

Principles of supportive care in hematooncology

A part of the **supportive care** in hematooncology is **symptomatic treatment** of the underlying disease (e.g., pain treatment), **control of the side effects** of treatment (e.g., antiemetics), **nutritional care** (nutritional support), and **prevention of complications** (e.g., antibiotic and antifungal prophylaxis, and substitution and support of growth factors).

Prophylaxis and treatment of infections (most commonly agranulocytosis)

- Initiation of empirical treatment with broad-spectrum ATBs, preferably as a combination.
- Antibiotic replacement in case of ineffectiveness or according to the sensitivity of the cultured agent.
- Consider empirical antifungals in patients with febrile neutropenia > 4 days.^[1]

 For more information see *Febrile neutropenia*.

Antifungal prophylaxis

In the prophylaxis of systemic mycoses, **Posaconazole** is used despite its high cost, mainly due to its relatively few side effects.^[1] Posaconazole as a prophylaxis is indicated in the induction treatment of AML and MDS and as treatment or prevention of graft-versus-host reaction (GVHR).

Growth factors

Used substances include **erythropoietin**, analogs of **thrombopoietin** and **granulocyte colony stimulating factor** (G-CSF).^[1]

Primary prevention

- in regimens that have at least a 40% incidence of **febrile neutropenia**
- in patients at high risk of early death (age > 60 years, performance status > 1, lymphocytes <700)
- in patients at risk of non-compliance with dose intensity due to prolonged neutropenia

Secondary prevention

In patients who have already experienced febrile neutropenia.

Erythropoietin

Erythropoietin is indicated in anemia of chronic diseases.^[1]

Thrombopoietin analoges

There are two analogs of thrombopoietin: **romiplostim** and **eltrombopag**. They are used with *rituximab* in the treatment of immune thrombocytopenic purpura if it does not respond to first-line treatment of corticosteroid and IV immunoglobulin therapy or to second-line therapy (splenectomy).^[1]

G-CSF

Recombinant G-CSF can be administered in a free form as **filgrastim** (half-life of 3-4 hours) or in pegylated form as **pegfilgrastim** (PEG-G-CSF, half-life of 15-80 hours). GM-CSF administration has no advantages over G-CSF and is not widely used.^[1]

Growth factors are used to shorten the duration of neutropenia after chemotherapy (another indication outside supportive care is for peripheral stem cell flushing in bone marrow transplantation). In chronic myeloid leukemias and chronic lymphocytic leukemias, growth factors are administered two days after chemotherapy.^[1]

Replacement therapy

Erythrocyte concentrates

It is used in patients with Hb <80 or Hb <100 in patients with heart or lung disease.

Thromboconcentrate

In patients with platelets <10 thousand in the absence of bleeding, <20 thousand in **sepsis** or with mild bleeding, <50 thousand before moderate surgery, and <100 thousand before major surgery.

 For more information see *Hemotherapy*.

Pain therapy (WHO principles)

If possible, drugs are administered orally and regularly (around-the-clock). The drug choice is individualized and effectiveness is verified. The following algorithm is used:

1. mild pain: non-opiate analgesic
2. moderate pain: weak opiate (**codeine**) + non-opiate analgesic
3. severe pain: strong opiate (**morphine**) + non-opiate analgesic + adjuvant
4. if oral or parenteral opiate does not help at maximum doses, try epidural analgesia

Antiemetic therapy

It is more effective in treating vomiting before it has occurred (as opposed to afterward).^[1]

- Serotonin antagonists (**granisetron**, **ondansetron**)
- corticoids (**dexamethasone** 20 mg or equivalent) - mostly in combination with setrons^[1]
- dopamine antagonists: **metoclopramide** (1 mg / kg daily)
- NK 1 receptor (**neurokinin-1** receptor) antagonists - such as **aprepitant** ^[1]

 For more information see *Antiemetics*.

Damage to the mucous membranes → Treatment of diarrhea and mucositis

- Mild diarrhea: **loperamide** 4 mg initially + 2 mg every 4 hours, oral hydration - 8-10 glasses of clear fluid daily
- moderate diarrhea, prophylaxis with irinotecan: **loperamide** 4 mg initially and then 2 mg every 2 hours
- severe diarrhea: **octreotide** 150 ug s.c. 3 times daily with escalation of 50 ug / dose

 For more information see *Antidiarrheals*.

Special supportive care

The use of **chemoprotectants**, which include: **Mesna** - prevents hemorrhagic cystitis during treatment with ifosfamide and high-dose cyclophosphamide) and **Dexrazoxane** - prevents cardiomyopathy during treatment with anthracyclines. **Nutritional support, nutritional supplements, erythropoietin**, and **bisphosphonates** are also important. Bisphosphonates reduce the frequency of pathological fractures in patients with myeloma and metastases of solid tumors to the bone, prolong the time until the first pathological fracture, and may prevent corticoid-induced osteoporosis. They should not be used in patients with creatinine > 265 µmol / l. The most effective examples are pamidronate and zoledronic acid iv, while less effective examples include clodronate po (in the Czech Republic, mostly used for economic reasons).

References

Citations

1. KOUBA, Michal. *Internship at ÚHKT* [lecture on the subject Internal pre-state internship, General Medicine, 1st Faculty of Medicine, Charles University]. Prague. 5/21/2014

Sources

- ŠTEFÁNEK, Jiří. *Medicine, diseases, study at the 1st Faculty of Medicine, Charles University* [online]. [feeling. February 3, 2011]. < <http://www.stefajir.cz> >.
- 1. KOUBA, Michal. *Stáž v ÚHKT* [přednáška k předmětu Interna předstátnicová stáž, obor Všeobecné lékařství, 1. lékařská fakulta Univerzita Karlova]. Praha. 21.5.2014.