

Antiinfeksi dan Antiseptik

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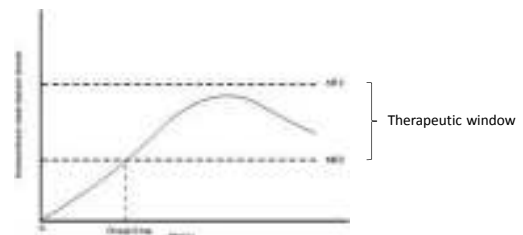
Terms to know...!

- Infeksi → kontaminasi tubuh/ bagian tubuh oleh agen penginfeksi
- Agen penginfeksi → jamur, bakteri, virus, protozoa
- Antiinfeksi → obat untuk mengatasi/ menyembuhkan penyakit infeksi
- Antibiotik → obat untuk membunuh/ menghambat pertumbuhan bakteri
- Antiseptik → obat yang digunakan untuk mencegah infeksi pada permukaan luar tubuh

Prinsip umum terapi antiinfeksi

- Penggunaan obat harus rutin sampai mikroorganisme penyebab infeksi hilang/ mati (bukan sampai gejala penyakit hilang) → obat diminum sampai habis
- Agen penginfeksi harus dipastikan terbunuh pada penggunaan obat yang pertama kalinya untuk mencegah terjadinya resistensi
- Selama masa terapi, kadar obat dalam darah harus dipastikan berada pada *therapeutic window*

Kurva kadar obat dalam darah



- MEC: Minimum effective concentration
- MTC: Minimum toxic concentration
- Onset Time: waktu dimana obat mulai berefek

Bakterisida atau bakteriostatik

- Bakterisida → menyebabkan bakteri menjadi mati
- Bakteriostatik → menghambat pertumbuhan/ perkembangbiakan bakteri

Broad & Narrow Spectrum

- Broad spectrum (spektrum luas) → jika antibiotik efektif untuk mengatasi infeksi oleh bakteri **gram positif maupun gram negatif**
- Narrow spectrum (spektrum sempit) → jika antibiotik hanya efektif untuk mengatasi infeksi oleh **bakteri gram positif atau gram negatif saja**

Cara kerja obat antiinfeksi

- Menghambat pembentukan dinding sel
- Mengganggu/ menghambat pembentukan protein
- Mengganggu/ menghambat sintesis DNA
- Menghambat replikasi DNA (pada virus)
- dll

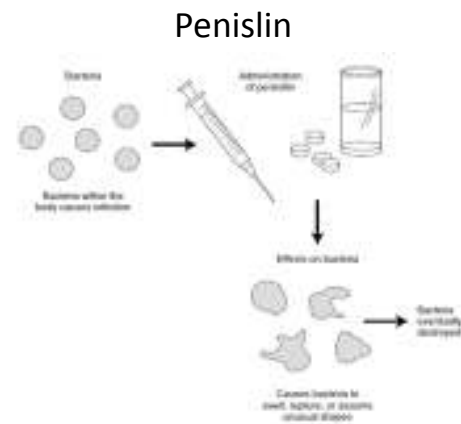
Penggolongan antibiotik

- Golongan penisilin
- Golongan sefalosporin
- Tetrasiklin, makrolida,
- Fluorokinolon
- Aminoglikosida
- Golongan lain

Penggolongan tidak didasarkan pada mekanisme kerja obat, melainkan didasarkan pada kelompok senyawa obat tersebut

1. Golongan penisilin

- Penisilin menyebabkan bakteri terganggu dalam memelihara dinding sel bagian luarnya
- Contoh antibiotik golongan penisilin
 - Amoksisilin
 - Ampisilin
 - Penisilin G, Penisilin V
- Efek samping yang mungkin terjadi:
 - Gangguan pencernaan (mual, muntah, diare)
 - Skin rash (ruam kulit)
 - Demam



2. Golongan sefalosporin

- Merupakan golongan obat yang lebih efektif dibandingkan golongan penisilin
- Contoh:
 - #1 generation: sefadroksil
 - #2 generation: sefaklor
 - #3 generation: sefiksim, sefotaksim
 - #4 generation: seftazidim

3. Tetrasiklin dan golongan makrolida

- Cara kerja: menghambat sintesis protein,
- Tetrasiklin
 - Tetrasiklin,
 - Oksitetrasiklin,
 - Doksisisiklin,
 - Minosiklin
- Makrolida
 - Eritromisin,
 - Azitromisin,
 - Klaritromisin

4. Golongan fluoroquinolon

- Bekerja menghambat sintesis DNA bakteri
- Contoh:
 - Ciprofloxacin (Cipro[®])
 - Enoxacin (Penetrex[®])
 - Gatifloxacin (Tequin[®])
 - Lomefloxacin (Maxaquin[®])
 - Moxifloxacin (Avelox[®])
 - Ofloxacin (Floxin[®])
 - Sparfloxacin (Zagam[®])

5. Golongan aminoglikosida

- Bekerja mengganggu/ menghambat sintesis protein bakteri
- Contoh:
 - Gentamicin
 - Amikacin
 - Kanamycin
 - Neomycin
 - Netilmicin
 - Streptomycin
 - Tobramycin

Golongan lain

- Kloramfenikol → merupakan obat pilihan untuk mengatasi penyakit demam tifoid (tifus)
- Metronidazol → digunakan untuk mengatasi berbagai infeksi serius (misal: infeksi pada intraabdominal, tulang, jaringan lunak, saluran pernafasan, dan infeksi pada sel saraf)

ANTI-TBC

- Tuberkulosis → infeksi yang disebabkan oleh *Mycobacterium tuberculosis* yang mengganggu paru-paru dan sistem pernafasan
- Pengobatan yang digunakan adalah dalam bentuk kombinasi untuk meningkatkan efektivitas terapi
- Pengobatan biasanya dilakukan dalam waktu lama (4 – 6 bulan)

Kombinasi obat TB

- Rifampisin
- Pirazinamid
- Isoniazid
- Etambutol



ANTIJAMUR

- Infeksi jamur biasanya terjadi pada permukaan kulit atau pada sela-sela jari
- Fungsida = ?
- Fungistatik = ?

Contoh penyakit jamur

- ?
- ?
- ?

Obat-obat antijamur

- Amfoterisin B → diberikan dalam bentuk infus untuk infeksi jamur sistemik seperti aspergilosis
- Golongan imidazol → Mikonazol, Ketokonazol, Itrakonazol
- Nistatin → untuk mengatasi candidiasis
- Griseofulvin → diberikan secara p.o. untuk infeksi jamur yang tidak bisa diatasi secara topikal

ANTIVIRUS

- >200 virus teridentifikasi sebagai penyebab penyakit
- Virus terdiri dari DNA/RNA dan protein
- Virus hanya dapat berkembang pada sel hidup

Penyakit akibat virus

- ?

CHAPTER 16.1 • Description of Viral Infections

SYMPTOMS AND SIGNS

• Many viruses of the herpes family, in a common viral infection, usually subclinical they become reactivated and cause symptoms. However, immunocompromised patients (such as those with AIDS or cancer) may have the infection. Symptoms include swollen lymphatic glands and lymphadenitis. Many may acquire the virus from the mother while in the uterus, resulting in learning disabilities and mental retardation. CMV can affect the eye, causing blindness. Symptoms of CMV include air-filled blisters and ulcers around the mouth. Blood transfusion is a possible and common route of infection.

HERPES SIMPLEX VIRUS TYPE 1

• HSV-1 establishes HSV-1 which causes oral lesions or local infections, and HSV-2 which causes genital infections. However, either type can occur distally or other body sites. HSV-1 usually causes oral lesions in the oral cavity, but it is also the main cause of genital herpes. It is usually transmitted by sexual contact and causes genital herpes. Infection by the second varicella-zoster virus, herpes zoster, may appear as shingles (varicella) with painful blisters. The patient may appear fatigued, although, and sometimes skin may have difficulty breathing or respiratory distress. The lesions usually heal within 2 weeks. Immunocompromised patients may develop a severe systemic disease.

HERPES SIMPLEX VIRUS TYPE 2

• HSV-2 establishes HSV-2 which causes oral lesions or local infections, and HSV-2 which causes genital infections. However, either type can occur distally or other body sites. HSV-1 usually causes oral lesions in the oral cavity, but it is also the main cause of genital herpes. It is usually transmitted by sexual contact and causes genital herpes. Infection by the second varicella-zoster virus, herpes zoster, may appear as shingles (varicella) with painful blisters. The patient may appear fatigued, although, and sometimes skin may have difficulty breathing or respiratory distress. The lesions usually heal within 2 weeks. Immunocompromised patients may develop a severe systemic disease.

HERPES ZOSTER

• Herpes zoster (shingles) is caused by the varicella-zoster virus. It is highly contagious. The virus reactivates in the skin and is easily spread via the respiratory system. Recovery from the disease depends mostly on the immune being strong in the acute state. The virus may become reactivated later in life as the skin sheds its outer cells.

VARICELLA-ZOSTER VIRUS

• VZV is established in the body after infection. However, after 10-20 years after infection, the virus reactivates and causes genital herpes. It is usually transmitted by sexual contact and causes genital herpes. Infection by the second varicella-zoster virus, herpes zoster, may appear as shingles (varicella) with painful blisters. The patient may appear fatigued, although, and sometimes skin may have difficulty breathing or respiratory distress. The lesions usually heal within 2 weeks. Immunocompromised patients may develop a severe systemic disease.

ADENOVIRUS

• Adenovirus commonly infects the eye. It is an acute respiratory virus caused by infection of the eye. It is highly contagious and may cause conjunctivitis, sore throat, and fever. Symptoms include fever, cough, sore throat, and swollen lymphatic glands. Infection by the second varicella-zoster virus, herpes zoster, may appear as shingles (varicella) with painful blisters. The patient may appear fatigued, although, and sometimes skin may have difficulty breathing or respiratory distress. The lesions usually heal within 2 weeks. Immunocompromised patients may develop a severe systemic disease.

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Obat antivirus

- (anti herpes) → Acyclovir, Famciclovir, Ganciclovir
- (anti HIV) → Abacavir, Didanosin, Lamivudin, Zidovudin
- (anti influenza) → Amantadin, Zanamivir

Antiseptik

- Antiseptik bekerja membunuh atau menghambat pertumbuhan mikroorganisme pada permukaan luar tubuh
- Untuk dapat hidup dan berkembang biak, bakteri memerlukan kondisi lingkungan yang sesuai, seperti: cukup makanan, kelembaban dan suhu tertentu, oksigen, dll.
- Antiseptik bekerja dengan mengubah kondisi lingkungan tumbuh mikroorganisme

Contoh antiseptik

- Iodin
- Alkohol 70 %
- Hidrogen peroksida