Escherichia coli

Escherichia coli is found in the vast majority of warm-blooded animals. It forms **part of the physiological microflora** of the colon and the distal part of the ileum. The individual is colonized almost immediately after birth, usually by alimentary route or by transfer from an already colonized individual. In the long term, *E. coli* is unable to exist outside the host. Therefore, its detection (e.g. in drinking water) is indicative of fecal contamination.

Diseases

Strains of *E. coli* that are part of the microflora do not cause disease in healthy individuals. It takes one of the following factors to cause a clinically serious infection:

- **disruption of the microbiota**, e.g. due to the use of ATBs or immunosuppression, and an overgrowth of *E. coli*;
- **pathogenic strains'** capable of producing various pathogenicity factors (toxins, adhesive pili);
- **Introduction of infection'** outside the gut, most commonly into the urinary tract, peritoneal cavity.
  🔎 *For more information see Infections caused by Escherichia coli.*

Diagnosis

Cultivation

Cultivation of *E. coli* is undemanding. For its isolation and diagnosis, lactose agar is most commonly used. On **MacConkey agar** and **Endo agar**, it grows in colonies surrounded by pink staining indicating lactose fermentation. On blood agar it grows in greyish colonies, some strains (often pathogenic) with complete hemolysis.

Escherichia coli

Culturing *Escherichia coli* on *deoxycholate citrate agar'*

Culturing *Escherichia coli* on **Endo soil**

Biochemistry

E. coli has very broad enzymatic activity, which is used in its identification. So-called **color series** are used, which, by the change in color after plating and incubation of a colony, allow the species to be classified precisely according to its biochemical properties. This is often used because of the need to **distinguish other enterobacteria** that participate in the intestinal flora.

Microscopy

In a slide stained with by Gram, *E. coli* appears as a G- rods with flagella.

Serology

Classical serological procedures are used for more precise determination. This is mainly used in tracking epidemics and **spread of individual strains**. The most important is **indirect agglutination**, which can distinguish individual serotypes of **E. coli**.

Treatment

Conventional treatment is symptomatic only. Antibiotics are used only in extraintestinal infections and immunosuppressed patients. β-lactam ATBs can be used along with β-lactamase inhibitors. Escherichia coli is sensitive to most antibiotics.

Links

Related articles

- Infections caused by Escherichia coli

Source

- HORÁČEK, Jiří. *Základy lékařské mikrobiologie.* 1. edition. Karolinum, 2000. ISBN 80-246-0006-4.

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- ws:Escherichia coli