A NOVEL METHOD FOR EXAMINING CORNEAL ENDOTHELIAL CELL MORPHOLOGY IN INFANTS

To the Editor: We read with interest the recently published study by Rufai and colleagues[1] and would like to highlight prior published work on specular microscopy in children under general anesthesia that was not cited. In the late 1980s Speedwell and colleagues[2] published their study on 48 eyes of 31 infants <1 year of age where they examined their patients in lateral decubitus position using a contact specular microscope under general anesthesia.

In 2015 our group from the Hospital for Sick Children in Toronto published a prospective, masked cohort study to validate endothelial cell density (ECD) acquisition technique using a noncontact specular microscope under the same conditions.[3] We compared this technique to acquisition in the upright (gold standard) position and found them to be equivalent.

The authors highlight in their article the need for normative data on ECD in the early years. This has been provided both by Speedwell[2] and in a later study published by our group, in which we reported the ECD of 118 patients under 5 years of age.[4] We found that in the first 2 years of life there was a rapid decline in ECD, which was likely related to the early growth in corneal diameter and hence surface area. This differs from the conclusions of Rufai and colleagues,[1] which imply a linear association between ECD and age. The small number of patients in the study by Rufai and colleagues[1] (4 patients <3 years of age) was likely not sufficient to show this effect.[1]

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REPLY

We thank Ali and colleagues for their comments regarding our publication of January 2017. We agree that the decubitus position has been described previously by Speedwell[1] using a previous generation of specular microscopy equipment; however, it was not performed using the latest generation of machines, which makes this technique easier to perform because of various acquisition features and profiles. We agree that the procedure described by Elbaz and colleagues[2] in 2015 (in a paper reporting the noninferiority of this technique) was similar to ours. Normal data was still scant at the time of publication, though. The Speedwell paper included only children under 1 year of age; by contrast, our paper included 47 patients, all but 1 of whom was over the age of 2 years.

We agree that our findings of a linear reduction in endothelial cell density included a dataset-wide analysis, which included very few patients younger that 2 years of age, and thus a linear or nonlinear reduction in this subset of patients was not identified. We would also like to highlight that the subsequent paper by Elbaz and colleagues,[3] showing a nonlinear reduction in the <2 years age group and providing some normal data, was not published when our paper was submitted to the journal in 2016.

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