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*Preventive administration of Clopidogrel after restoring patency
of acute dialysis fistula thrombosis with surgical thrombectomy*

Fistula thrombosis is the most common and dangerous complication preventing proper dialysis therapy. Mostly, it is caused by stenoses, haematomas, aneurysms, false aneurysms, wall irregularities, improper fistula use or surgical errors (1,7). 3 different types of thrombosis can be identified: total, chronic and parietal. Acute thrombosis manifests itself by complete absence of blood flow in efferent vein or vascular stent (7). Early detection of pathological change, stating its location and character is essential for applying a suitable method of treatment, which when initiated at the right time can considerably prolong the proper functioning of dialysis fistula. Acute thrombosis usually requires surgical intervention, the most common being surgical thrombectomy performed by means of Fogarty catheter. Recent advance in surgical radiology including balloon angioplasty, endovascular stent placement and transcatheter and trancatheter thrombolysis and thrombectomy provided new opportunities in successful treatment of dialysis fistula failure (8,11).

The aim of the paper was to evaluate how a new antiaggregative drug – Clopidogrel limits the incidence of early secondary complications following surgical thrombectomy of acute fistula thrombosis.

MATERIAL AND METHODS

The studied group consisted of 30 patients receiving kidney substitution therapy with repeated haemodialyses in terminal stage of renal failure. The etiology of the disease was different. The group consisted of 17 men and 13 women. The mean age was 53 (range 22 to 73 years). All the patients had surgically made A-V fistula in non-dominant limb. Methods of anastomosis: vein end to artery side (n=21), artery end to vein end (n=6), side to side (n=3). Vascular access was made by different surgeons in various medical centres. Duration of haemodialysis therapy ranged from 3 months to 7 years (mean time – 4.2 years). The patients received haemodialyses 3 times weekly for 4-4.5h in different medical centres of our macro-

region. All the patients were qualified for direct treatment on the basis of clinical signs: absence of hum and pulsation throughout the fistula vein.

Total acute A-V fistula thrombosis was treated with surgical thrombectomy by means of Fogarthy catheter. The method involved dissection, clamping and 2-3mm transverse incision of the vein. This was followed by the insertion of balloon catheter beyond the clot. The balloon was inflated with fluid under low pressure and moved together with the clot towards the incision site. After the clot had been removed and catheter withdrawn, the vessel was sewn up with atraumatic interrupted suture: Prolen 7 – 0. The incision was made within the fistula vein, about 3 cm off the anastomosis site. 24 patients who were successfully treated with surgical thrombectomy received a preventive dose (75mg every 24h) of Clopidogrel for 28 days following the surgical procedure.

RESULTS

In 24 patients, out of 30 who constituted the study group, the method of surgical thrombectomy appeared successful. In the other 6 patients despite the removal of the clot, the fistula failed to take up its normal function. Those patients were effectively treated with angioplasty. No patient showed any signs of early secondary thrombosis. Late secondary thrombosis complications occurred in 11 patients, 3–14 months after the procedure. In 7 cases they reoccured several times. 2 patients had central vein stenosis and 1 had fistula vein stenosis about 5 cm below cubital fossa. All the patients were treated with balloon angioplasty. 1 patient with stanosed subclavian vein had to undergo stent placement. In 4 patients the cause of repeated thrombosis failed to be revealed and after 3 subsequent thrombectomies a new fistula was created in the other forearm.

During the follow-up 2 patients died – one of heart attack and the other got killed in a road accident. In both cases the fistulas functioned well. During the follow-up, which ranged from 8 to 24 months, 15 patients maintained a proper vascular access after one single thrombectomy procedure and in another three patients positive results were obtained due to angioplasty.

DISCUSSION

Surgical treatment of total acute thrombosis still remains the most common and least expensive therapeutic method. It is effective and in most cases it provides efficient vascular access, which eliminates the need for inserting double-lumen catheter into central veins. The case of the first successfully performed thrombectomy was reported by Lachey (4). Surgical thrombectomy with Fogarthy catheter, despite certain shortcomings, has until present day been a widely recognized and willingly applied therapeutic method (3,5).

In the literature available I have not found any reports on administration of Clopidogrel in order to prevent A-V fistula thrombosis complications or therapeutic results after surgical thrombectomy performed to treat acute thrombosis. However, there are numerous reports on preventive use of Ticlopidine and Clopidogrel in combination with ASA in patients with coronary vessels stent placement or implants of own vessels. Those patients underwent 2 week (10) or 4 week (2,6) therapy and were regularly checked up for any signs of early or late stent or own vessel implant thrombosis (2,6,9,10).

CONCLUSIONS

1. Surgical thrombectomy is an affective and most available method of treatment in total A-V fistula thrombosis.
2. Clopidogrel played an important role in eliminating early secondary thrombotic complications after surgical thrombectomy of the fistula.

REFERENCES

1. Alberts I. F.: Causes of hemodialysis access failure. *Adv. Renal Replacement Therapy*, 1, 107, 994.
2. Bhatt D. L. et al.: Meta-Analysis of Randomized and Registry Comparisons of Ticlopidine with Clopidogrel After Stenting. *Am. Coll. Cardiol.*, 39, 9, 2002.
3. Dainko E. A. et al.: Complications of the use of the Fogarthy balloon catheter. *Arch. Surg.*, 105, 79, 1972.
4. Key E.: Embolectomy in treatment of circulatory disturbances in extremities. *Surg. Gynecol. Obstet.*, 36, 309, 1983.
5. Masuoka S. et al.: Complications associated with the use the Fogarthy balloon catheter. *J. Cardiovasc. Surg.*, 21, 76, 1980.
6. Muller C. et al.: A randomized comparison of clopidogrel and aspirin versus ticlopidine and aspirin prevention of trombois with clopidogrel. A review after placement of coronary-artery stents. *Circulation*, 15, 101, 590, 2000.
7. Pietura R. et al.: Podstawowe mianownictwo dotyczące przetoki dializacyjnej. *Przegl. Lek.*, 12, 761, 2000.
8. Pietura R. et al.: Przewlekła zakrzepica przetoki dializacyjnej – diagnostyka i leczenie metodą wewnątrznaczyniowej rekanalizacji. *Przegl. Lek.*, 6, 474, 2001.
9. Pluciński D. A. et al.: A comparison of clopidogrel to ticlopidine therapy for the prevention of major adverse cardiac events at thirty days and six months following coronary stent implantation. *J. Am. Coll. Cardiol. Suppl.*, 35, 67A, 2000.
10. Taniuchi M. et al.: Ticlid or Plavix poststent (TOPPS); randomization to 2 weeks of treatment. *Am. J. Cardiol.*, 22, Suppl., 884, 68, 1999.
11. Vorwerk D. et al.: Chronic venous occlusion in hemodialysis shunts: efficiency of percutaneous treatment. *Nephrol. Dial. Transplant.*, 10, 1869, 1995.

SUMMARY

Dialysis fistula thrombosis is the most common and dangerous complication which prevents proper dialysis therapy. The aim of this paper was to evaluate the influence of Clopidogrel on the incidence of early secondary thrombosis complications after restoring patency of fistula with surgical thrombectomy. The study included 30 patients. In 24 patients the method of surgical thrombectomy proved to be effective and they received a preventive dose of Clopidogrel [75mg per 24h] for 28 days. In none of the patients early secondary thrombosis was recorded. Late secondary complications occurred in 11 patients 3 to 14 months after the surgical procedure. Treating acute thrombosis with surgical thrombectomy by means of Fogarthy catheter is still the most available and least expensive therapeutic method. Clopidogrel contributed considerably to the elimination of early secondary thrombosis complications in treated fistula.

Profilaktyczne zastosowanie klopidogrelu po udrożnieniu ostrej zakrzepicy przetoki dializacyjnej metodą chirurgicznej trombektomii

Zakrzepica przetoki dializacyjnej jest najczęstszym i najgroźniejszym powikłaniem, które uniemożliwia prowadzenie prawidłowej dializoterapii. Celem pracy była ocena wpływu zastosowania klopidogrelu na występowanie wczesnych wtórnych powikłań zakrzepowych po udrożnieniu przetoki metodą chirurgicznej trombektomii. Badaniem objęto 30 chorych. W grupie 24 pacjentów, u których chirurgiczna trombektomia okazała się skuteczną metodą leczenia ostrej zakrzepicy przetoki, przez okres 28 dni podawano klopidogrel w profilaktycznej dawce 75 µg na dobę. W żadnym przypadku nie obserwowano występowania wczesnej wtórnej zakrzepicy. Wtórne późne powikłania zakrzepowe wystąpiły u 11 chorych w okresie od 3 do 14 miesięcy. Leczenie ostrej zakrzepicy metodą chirurgicznej trombektomii przy użyciu cewnika Fogarty'ego pozostaje w dalszym ciągu najbardziej dostępną i najtańszą metodą leczenia. Zastosowanie klopidogrelu miało istotny wpływ na wyeliminowanie wczesnych wtórnych powikłań zakrzepowych w udrożnionej przetoce.