

Choroid in different types of uveitis examined with AngioVue Imaging System and Spectralis Enhanced Deep Imaging - complementary not competinionary techniques

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Background:

Description the morphology of choroid and choroidal blood flow in different types of uveitis. Evaluation of the changes of choroidal morphology in the respond of the treatment.

Patients & Methods:

12 patients with bilateral non-infectious uveitis (anterior - AAU, pars planitis -PP and posterior -PU respectively 4, 4 and 4 patients) and 6 control group (CG) were included in this study. Full ophthalmological examination were performed. The patients has been examined with AngioVue Imaging System (RTVue system) and Spectralis Enhanced Deep Imaging (EDI) in different disease activity status (without treatment, during treatment – recovery, stable on treatment). Analysis of raw data has been performed.

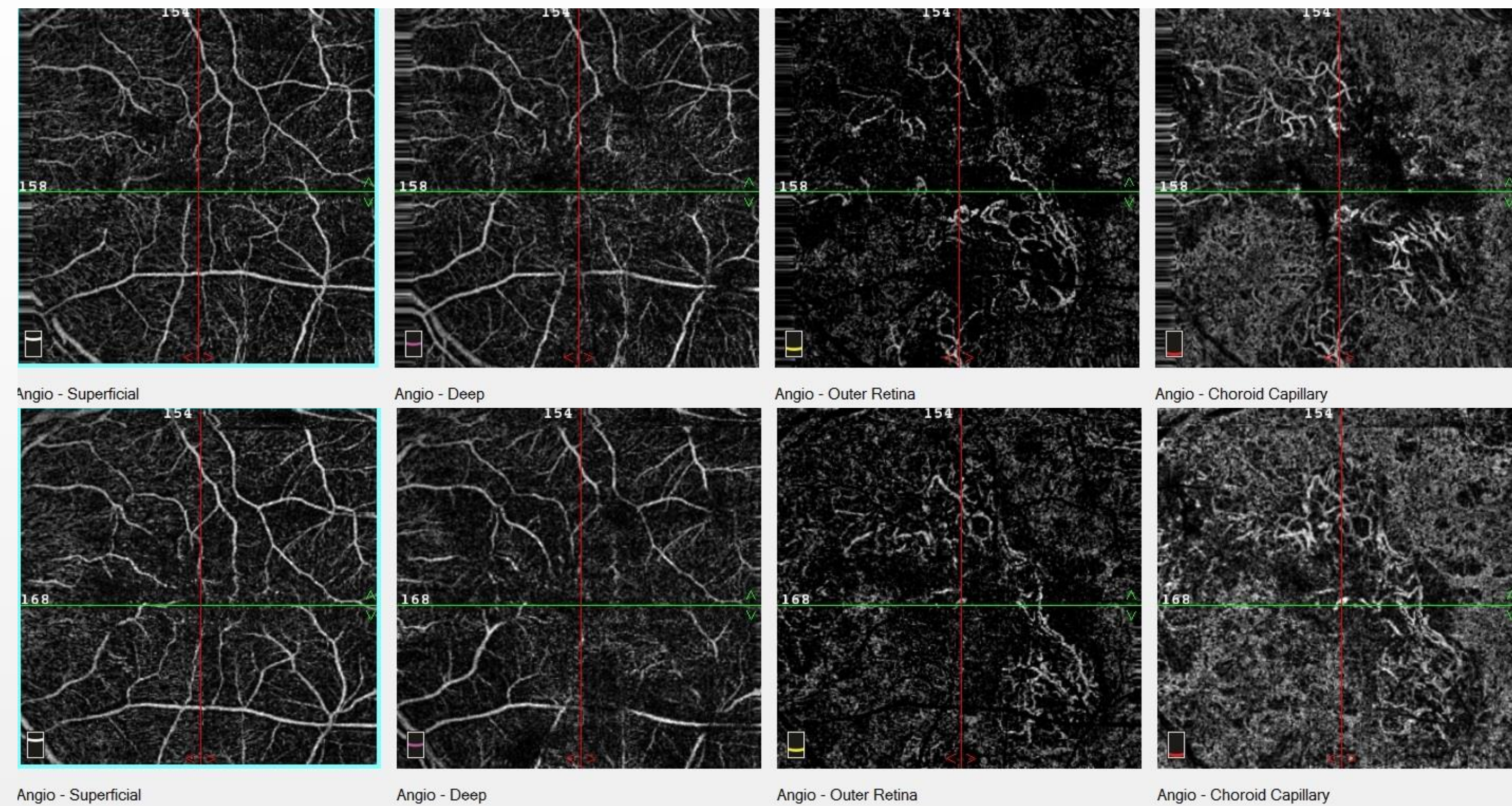


Figure 3 Angiograms obtained by angioOCT. Top panel – an active lesion and its reactive choroidal vascularisation; botom panel – a lesion during the remission period, an atrophy of choriocapillaries can be observed revealing the larger choroidal vessels.

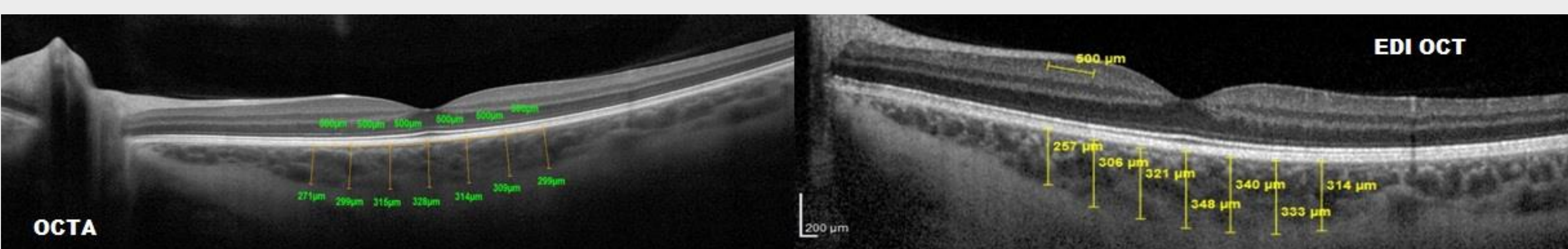


Figure 1 Differences between OCTA-derived and EDI OCT visualization of choroid. Indicated sites of manual choroidal thickness measurements.

Cases:

Case 1: Serpiginous-like choroidopathy

26-years old male, recurrences of painless visual acuity deterioration. Interestingly the ICGA and angioOCT revealed subtle activity even during clinical remission. The intensive period of treatment has been prolonged until the ICGA and angioOCT show no activity.



Figure 2 The overview of dynamics of chorioretinal changes over a time during one episode.

Case 2: Sympathetic ophthalmia

58-years old male, 12 years after penetrating trauma to his right eye. 4 years after enucleation of the injured eye, the enucleation has been preformed after severe episode of sympathetic ophthalmia.

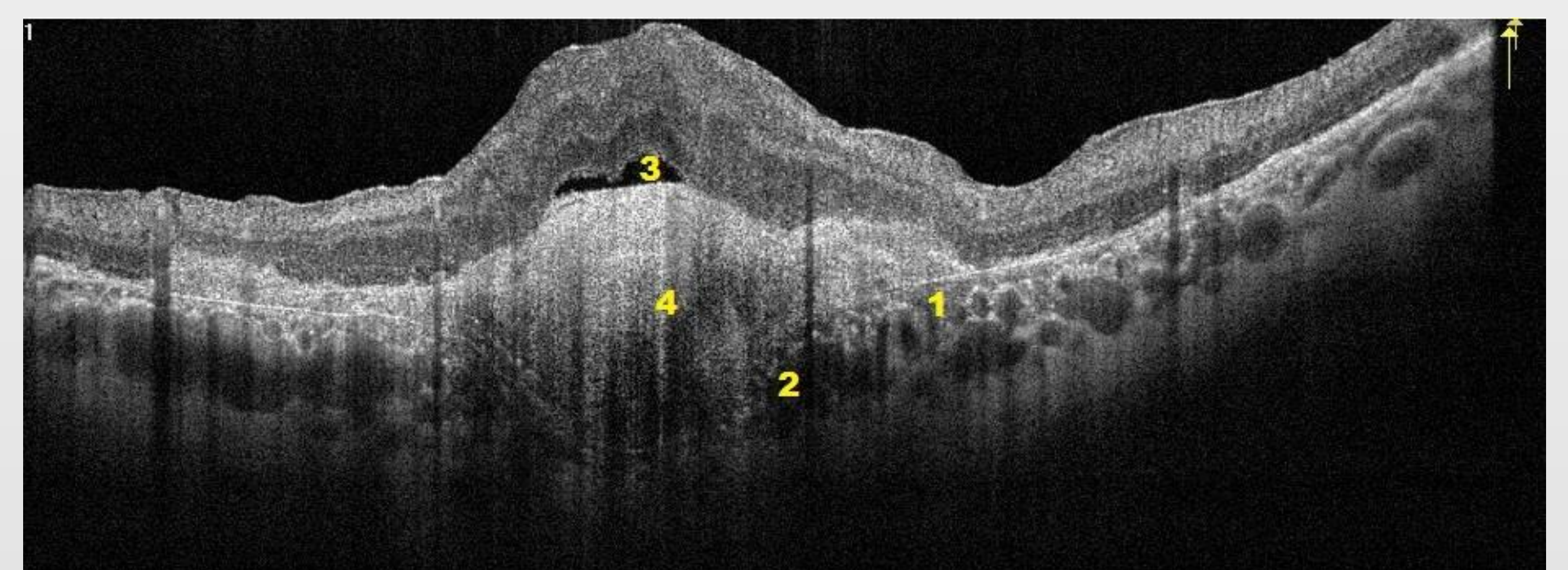


Figure 4 OCT scan through a granuloma with the EDI function; 1 – The dilated choriocapillaries, with increased signal measured by angioOCT; 2 – large choroidal vessels; 3 – subretinal fluid probably due to leakage from the choroidal vessels; 4 – granuloma.

Results:

The overall thickness of the choroid decreased nearly in all eyes (except of AAU, $p < 0.05$) compared to the pre-treatment measurements. Additionally the choroidal thickness was greater in the uveitis patients compared to the healthy control (except of AAU, $p < 0.05$). The differences in choroidal blood flow has been observed between active and non-active form of the disease in the PP and PU. This has been less prominent in AAU. Lesion observed in choroid in 2 patients has been masquerading the choroidal blood flow. The manufacturer setting are unable to properly distinguish different calibre of choroidal vessels, only raw data analysis enables to properly describe their morphology.

Conclusions:

There is still a great need for improvement of choroidal visualisation techniques. Visualisation with different modalities enables the investigator to combine information and proceed with proper diagnosis and treatment.