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Review Article

Oteseconazole: A Review

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Abstract:
Many women are affected by vaginal fungal infections, also called yeast infections. Vulvovaginal candidiasis (VVC) is a common fungal infection caused by Candida species, predominantly Candida albicans. RVVC compromises with women's life. It causes symptoms – such as itching, pain, dyspareunia, dysuria, and leucorrhea2-4. Oteseconazole – a novel, oral, selective fungal cytochrome P450 enzyme 51 inhibitor, designed to avoid off-target toxicities. In clinical studies to date, oteseconazole has demonstrated impressive efficacy, a positive tolerability profile and hope for a superior RVVC treatment option. Fungal infection comes in different form like –ringworm athelets foot, toenail fungus, yeast infection and jock itch. Yeast infection of vagina and tissue at opening of vagina. Antifungal is used to treat and prevent mycosis. In this article we studied about the new FDA approved drug for vaginal yeast infection.
Keyword—oteseconazole, vaginal infection, antifungal drugs, candida, vaginitis.

Introduction

- Yeast infection is not asexually transmitted disease.
- Yeast infection cause thick, odour-free, cheese appearence vaginal discharge, severe itching, burning sensation (at the time of intercourse and urinating),swelling of vulva, pain and soreness in vagina.
- Oteseconazole sold under the brand name Vivjoa and developed under Mycovia Pharmaceuticals.
- This drug was approved by the FDA on April 26, 2022.

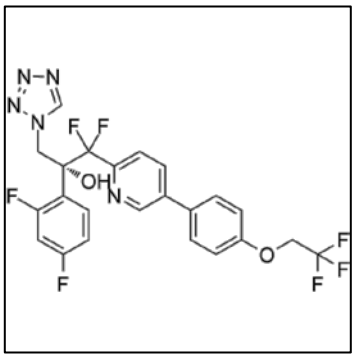
Pharmacodynamics

- Oteseconazole is a highly selective inhibitor of fungal CYP51.
- It inhibits the formation of ergosterol, a sterol is required for creating and maintaing the strength of fungal cell membranes.
- The tetrazole metal-binding group increases their specificity for CYP51 and reduces off-target interactions with human cytochrome P450s

- A clinical trial proves that oteseconazole is safe for women, well-tolerated up to 600 mg twice a day.
- Pharmacodynamic action of this drug is not known.
- This is Harmful for pregnant and lactating women because it causes fetal harm.

Mechanism of action

- Oteseconazole is an azole metalloenzyme inhibitor that targets CYP51.
- The formation of ergosterol plays an vital role in the integrity, permeability and viscosity of cell membranes.
- It blocks the formation of ergosterol, oteseconazole also promotes the aggregation of 14-methylated sterols that lead to fungal cell death.
- It has ability to bind and inhibit CYP51; oteseconazole is active against most microorganisms associated with RVVC.
- To reduce target toxicity, oteseconazole has a tetrazole metal-binding group that having least affinity for human CYP51 isoenzyme.



Chemical formula

$C_{23}H_{16}F_7N_5O_2$

Molecular weight: 527.4

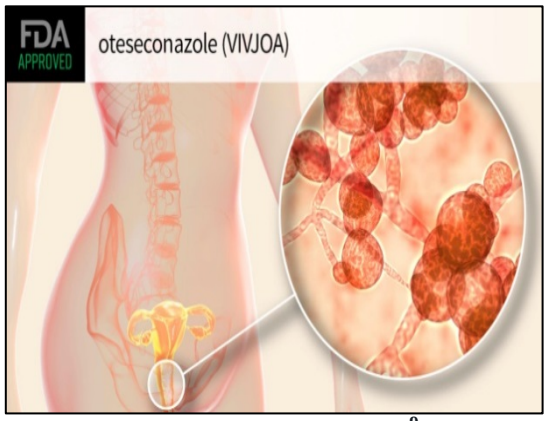


Figure: Oteseconazole[9]

Absorption

- The t_{max} is 5 to 10 hours.
- The bioavailability is affected by highly fatty meal.

Volume of Distribution

Thevolume of distribution is 423 L.

Protein Binding

About 99.5-99.7% of oteseconazole is bound to plasma proteins.

Metabolism

Oteseconazole does not undergo significant metabolism.

Route of Elimination

Eliminated/ excreated through feces and bile, contains low levels in urine.[3]

Half-life

The half-life of oteseconazole is about 138 days.

Clearance

- The clearance of drug is not affected by age or sex.
- The relationship between weight and clearance is almost linear.

Physical Properties

Water solubility Insoluble at a pH range of 1 to 9
It is found in solid state
It is found in the form of capsule
Route of Administration--Orally
Strength—150 mg

Toxicity

- oteseconazole may cause embryo-fetal toxicity.
- If Patients take overdose, increasing risk of severe side effects and symptoms appears.

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