Comparative Handling Study Between an Eye Drop Bottle and a Single Dose Container in an Aged Population

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Background: Preservatives used in anti-glaucoma medication may result in ocular side effects. Preservative-free medications are available mainly in single dose containers.

Objective: To investigate any differences between an eye drop bottle and a single-dose container with regards to handling and administration of eye drops in elderly population.

Methods: This open-label, phase IV study investigated participants during their annual ophthalmological examination visit. Those with previous regular use of eye drops or use of contact lenses were excluded. 0.9 % sodium chloride solution was placed in a transparent 5 ml eye drop bottle or single dose container. For both preparations, a 10 cm visual analog scale (very easy to very difficult) was used to answer questions on: 1) opening, 2) size and 3) shape of the container, 4) estimation of the volume of the content, 5) holding of the container, 6) dosing a drop to the eye, and 7) overall handling.

Results: Forty-one subjects were included; 29% were male, the mean age was 73 years (range 60-84 years), none had history of regular use of eye drops, and 11 subjects reported occasional use of eye drop bottles or single dose containers. The single dose container was preferred for ease of dosing ($p=0.004$), overall handling and estimation of the remaining volume ($p<0.001$, Permutation type Hotelling's T-squared generalized means test). No other statistically significant differences were found, but the overall mean favoured the single dose container.

Conclusions: Handling and dosing of a single dose container was perceived easier than a 5ml eye drop bottle in elderly patients.