This study is a prospective observational study. This clinical study compared the treatment effect of 50% diluted AS eye drops 8 times a day, as compared to conventional PFAT 8 times a day plus 0.05 % COE 2 times a day in patients with severe DES based on ocular surface disease index (OSDI), Oxford scale, TBUT, schirmer's test score. OSDI score more than 40 and Schirmer's test without anesthesia below 10 mm / 5 minutes were accepted as severe DES in our study. Informed consent was obtained from each patient in the study. The Erciyes University School of Medicine Institutional Review Board approved the study protocol, which adhered to the guidelines of the Declaration of Helsinki. The patients enrolled in the study all had dry eye whose schirmer's test scores were below 5mm/5 minute. The Schirmer's test I (without anaesthesia) was graded in millimetres after 5 min.(13) 18 patients had 50% diluted AS eye drops 8 times a day, the other 18 patients had conventional PFAT(polivynil alcohol- povidone) 8 times a day plus 0.05 % COE (Restasis; Allergan, Inc., Irvine, CA) 2 times a day. 36 patients (totally 72 eyes) with severe dry eye syndrome were refractory to conventional treatment (those that did not respond well to entire dry eye medications containing hydroxypropyl methylellulose, carboxyl methylcellulose, polyvinyl alcohol, polyethylene glycol-propylene glycol, sodium hyaluronate, mineral oil, dextran, and carbomer artificial tears with or without preservatives), had low TBUT (< 5 s) (5μL of fluorescein sodium 2% eye drops was used), low Schirmer's test I score without topical anesthesia (basic+reflex secretion), positive corneal and conjunctival fluorescein staining (≥grade 1 according to the OXFORD Scale) (3) and an OSDI score > 40 OSDI was a reliable and valid test for quantifying the severity of dry eye symptoms.(14) Patients with an active ocular infection or any other inflammation not associated with dry eye, a severe associated ocular allergy, eyelid or eyelash abnormality, current contact lens use, history of refractive surgery, associated glaucoma, and current use of any type of topical eye drops other than dry eye medications, any known graft-versus host disease, known severe anemia (hemoglobin<11

g/dL^{-1}), and medically uncontrolled significant cerebrovascular and cardiovascular disease, pregnant and lactating patients were excluded.

After informed consent was obtained, 15 mL venous whole-blood samples were drawn once from each patient at the beginning of the study for AS preparation. We followed the methods of Çelebi et al.(15) Serum drops were produced as a 50% formulation. After venosection blood in sterile container centrifuged at 4000 rpm for 10 minutes, serum was taken from the biochemistry blood tube and 50% formulation of AS was prepared in 50% concentration by mixing sterile isotonic 0.9% NaCl solution in the eye drop container. 50% diluted AS using patients were told to keep the AS drops at 4 °C in refrigerator. All the patients were instructed to use 8 drops a day time (1 drop every 2 h in awaken times) in each eye. The designation of the patient whether to use AS 8*1 or conventional PFAT 8*1 plus COE 2*1 was determined randomly. The beneficial effects of two therapeutic regimes were explained and the patient chose the treatment. The study data were collected and statistical analyzes were done after the enough number of participants were reached. OSDI, TBUT, Schirmer's test I, and OXFORD scales were administered before and after first month. Statistical analyses were performed using SPSS version 15.0 for Windows Evaluation Version release (SPSS, Inc. , Chicago, IL). Descriptive statistics were presented as mean ± SD for the variables (OSDI score, Schirmer's Test I and TBUT), and as median with interquartile range (IQR) for the ordinal variable (OXFORD Scale). All the variables were normally distributed except Oxford scales data (Kolmogorov-Smirnov and Shapiro-Wilk tests). Student's paired samples t-test and independent samples Student's t-test were used to compare data. The Wilcoxon signed-rank test was used to compare the change in OXFORD scale scores. The Mann–Whitney U test was used to compare OXFORD scale scores between AS and PFAT+COE. All analyses were performed with a power of 80 % and 95 % CI. The level of statistical significance was set at $p<0.05$.