Chapter 4

UPDATE ON PHARMACOMECHANICAL THROMBOLYTIC TREATMENT IN ACUTE AND SUBACUTE PHASE OF DEEP VEIN THROMBOSIS

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Deep venous thrombosis is a serious medical condition that may lead to life-threatening complications. Although it occurs mostly secondary to other conditions (e.g. cancer, cardiac or pulmonary failure, major surgery), the basic pathology involves endothelial injury, immobility, and hypercoagulability. In the last two decades, pharmaco-mechanical thrombolytic treatment has gained widespread utility in a wide range of conditions. In particular, endovascular interventions initially introduced for the treatment of venous thrombosis are now used for varying clinical manifestations (1).

Traditional low-molecular weight heparin in combination with and followed by oral anticoagulants is commonly used (2). The main target of this therapy includes the prevention of thrombus as well as the recurrence of pulmonary embolism and DVT. However, many patients are faced with the risks of post-thrombotic syndrome and ulceration due to inadequate fibrinolytic efficacy, especially in subjects with proximal DVTs and high thrombus burden (3-6).

American College of Chest Physicians recommends oral anticoagulants as the first and gold standard treatment for the management of DVT (class 1; level of evidence A) (7).However, many studies have shown that anticoagulant treatment alone may not adequately eliminate the existing thrombotic load in the absence of additional interventions.Under these circumstances, alternative therapeutic options have gained more importance due to relative ineffectiveness of oral anti-coagulants in the prevention of pulmonary embolism and recurrences as well as due to the potential risks associated with long term use of medications (8).

Most of the evidence supporting early removal of thrombus comes from data obtained after open thrombectomy. Randomized controlled comparisons of thrombectomy or early thrombus resolution with anticoagulant therapy alone have shown that removal of the thrombosis may be reasonably useful for achieving venous patency, reducing hypertension and edema, and prevention of the post-thrombotic syndrome (9).

In the past decade, pharmaco-mechanic thrombolytic therapy (PMT) has been introduced as an alternative to open surgical thrombectomy and catheter-dependent thrombolysis (CDT). Although we lack data on the long term effects of this approach from multi-center, randomized, controlled studies, observational studies have reported successful outcomes with PMT (10).

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