaundice
- Weight loss
- Anorexia

Pancreatic cancer (cont)

Risk Factors

- • Cigarette Smoking, Obesity, Non-hereditary Chronic Pancreatitis
- • Environmental Factors (diet, coffee), prev. partial gastrectomy / cholecystectomy & H. pylori

Physical Findings`

- (+) Courvoisier's sign
- • Palpable, nontender gallbladder
- (+) Virchow's Node
- Advanced Disease
- • Abdominal Mass, Hepatomegaly, Splenomegaly, Ascitis

Diagnostic Procedures

- Ultrasound
- CT Scan
- ERCP
- Endoscopic US
- MRCP
- FDG-PET*

CA 19-9 (Serum Marker)

- • 80-90% sensitivity & specificity
- • Suggestive of diag. pancreatic ca.
- • Prognostic impilcations – Very high levels w/ inoperable disease
- • Serial evaluation useful for monitoring response to tx.
- • Detecting recurrence in pts. w/ completely resected tumors

Treatment

- Symptom management
- Endoscopic biliary / duodenal stenting
- Intestinal bypass surgery
- Deoxycytidine analogue Gemcitabine

*Excluding occult distal metastasis

BI-RADS

0 (incomplete)	Recommend add. imaging --> mammogram / targeted US
1 (negative)	Routine breast MR screening if cumulative lifetime risk ≥ 20%
2 (benign)	Routine breast MR screening if cumulative lifetime risk ≥ 20%
3 (prob. benign)	Short-interval (6 mth) follow-up
4 (suspicious)	Tissue diagnosis
5 (highly suggestive of malignancy)	Tissue diagnosis
6 (known biopsy-proven malignancy)	Surgical excision when clinically appropriate

Breast **I**maging **R**eporting and **D**atabase **S**ystem score.
- Scoring syst. used by radiologists describe mammogram results
- Most efficient tool to help detect breast cancer, esp. at its earliest stage

*Table taken from UCSF Department of Radiology & Biomed. Imaging

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