

Date: 25<sup>th</sup> February-2026

**NEONATAL SEPSIS VA MIKROBIOLOGIK DIAGNOSTIKA: ZAMONAVIY  
MUAMMOLAR VA ISTIQBOLLAR.**

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Qorako'l Abu li ibn Sino nomidagi Jamoat salomatligi texnikumi.

**Annotatsiya:** Neonatal sepsis dunyo bo'yicha yangi tug'ilgan chaqaloqlar o'limi va kasallanishining asosiy sabablaridan biri hisoblanadi. Ayniqsa, past va o'rta daromadli mamlakatlarda bu muammo dolzarbdir. Klinik belgilarining noaniqligi va an'anaviy mikrobiologik usullarning cheklanganligi erta tashxis qo'yishni qiyinlashtiradi. Ushbu maqolada neonatal sepsisning mikrobiologik diagnostika usullari — qon ekmasi, molekulyar metodlar, biomarkerlar va antibiotiklarga rezistentlikni aniqlash yondashuvlari tahlil qilinadi. Shuningdek, zamonaviy tezkor diagnostik texnologiyalar va ularning neonatal natijalarga ta'siri muhokama qilinadi.

**Kalit so'zlar:** neonatal sepsis, erta boshlangan sepsis, kech boshlangan sepsis, qon ekmasi, PCR, antibiotik rezistentligi, biomarkerlar.

### **1. Kirish**

Neonatal sepsis — bu yangi tug'ilgan chaqaloqlarda bakterial, virusli yoki zamburug'li infeksiya natijasida rivojlanadigan tizimli yallig'lanish javobidir. World Health Organization ma'lumotlariga ko'ra, neonatal infeksiyalar global miqyosda neonatal o'limning muhim sabablaridan biridir.

Neonatal sepsis quyidagicha tasniflanadi:

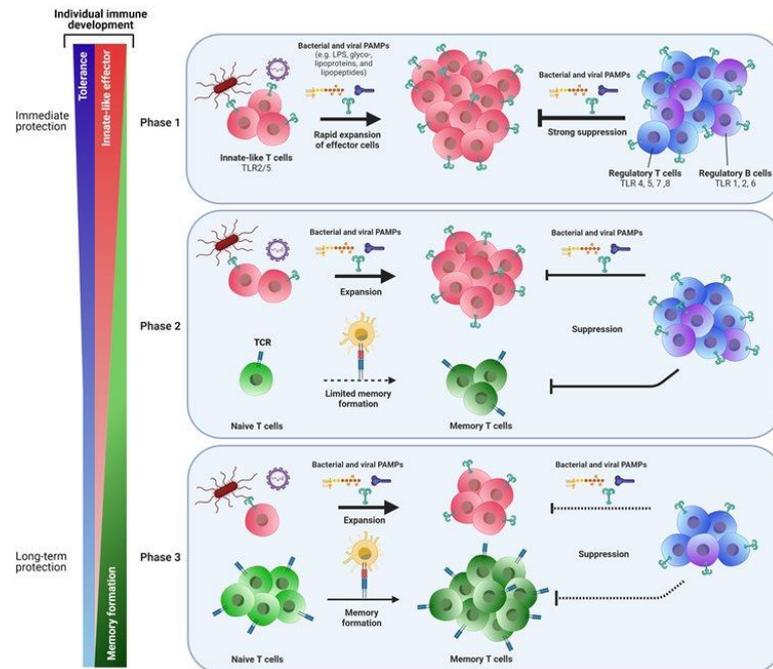
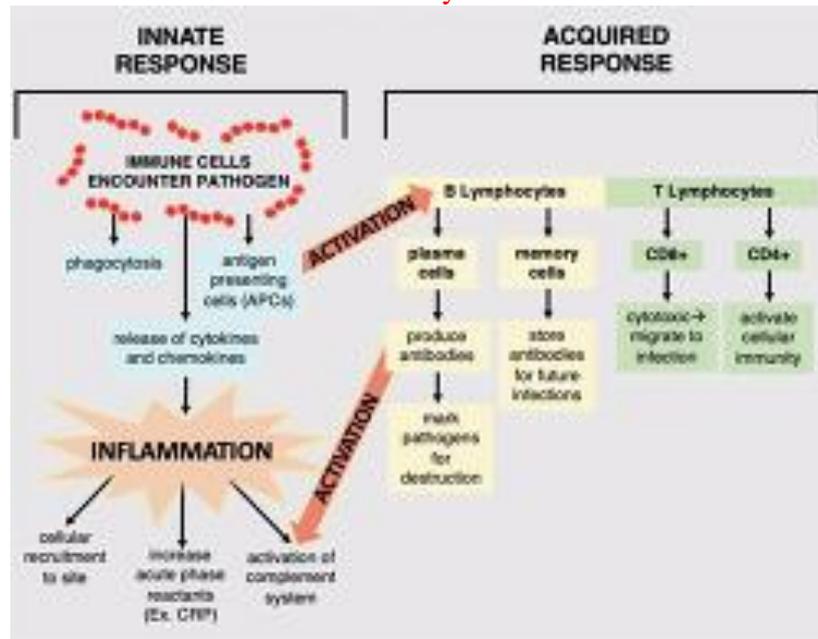
- **Erta boshlangan sepsis (EOS)** – hayotning dastlabki 72 soatida
- **Kech boshlangan sepsis (LOS)** – 72 soatdan keyin

Eng ko'p uchraydigan qo'zg'atuvchilar:

- Group B Streptococcus
- Escherichia coli
- Klebsiella pneumoniae
- Staphylococcus aureus

### **2. Neonatal sepsis patofiziologiyasi**





Yangi tug‘ilgan chaqaloqlarda immun tizim yetarli darajada shakllanmagan bo‘ladi:

- Neytrofillar zaxirasining kamligi
- Komplement tizimi faolligining pastligi
- Antitela ishlab chiqarishning sustligi

Infeksiya rivojlanishi natijasida:

1. Tizimli yallig‘lanish javobi
2. Sitokinlar bo‘roni
3. Endotelial disfunksiya
4. Septik shok va ko‘p a‘zoli yetishmovchilik

### 3. Mikrobiologik diagnostika usullari

#### 3.1 Qon ekmasi (oltin standart)

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Qon ekmasi neonatal sepsisni aniqlashda asosiy usul hisoblanadi.

**Afzalliklari:**

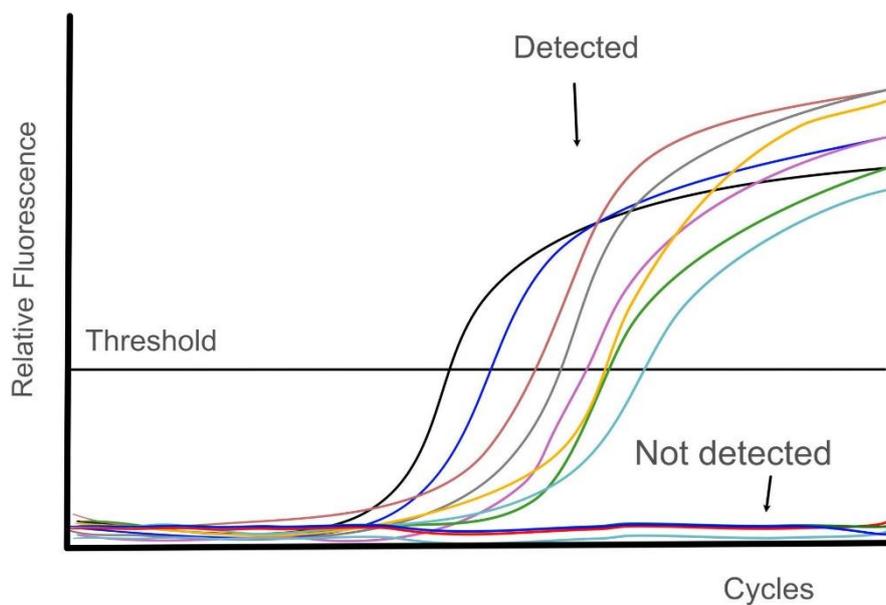
- Qo'zg'atuvchini aniqlash
- Antibiotiklarga sezgirlikni baholash

**Kamchiliklari:**

- 24–72 soat vaqt talab qiladi
- Olingan qon hajmi kichik bo'lsa sezgirlik pasayadi
- Antibiotik boshlanganidan keyin soxta manfiy natija berishi mumkin

**3.2 Molekulyar usullar (PCR asosida)**

Amplification curve  
real-time PCR



Polimeraza zanjir reaksiyasi (PCR) tezkor tashxis qo'yish imkonini beradi.

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**Afzalliklari:**

- Yuqori sezgirlik
- Natijalar bir necha soat ichida
- Ekmada o'smaydigan mikroorganizmlarni aniqlash

**Kamchiliklari:**

- Qimmat
- Kontaminatsiya bilan haqiqiy infeksiyani ajratish qiyin

**3.3 Biomarkerlar**

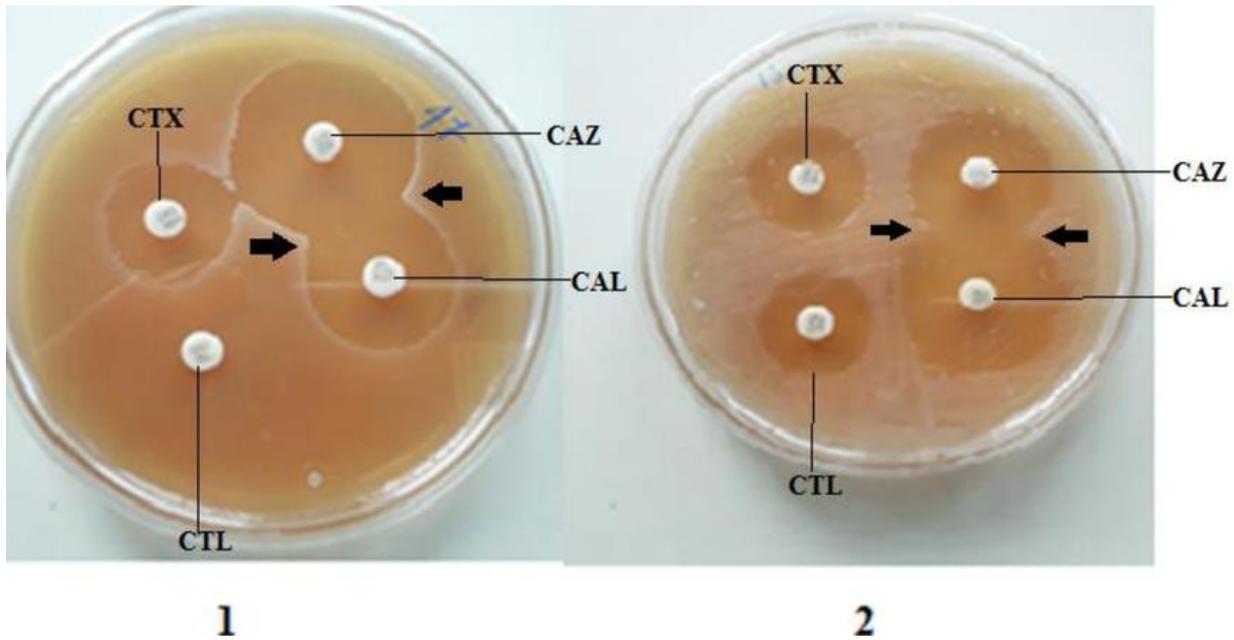
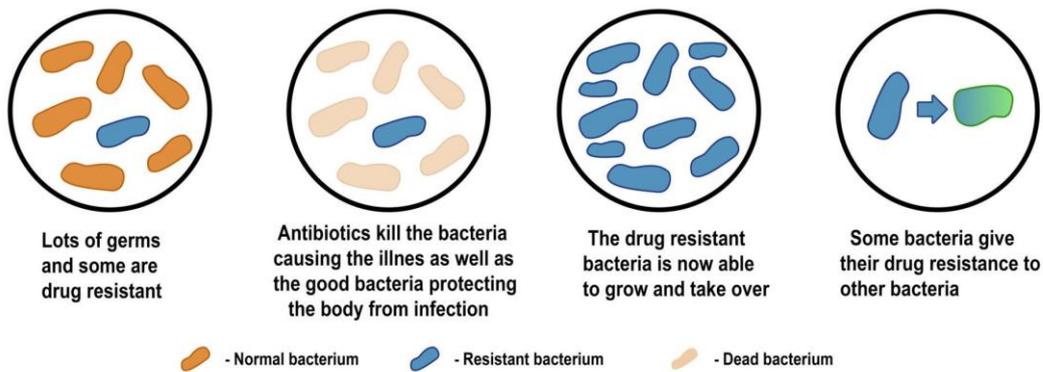
Asosiy biomarkerlar:

- C-reaktiv oqsil (CRP)
- Prokalsitonin (PCT)
- Interleykin-6 (IL-6)

Ular erta tashxisda yordam beradi, ammo qo'zg'atuvchini aniqlamaydi.

**4. Antibiotik rezistentligi muammosi**

**HOW ANTIBIOTIC RESISTANCE HAPPENS**



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Ko'p dori ta'siriga chidamli mikroorganizmlar neonatal davolashni murakkablashtirmoqda.

Ko'p uchraydigan rezistent shtammlar:

- ESBL ishlab chiqaruvchi *Klebsiella pneumoniae*
- MRSA (metitsillinga chidamli *Staphylococcus aureus*)

Antibiotiklarni oqilona qo'llash va tezkor diagnostika muhim ahamiyatga ega.

### 5. Zamonaviy diagnostika texnologiyalari



Yangi texnologiyalar:

- Keyingi avlod sekvensiyalash (NGS)
- MALDI-TOF mass-spektrometriya
- Mikrofluidik tezkor test tizimlari

Bu usullar tashxis vaqtini qisqartiradi va maqsadli terapiyani tez boshlash imkonini beradi.

### 6. Muhokama

Neonatal sepsisni erta aniqlashdagi asosiy muammolar:

- Past darajadagi bakteriemiya
- Qon namunasi hajmining cheklanganligi
- Oldindan antibiotik qo'llanilishi

Klinik baholash tizimlarini molekulyar va biomarker asosidagi usullar bilan birlashtirish diagnostik aniqlikni oshiradi.



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## 7. Xulosa

Neonatal sepsis global sog'liqni saqlash muammosi bo'lib qolmoqda. Qon ekmasi asosiy standart bo'lsa-da, molekulyar va biomarker asosidagi zamonaviy usullar erta tashxisni sezilarli darajada yaxshilaydi. Kelgusida arzon va tezkor diagnostika tizimlarini ishlab chiqish muhim ahamiyatga ega.

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