

Effect of Electrochemotherapy in Treating Patients with Intramuscular Vascular Malformations

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Background: Treatment of intramuscular vascular malformations (IVMs) poses a major clinical challenge for the contemporary medicine. Surgical resection is difficult and frequently unsuccessful, radiological intervention with embolization has an ill-defined role, and conventional sclerotherapy has little to offer for a large scale disease.

Objective: To evaluate the efficacy and safety of electrochemotherapy (EChT) in treating intramuscular vascular malformations.

Methods: EChT was applied on 665 patients with IVMs of limbs and trunk and 505 cases were followed up for half to 6 years. There were 228 males and 277 females, aged 2-59 years and 17.5 years on average. Diagnosis was made by clinical manifestations, ultrasonic examination and/or magnetic resonance imaging (MRI). Inserting the platinum electrodes into tumor through a trocar with plastic insulating cannula percutaneously and connecting the electrodes with the electrochemical therapeutic apparatus in anodes and cathodes separately. Then electricity was given. The treating voltage is 8-12V and volume 100-180 mA, the total electricity used is in general 80-100 coulombs per 1.0 square centimeter of tumors' area.

Results: The primary efficacy end point was defined as an improvement of patients' symptoms and a reduction in size of tumor 6 months after completion of the treatment. Clinical results were graded as follows: Grade 1, clinical obliteration, functional impairment of the diseased limbs recover to normal and the tumor decreases over 75%; Grade 2, most clinical symptoms disappear and functional impairment of the diseased limbs improve significantly, the tumor decreases 50-70%; Grade 3, clinical symptoms and functional impairment of the diseased limbs improve, the tumor decreases 25-50%; Grade 4, poor, little or no improvement of symptoms and functional impairment of the diseased limbs, the tumor decreases less 25%. The efficacy in 152 (30.1%) patients was classified as grade 1, 234 (46.3%) as grade 2, 96 (19.0%) as grade 3 and 23 (4.6%) as grade 4. The total efficacy was 95.4%.

Conclusion: EChT shows special superiorities in treating IVMs, it is proved to bring a confirmed clinical efficacy, less injury, quick recovery, being simple in operation and less complications.