Management of submacular haemorrhage: displacement with or without r-TPA

In addition to having a poor prognosis, exudative forms of AMD, which display a relevant haemorrhagic component, are difficult to diagnose (concerning membrane location and extension) and to treat[(65,66)].

In the era of antiangiogenic agents, this is possibly the only form of AMD for which surgery is indicated, with the main objectives of avoiding damages caused by blood (mechanical, metabolic and toxic damages to the photoreceptor-RPE complex) and allowing subsequent treatment (laser or PDT)[(37,67,68)].

As previously referred, blood was initially removed by aspiration or mechanically extracting.

On a later date, Lewis was the first researcher to report the fibrinolysis properties of r-TPA, which make this agent useful in removing blood clots[(38-40)].

A procedure involving displacement of submacular blood by intravitreal injection of r-TPA and gas, followed by prone position, was described for the first time by Herriot in 1997 [(69)].

Blood is normally displaced temporally or infero-temporally, with a significant increase in visual acuity occurring immediately after the aforementioned procedure, as described in countless published outcomes.

Duration of haemorrhage has been pointed out by some authors as the main predictive factor for the aforementioned improvement[(70-76)].

The usefulness of intravitreal r-TPA as an adjuvant to this technique has been questioned, not only because r-TPA diffusion to the subretinal space has not been proved in experimental studies, but also because some studies demonstrated the success of pneumatic displacement of subretinal blood without concomitant injection of r-TPA[(75-77)] .

Therefore, a hybrid technique was introduced by Haupert in 2001, combining submacular surgery with pneumatic displacement[(78)].

After a few changes, this technique is currently used in some centers, as described: pars plana vitrectomy, removal of the posterior hyaloid, injection of r-TPA (12.5 µg/0.1 mL) into the subretinal clot using a 39-gauge flexible translocation cannula and fluid-air exchange followed by prone position.

The advantage of this technique is its smaller percentage of associated intra and post-operative complications, which is probably due to the smaller extent of tissue manipulation involved and consequent reduction in retinal injury[78,79].

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