

OCR (B) Biology A-level

3.3.2 - Respiratory diseases and treatment

Flashcards

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How might pollutants affect the respiratory system?



How might pollutants affect the respiratory system?

- Tobacco smoke = damages cilia, resulting in a build-up of dirty mucus.
- Asbestos = small fibres lodge in the lungs creating scar tissue that thickens the diffusion pathway.
- Fungal spores = cause infections.



Outline the causes and symptoms of asthma.



Outline the causes and symptoms of asthma.

- Causes = inflammation and narrowing of the bronchi and increased mucus production, restricts airflow. Exacerbated by hayfever, cold weather, exercise, etc.
- Symptoms = shortness of breath, wheezing, chest tightness



How is asthma treated?



How is asthma treated?

Medication targets receptors (beta, cholinergic) in the respiratory lining.

- Salbutamol = quick relief, relaxes the muscle of the bronchioles (beta agonist).
- Steroids = long-lasting effect, reduce inflammation.



Outline the causes and symptoms of chronic bronchitis.



Outline the causes and symptoms of chronic bronchitis.

- Causes = smoke, tar, dust, pollution etc. damage the bronchi causing inflammation and excessive mucus production which paralyses the cilia
- Symptoms = cough lasting more than three months, mucus production, fatigue, blood-stained sputum



Outline the causes and symptoms of emphysema.



Outline the causes and symptoms of emphysema.

- Causes = damage to elastic tissue, alveoli damaged and may burst, decreases diffusion distance and air difficult to remove
- Symptoms = shortness of breath, shallow breathing, barrel chest, lung infections.



Give the causes and symptoms of lung cancer.



Give the causes and symptoms of lung cancer.

- Causes = primarily smoking; also radiation, carcinogenic chemicals, pollution, history of lung disease
- Symptoms = cough, blood-stained sputum, shortness of breath, weight loss



Differentiate between acute and chronic diseases.



Differentiate between acute and chronic diseases.

- Acute = sudden onset, can be treated, lasts short period of time
- Chronic = gradual onset, may be difficult to treat, lasts a long time



Give examples of drugs that are derived from plants.



Give examples of drugs that are derived from plants.

- Theophylline, present in tea and cocoa, treats COPD and asthma
- Topotecan, obtained from the Camptotheca tree, anti-cancer drug
- Aspirin, obtained from willow, pain reliever
- Quinine, obtained from the cinchona tree, antimalarial



Summarise the phases of a clinical trial.



Summarise the phases of a clinical trial.

1. Drug tested on healthy individuals to check for side effects.
2. Drug tested on a small group of patients and compared against a placebo.
3. Drug tested on large numbers of patients, one group receiving the existing treatment and the other receiving the new treatment.



How is a representative sample obtained?



How is a representative sample obtained?

- Large sample size to capture natural variety in the population.
- Randomisation, both in recruitment and allocation to a group, to avoid bias.



Explain how placebos are used in clinical trials.



Explain how placebos are used in clinical trials.

- Placebos are identical in every way to the drug being tested, except they do not contain any active ingredient.
- Patients do not know whether they have the placebo or real drug. This reduces the likelihood of psychological effects affecting results.



Explain how double blind testing is used in clinical trials.



Explain how double blind testing is used in clinical trials.

Neither the patient nor the doctors know who has the placebo and who has the real drug. This eliminates any possible bias.



Describe the role of NICE in providing treatment guidelines.



Describe the role of NICE in providing treatment guidelines.

- Guidelines on clinical practice, health technologies, and public health.
- Cost and limitations of treatments are assessed.
- Doctors use the guidelines when choosing a treatment.

