Purpose: Corticosteroids have been shown to play a significant role in the treatment of macular diabetic edema due (DME). The mechanism of action of corticosteroids is multifactorial. Corticosteroids act not only as powerful anti-inflammatory drugs but also antagonizing the action of VEGF-A, inhibiting leukostasis and decreasing other inflammatory cytokines. Usually, intravitreal medications are cleared rapidly from the eye. However, to increase the duration of action, the medication may be dissolved slowly from a crystal structure (triamcinolone acetonide) or from a specific slow release device with a specific matrix (dexamethasone, fluocinolone acetonide). Intravitreal triamcinolone acetonide, a suspension, is effective for approximately 3 months in a non-vitrectomized eye, so it is necessary to repeat injections to maintain the treatment effect. In order to reduce the burden of injections, and the associated risks, it was investigated extended release steroid implants. There are two steroid implants for DME: 1. Short-acting: dexamethasone and 2. Long-acting: fluocinolone acetonide. It is known that the extended delivery of lower doses of steroids is more effective than intermittent bolus delivery of high doses. Also in general, non-bioerodable implants are associated with more precise control of drug release than are bioerodable implants. The aim of this study was to report efficacy and safety outcomes in DME patients who switched from dexamethasone (Dex) to fluocinolone acetonide (FAc) intravitreal implant.

Methods: 8 centers retrospective case series of patients with DME who were previously treated with Dex and followed-up for 12 months. This analysis included 34 eyes, 55.9% male, 44.1% female, with a mean age of 68.0±7.2 (mean±standard deviation) years and a mean duration of DME of 3.0±1.6 years. Outcomes were analyzed at 1, 3, 6, 9 and 12 months after FAc and included: mean change: 1) In visual acuity (VA), 2) In central macular thickness (CMT), 3) In macular volume (MV), as efficacy parameters and mean change of intraocular pressure (IOP), as safety assessment. Treatment history, and all assessments were collected at baseline. To avoid bias results were adjusted to last observation.

Results: At baseline 69.7% of the eyes were pseudophakic vs 30.3% phakic, 35.3% were vitrectomized and the remain 64.7% non-vitrectomized. 91.2% of the patients received previously treatments for their eye disease, besides dexamethasone. After one FAc implant, mean change in VA at last observation showed a statistically significant improvement of 7.56 letters (from a baseline value of 43.82±17.08 to 51.30±16.99 letters) (p ≤ 0,001). Mean CMT change was also statistically significant, from a baseline value of 559.73±166.82 to 438.15±169.61 μm (p ≤ 0,001). Mean change of MV decreased by -0.16 mm3, (p =0.084). The safety assessment (IOP) showed no concerns, with a mean change from baseline of -0.68 mmHg, (p=0.741).

Conclusion: Most of the eyes demonstrated an anatomical and visual improvement after switching to FAc, despite in these case series; patients were treated with FAc as the last resource. We suggest FAc may be beneficial in patients if treated early after failure of anti-VEGF therapy, which is in accordance with the EARLY study. FAc is a long-term treatment with a continuous microdosing, thus avoiding recurrence of edema that may lead to irreversible retinal damage, increasing regression of diabetic retinopathy and preventing disease progression.