

Protocol for isovolaemic hemodilution (Freiburg scheme)

1. Inclusion criteria

- central and branch vein occlusion of less than 8 weeks duration (symptoms noticed by patient)
- patient between 20 and 80 years of age

2. Exclusion criteria

- significant ischaemic heart disease (myocardial infarction less than 6 months ago, unstable angina, ischaemic ECG)
- cerebrovascular event less than 6 months ago
- grossly abnormal urea and electrolytes
- significant pulmonary disease
- haematocrit (PCV) below 38%

3. A full medical examination has to be done with special emphasis on the cardio-vascular system. The following investigations have to be carried out: medical: blood-pressure, ECG, X-ray, blood-tests (Hb, Plat, WBC, ESR, PCV, Na+, K+, Urea, Crea, B-Glucose, Hb A1C, TG, Chol, Protein), Urinalysis ophthalmological: visual acuity, full eye-examination including direct and indirect ophthalmoscopy and slit-lamp biomicroscopy.

4. Patients will have venesections of 500 ml blood and replacement (at the same time of the bloodletting procedure) with 500 ml 10% Hydroxyethylstarch in the first 1 - 2 weeks to lower the PCV under 35% (about 2-6 haemodilutions). Patients may be admitted for some days, but this is not mandatory. Patients should drink enough (# 2l/d) during the time of treatment. After that, weekly repeated haemodilutions whenever PCV exceeds 37%. The total venesection period is about 6 weeks. Before every venesection the patient's PCV will be measured to assess whether haemodilution is necessary. If significant problems arise (eg. chest pain, shortness of breath) venesection will be discontinued .

5. Follow up After 6 weeks baseline ophthalmic examinations, coloured photographs, fluorescein-angiogram will be repeated. Patients with an ischemic type of CRVO or neovascularisation will have panretinal photocoagulation recommended (Argon laser). After 3 and 6 months the mentioned investigations are repeated. Additionally, macular oedema is to be treated if there has not been an increase in visual acuity. Adjunctive medical (eg. hypertension, diabetes) and ophthalmic (eg. glaucoma) treatment as indicated clinically.