EFFECT OF DIFFERENT ANTIFUNGAL EYE DROPS ON HUMAN CORNEAL CELLS IN VITRO

DI-023

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PURPOSE

The aim of this study was to compare the **cytotoxic effect** of some of the most widely used **antifungal eye drops** on corneal **keratocytes** cells (KCH) using xcelligence real-time (**RTCA**) monitoring of **dynamic changes** induced by **cell–toxicant interaction**

METHODS

PRIMARY CULTURED CORNEAL KERATOCYTES

- A primary culture was carried out from human cornea .
- All experiments were performed with the same short passing

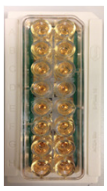
KERATOCYTES WERE CHARACTERIZED BY STAINNING.

DIFFERENT CONCENTRATIONS OF ORIGINAL ANTIFUNGALS EYE DROPS WERE TESTED IN KCH CELLS:

- Voriconazole 28.67 Mm
- Fluconazole 6.53 mM
- Amphotericin 1.62 mM

Cell cytotoxicity was assessed using **the label-free and real-time monitoring** xCELLigence system (RTCA) (ACEA Biosciences, San Diego, CA).

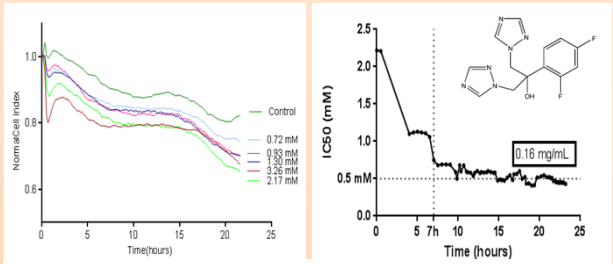
Under this platform, Normal Cell index (CI) was the parameter used to represent cell status based on the measured electrical impedance.



RESULTS

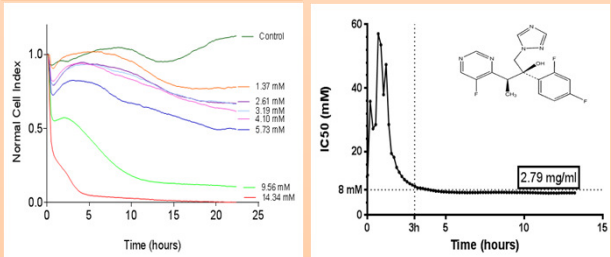
- Kinetic curve surviving rates show the antifungal eye drops studied, induced decline in the cell surviving.
- The effects are dose and time dependent in all compounds tested.

Fluconazole 2 mg/ml



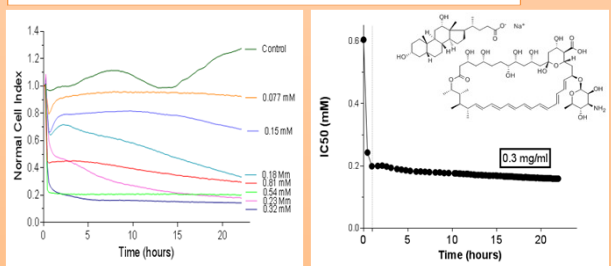
In short contact times with keratocytes (< 2 hours) the cytotoxicity is low, but after 7 hours of contact, the IC50 is 0.16 mg / ml , exceeding 12 times the concentration used in clinical practice.

Voriconazole 10 mg/ml



In short contact times , the viability of cells depends strongly on the concentration of voriconazole . At 3 hours of contact, the IC50 is 2.79 mg/ml .The concentration used in clinical practice this value exceeds 3.5 times

Amphotericin desoxycolate 1.5 mg/ml



A short contact times , the most concentrated solutions cause a significant overall infeasibility of the population of keratocytes . Even with very short contact times IC50 of 0.3 mg / ml are observed, exceeding the concentration used in therapeutic 5 times .

CONCLUSIONS

These results can be particularly relevant to warn of cytotoxic effects of antifungal eye drops manufactured by Hospital Pharmacy Departments which are being used in concentrations that exceed the IC50 determined

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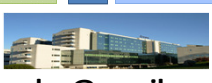

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