U2 Hematology

U3 Multiple Myeloma and Related Paraproteinemia

#A 63-year-old patient complains of pain in spine, head, fever, fatigue, weakness, weight loss. Physical and laboratory examinations find out tender bones, normocytic and normochromic anemia, granulocytopenia and thrombocytopenia. Bone x-ray examination of ribs shows lytic bone lesions. What is the possible diagnosis?

Polycytemia rubra vera

AML

+Multiple myeloma.

CML

CLL

#A patient is suspected to have multiple myeloma. Serum protein electrophoresis appears to be normal. The laboratory should

+Examine the urine for Ig light chain

Repeat the serum protein electrophoresis

Measure plasma viscosity

Perform an erythrocyte sedimentation rate.

#Waldenstrom’s macroglobulin is characterized by increased level of:

IgG

+IgM

IgD

IgA

#Which is not a feature of multiple myeloma?

+Cutaneous nodules

Bony lesions

Renal failure

'M' Spike

Hypercalciemia

#The abnormal protein frequently found in the urine of persons with multiple myeloma is:

Albumin

IgM

IgG

+Bence Jones

#Multiple myeloma is a disorder of:

T-lymphocyte

+Plasma cells

Megakaryocytes

The lymph nodes

#In multiple myeloma best indicator of prognosis is

Serum level of Ca

Serum beta-2 microglobulins

+Number of plasma cells in marrow

Serum alkaline phosphatase

Creatinin level

#Melphalan is used in:

Wilm's tumor

Retinoblastoma

+Multiple myeloma

Nephroblastoma

#A patient’s bone marrow is found to have increased numbers of plasma cells, plasmcytoid lymphocytes, and mast cells. The patient’s serum most likely has an M composed of:

IgA

+IgM

IgG

Heavy chain, only

#Following are seen in multiple myeloma except:

Osteolysis

M-Spike

+Retroperitoneal nodes

Plasmacytosis

Blasts

#All of the following are seen in multiple myeloma except:

Renal failure

+Gum hypertrophy

Good response to melphalan

Bone lesions

#What is seen in multiple myeloma?

Increased Alkaline phosphatase

Decreased IgA

+Hypercalcemia

Hypouricemia

Fat bone marrow

#Bence Jones proteins are excreted in the urine in

Chronic lymphocytic leukemia

Waldenstroms macroglobulinemia

Rheumatic fever

+Multiple myeloma

AML

#The main diagnostic criteria of multiple myeloma include

Lytic bone marrow lesions

Decreased B2 microglobulin

Bence Jones proteinuria

+Plasmacytosis > 30%

Rouleaux formation on peripheral smear

#Which of the following manifestations of multiple myelomawould be LEAST likely to be seen on chest X-ray features?

Lytic rib lesions associated with rib fracture

+Plasmacytoma producing coin lesion in lung periphery

Vertebral rarefication and collapse

Multiple lytic lesions of vertebral bodies

#At the time of diagnosis, the peripheral blood film of a patient with multiple myeloma typically shows:

Greater than 10% plasma cells

Marked lymphocytosis

Neutrophilia

+Rouleaux formation

#Which of the following clinical conditions are often expected in a patient with multiple myeloma?
   anemia, thrombocytopenia, and leukopenia
   recurrent infections, obesity, and weakness
    +renal failure, osteopenia, and visual disturbances
   fatigue, fever, and weight loss
   nosebleeds, bone pain, and heart failure

#All listed cytostatic agents are used in "aggressive" multiple myeloma, except:

alkeran

+doxorubicin

chlorambucil

cyclophosphane

BCNU

#Bone destruction occurs in Waldenstrom's macroglobulinemia :

it is the cause of pathological fractures

it is a characteristic symptom

+ rarely

it is defined only in the terminal stage

#The main methods for diagnosing paraproteins are all listed with the exception of:

radial immunodiffusion

+electrophoresis

Bence-Jones heat test

immunoelectrophoresis

#The morphological substrate of multiple myeloma is represented by:

Lymphocytes and macrophages

Plasmocytes and lymphocytes

+The plasma cells and osteoclasts

Plasmoblasts and white blood cells

#Bence-Jones protein in the urine is determined by:

salting out

+immunoelectrophoresis

immunophenotypings

#Accelerated ESR are not expected in the following forms of myeloma:

myeloma G

\*myeloma BJ

myeloma A

\*unclassified myeloma

myeloma D

#The high frequency of infectious complications in multiple myeloma is due to:

the development of neutropenia,

general intoxication,

anemia and hypercalcemia,

+by reducing the level of normal immunoglobulins,

Amyloidosis

#The following signs are necessary and sufficient for the diagnosis of multiple myeloma,:

radiographically identify osteodestructive

bone marrow plasmocytosis above 15%

anemia, pathological bone fractures

+paraproteinemia and/or Bence-Jones proteinuria

acceleration of ESR

#Indications for the beginning of cytostatic therapy in multiple myeloma are:

Stage 1 myeloma

\*presence of symptoms of tumor progression

acute renal failure

\*Stage 3 myeloma

acceleration of ESR

#Local radiation therapy in multiple myeloma has the following goals:

local anesthesia

\*prevention of fractures in the supporting parts of the skeleton

radical cure of the disease

\*palliative care in the terminal stages of the disease

the decrease in the level of calcium

#Objective criteria for the effectiveness of cytostatic therapy in multiple myeloma are:

\*the increase in hemoglobin levels

\*reduction of paraproteinemia by more than 50%

\*reducing the size of osteolytic defects

increased white blood cell and platelet levels

improvement of the general condition of patients

# is/are used for the treatment of pathological fractures of long tubular bones in multiple myeloma:

\*reposition and fixation of fragments

\*endoprosthetics

\*resection of the affected area with prosthetics

monotherapy therapy with calcium containing drugs

radiation therapy

#The main diagnostic criteria for Waldenstrom's macroglobulinemia are:

high ESR and increased blood viscosity

\*immunochemical evidence of monoclonal products

M-component for serum protein electrophoresis

\*lymphocytic-plasmocytic infiltration of the bone marrow

presence of cold antibodies

#What does not apply to the initial manifestations of myeloma?

pain in the bones

spontaneous fractures

frequent pneumonia

+sharply delayed ESR

protein in the urine

#What is system affected by myeloma?

+bone

digestive system

the CNS

cardiovascular system

reproductive

#What are the symptoms of protein pathology syndrome in patients with myeloma?

hyperproteinemia

accelerated ESR

the presence of M-gradient in electrophoresis of proteins

+all of the above is true

#What are the signs of the clinical manifestations of hypercalcemia?

hyperreflexia

muscle rigidity

sleepiness

loss of orientation and disorders of consciousness up to coma

+everything is correct

#What is not characteristic of multiple myeloma?

+affects mainly teenagers

the usual symptom of lower back pain

fatal outcome within 2-3 years

osteolytic defects of the bones in the radiography

there is hyperproteinemia

#You should think about if the patient has a daily proteinuria more than 3.5 g, Bens-Jones protein, hyperproteinemia :

nephrotic syndrome

+myeloma

Waldenstrom's macroglobulinemia

#What are the criteria for reliable diagnosis of myeloma?

peripheral blood analysis

radiography of bones

+bone marrow research

protein electrophoresis

urine analysis

#Radiological signs characteristic of bone damage in myeloma:

diffuse osteoporosis

multiple defects in flat bones

pathological fractures

reducing the height of vertebral bodies

+all of the above is true

#What are the main studies to diagnose multiple myeloma?

bone marrow research

protein electrophoresis

radiography of bones

+all of the above is true

#What forms of multiple myeloma do you know?

multiple-tumor

diffuse-nodal

diffuse

+everything is correct

#Accelerated ESR can be observed in all these diseases except:

+polycythemia (Vaquez's disease)

multiple myeloma

renal cell cancer

cancer of the tail of the pancreas

rheumatoid arthritis

#What is found in the bone marrow punctate in patients with myeloma?

+myeloma cell metaplasia (more than 15 plasma cells%)

megaloblastic type of hematopoiesis

complete replacement of bone marrow with blast cells

color of bone marrow irritation

the bone marrow does not change

#What are cellular elements of the bone marrow punctate you can see in myeloma?

myeloblasts

giant Mature white blood cells

+plasma cells

lymphocytes

plasmoblasts

#What of these studies are the criteria for reliable diagnosis of myeloma?

peripheral blood analysis

radiography of bones

+bone marrow research

protein electrophoresis

urine analysis

#What is complication the most characteristic of multiple myeloma?

myocardial infarction

+osteoporosis with pathological fractures

respiratory failure

bleeding

hyperglycemia

#What are therapeutic measures used to treat myeloma?

cytotoxic agents

glucocorticosteroids and anabolic hormones

orthopedic events and physical therapy

fight against metabolic disorders

+all of the above

#What are the criteria for the effectiveness of treatment of myeloma with cytostatics?

the healing of bones

improvement of hematological indicators

reduction of pathological proteins, reduction of calcium in the blood

reduction of protein in the urine

+all of the above is true

#What is medical event used for treatment of chronic renal failure in multiple myeloma?

diet

fighting acidosis

lespenefril, gemodez

hemodialysis

+all of the above is true

#What is the life expectancy of patients with myeloma?

15-20 years

+2-5 years

up to 6 months

10 years

everything is correct

#The necessity for plasmapheresis in Waldenstrom's macroglobulinemia is due to the presence of symptoms:

hyperproteinemia

+high viscosity

accelerated sedimentation rate

increased levels of immunoglobulins