

ΑΓΓΛΙΚΗ ΠΕΡΙΛΗΨΗ

Development of Polymeric and Biocompatible Thin Films with Pharmacological Properties on the Surface of Intraocular Lenses.

Purpose: The development, characterization and drug release study of single thin films based on organic polymers (PLGA/PCL) and dexamethasone on the surface of Intraocular Lenses (IOL).

ενδοφακών.

Materials and Methods: IOLs' durability in spinning was tested using the spin coater. Two groups of IOLs (one-piece and three-piece) with thin film on their surface (blend PLGA:PCL 90:10 in ratio 3:1 with dexamethasone) were developed. The substrates (IOLs) and the thin films were studied using AFM and ellipsometry. Also, drug release studies were conducted for a 10 weeks period.

Results: IOLs exhibited durability in higher spinning speeds than the ones used to develop thin films (650 rpm/sec for 6sec and then 2000 rpm for 30 sec). Thin films were developed on the optics and the haptics part of the IOLs. Also, the thin films formed pores with aggregates of dexamethasone inside. The Ellipsometry study showed transparent samples. The study of drug release demonstrated gradual drug release for the three-piece IOLs but not for the one-piece.

Συμπεράσματα: Το σύστημα three-piece ενδοφακός/υμένιο, που αναπτύχθηκε με τη μέθοδο spin coating πληρεί κριτήρια (διαφάνεια, ρυθμός απελευθέρωσης φαρμάκου) και εξυπηρετεί το στόχο της ενδοφθάλμιας μεταφοράς φαρμάκου.

Conclusions: The drug eluted three-piece IOLs that were developed using the spin coating method exhibit properties (transparency, drug release rate) and serve the purpose for intraocular drug delivery system.