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It's Important to Know!

BP204T — Pathophysiology

B.Pharm Semester 2 · Unit 5 — Cancer, Infectious and Sexually Transmitted Diseases

Unit V: Cancer, Infectious and Sexually Transmitted Diseases

Cancer principles

Cancer is uncontrolled clonal growth with potential for invasion and metastasis. Causes include inherited susceptibility, acquired mutations, chemical agents, radiation, infections and chronic inflammation. Hallmarks include sustained proliferation, evasion of growth suppression, resistance to cell death, angiogenesis and tissue invasion.

Metastasis is spread of malignant cells from a primary site to a distant site through blood, lymph or body surfaces. Invasion requires loss of normal tissue constraints, movement through extracellular matrix and establishment in a new environment.

General infection mechanisms

An infection occurs when a microorganism enters a host, survives, multiplies and produces direct or immune-mediated effects. Disease depends on pathogen factors, route, dose and host defence. Transmission may be direct, indirect, airborne, food-borne, water-borne, vector-borne or sexual.

Meningitis, typhoid and leprosy

Meningitis is inflammation of the meninges and may be caused by bacteria, viruses or other agents. It can produce fever, headache, neck stiffness, altered consciousness and neurological complications. Typhoid is a systemic infection associated with contaminated food or water and may cause prolonged fever and gastrointestinal symptoms.

Leprosy is a chronic infection that primarily affects skin and peripheral nerves. Clinical patterns depend on host immune response. Early recognition and treatment reduce nerve damage and disability.

Tuberculosis and urinary tract infection

Tuberculosis commonly affects the lungs but can involve other organs. The host response may produce granulomatous inflammation and tissue damage. Urinary tract infection commonly involves the bladder or urethra, but infection can ascend to the kidneys. Risk factors, symptoms

and diagnostic testing vary by site.

Sexually transmitted diseases

Sexually transmitted infections include viral and bacterial diseases. HIV progressively damages immune function if untreated. Syphilis can pass through stages and may involve multiple organs. Gonorrhoea commonly affects mucosal surfaces and can cause pelvic, reproductive or disseminated complications.

Prevention includes barrier methods, testing, vaccination where available, partner notification and treatment of identified infections.

Unit V: Frequently asked questions

Q: What is metastasis?

A: Metastasis is spread of malignant cells from a primary site to a distant site through blood, lymph or body surfaces.

Q: What is meningitis?

A: Meningitis is inflammation of the protective membranes around the brain and spinal cord.

Q: Why can tuberculosis become chronic?

A: The pathogen can persist within host tissues, while the immune response may contain but not completely eliminate it.

Q: How can sexually transmitted infections be prevented?

A: Prevention includes barrier protection, testing, vaccination where available, partner notification and appropriate treatment.

Unit V: Key takeaways

- Cancer involves clonal growth, invasion and possible metastasis.
- Infection results from interaction between pathogen and host.
- Meningitis can rapidly threaten neurological function.
- Tuberculosis may persist with granulomatous inflammation.
- Urinary infection can ascend from lower to upper urinary tract.
- Prevention, testing and treatment reduce sexually transmitted infection spread.

Unit V: Clinical correlation

Clinical correlation: infection control. Hand hygiene, respiratory etiquette, safe injection practice, appropriate protective equipment and isolation decisions interrupt transmission.