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Effectiveness of Ceftriaxone Monotherapy for Gonorrhea Treatment

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BACKGROUND

Guidelines differ on first-line treatment of Gonorrhea infections (NGIs). European and Australian guidelines recommend ceftriaxone (CRO) + azithromycin (AZM) to target resistant strains and minimize resistance emergence, while the CDC and UK favor CRO monotherapy due to increasing AZM resistance and concerns about cross-resistance in other pathogens.

Follow-up also differ: the CDC advises a test-of-cure (TOC) only for pharyngeal infections, while others suggest it universally, especially when using alternative therapies.

Although Italy is highly-burdened by antimicrobial resistance, our national and local ecology presents a **cephalosporins decreased-susceptibility NG as low as 0.3%.**

In this context, the aim of the study is to compare the **effectiveness of CRO** 1g IM **monotherapy *versus* combination** in eradicating NGIs.

METHODS

All NGIs diagnosed at our clinic between January 2022 and August 2024, with a TOC performed at 28 days ± 7, were retrospectively analyzed.

Diagnoses were made using NAATs on pharyngeal, anal, vaginal swabs, and urine samples.

Data collected included HIV status, PrEP use, symptoms of infection, antibiotic treatment, NAAT TOC results.

Descriptive statistics were reported as counts and percentages, statistical analysis was performed using Pearson χ^2 or Fischer exact tests.

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Ceftriaxone monotherapy is as **effective** as the combination with azithromycin in **NG infections** and **test-of-cure may be unnecessary** in a low-prevalence resistance setting

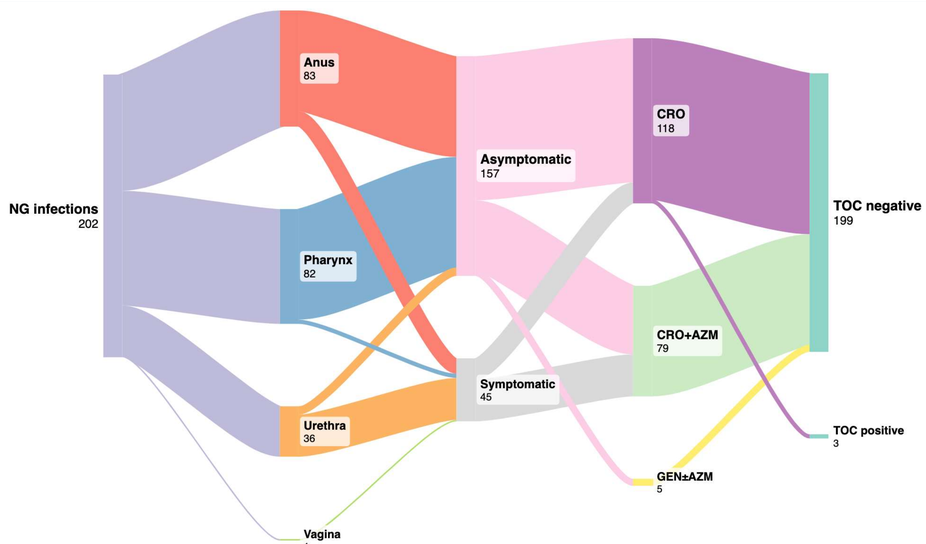


Fig. 1 Overview of Gonorrhea infections according to the site of infection, symptoms, antibiotic treatment and test-of-cure results. (NG: *Neisseria gonorrhoeae*; CRO: ceftriaxone; AZM: azithromycin; GEN: gentamicin, TOC: test-of-cure)

RESULTS

A total of 202 infections were identified: 41% anal, 40.5% pharyngeal, 18% urethral, and 0.5% vaginal infections. Of these, 61% involved PrEP-users, 27% PWH, and 12% people without HIV not on PrEP.

78% of infections (157/202) **were asymptomatic**, predominantly in pharyngeal (79/157, 50%) and anal sites (72/157, 46%). Urethral site was more likely to be symptomatic (30/45, 67%) than the others (p <0.001).

CRO monotherapy was used in 58% of cases, while **CRO+AZM in 39% of cases**. Gentamicin ± AZM was given in 5 cases due to allergy.

Combination therapy was mainly found to be used in symptomatic cases (30/45, 67% vs 49/157, 31%; p <0.001), since treatment was usually given empirically before microbiological results.

TOC was negative in 99% of cases, with only 3 cases testing positive after CRO treatment. In the first case CRO was repeated resulting in a negative TOC. The second case was a reinfection and in the last one a TOC was repeated one week later with a negative result.

CONCLUSIONS

In a **low-prevalence resistance setting CRO monotherapy is as effective as the combination with AZM for treating NGIs**, suggesting that CRO alone may be preferred to limit antibiotic use.

For the same reason, the high treatment success rate may suggest that **TOC may be unnecessary** to reduce hospital visits and over-medication.

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