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Smelil (ANGIPARS™) as a New Herbal Drug on Diabetic Foot Ulcer

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Introduction

Diabetes Mellitus is a most common metabolic disease in the world cause around 15% of diabetic patients suffer from Diabetic Foot Ulcer (DFU) in which 15-20% will lead to amputation [1,2]. Regardless of different types of diabetic foot ulcer treatment the incidence of lower extremities amputation among diabetics is still high [3]. In this regard ANGIPARS™ as a novel safe herbal formulation has been presented for diabetic foot ulcer. Results of studies which evaluate the effectiveness the main substance (Melilotus) of this product revealed not only it is effective in elimination of skin aging and stimulate microvascularization but also it has anti-inflammatory effects [4,5].

Clinical Trial Studies

Preclinical, experimental study

In this phase, the acute toxicity, genotoxicity, apoptotic effects, sub acute toxicity, mutagenic effects, fetal toxicity, and allergic effects of ANGIPARS™ have been evaluated and there was not any acute or chronic toxicity so that it was recommended for clinical studies [6,7].

Phase I clinical trial study

In first phase of the clinical trial, both Maximum Tolerated Dose (MTD) and Dose Limiting Toxicity (DLT) of ANGIPARS™ were studied in which intravenous injection of 10 cc per day ANGIPARSTM causes the significant improvement of the foot ulcer. In this phase there was not any clinical or laboratory adverse effects except the phlebitis in the site of injection. In other word the only adverse effect seen with dose of 13.5 cc per day. Consequently, the MTD of 10 cc per day and the only DLT of phlebitis were reported [8].

Phase II clinical trial study

In a second phase of clinical trial, the safety and efficacy of parentral ANGIPARS™ in healing diabetic foot ulcer was studied by Endocrine and Metabolic Diseases Research Centre of Tehran University of Medical Sciences. The results were evidence for an effect drug of at least 50% in decreasing wound size [9].

Phase III clinical trial study

In a multicentre phase III study, the intravenous ANGIPARS™ study, patients as an intervention group were treated by intravenous ANGIPARS™ 4cc daily for 4 weeks. The drug diluted in 50-100 cc normal saline and infused during 30-60 minutes. It showed that foot ulcer surface area decreased in the intervention compared with control group with conventional therapy. In other word the wound healing percent was 64% for ANGIPARS™ [10].

Patients were randomized into one of 2 experimental or a control group. The first experimental group was patients received 100 mg of ANGIPARS™ capsules orally twice a day for 6 weeks and the second experimental group, additionally to the mentioned oral therapy, 3% gel was administered topically beside of all standard wound treatments in both group. While the control group was treated with standard wound care. The wound in 83-100% of patients who received oral-topical form of ANGIPARS™ completely improved whereas the rate of complete closure was 22% in control group [11].

Phase IV clinical trial study (Post-marketing)

In Post-Marketing study patients administered 100 mg of ANGIPARS™ capsules orally twice a day plus topical 3% gel for 45 days. Mean ulcer surface area considerably decreased. In addition there was a significant rise in Ankle Brachial Index (ABI) and Toe Brachial Index (TBI) after treatment period. It should be noted that there was not any significant side effects or toxicity during the Post-Marketing study.

Conclusion

ANGIPARS™ as a novel herbal formulation, presented for treatment of diabetic foot ulcer. Taking into account the efficacy and safety of ANGIPARS™ which has evaluated through multicentre double blind placebo controlled phases of trials and its very few toxic effects, effectiveness in diabetic foot ulcer healing, decreasing wound size along with enhancing microvascularization, it could be recommended in diabetic foot ulcer treatment. On the other word ANGIPARS™ along with other modality could be helpful in diabetic foot ulcer treatment especially when other treatments have not been effective. Finally it should be noted that use of ANGIPARS™ along with other treatments and debridement would be more effective.

References

1. Introduction: Diabetes in the Eastern Mediterranean Region.
2. American Diabetes Association (1999) Consensus development conference on diabetic foot wound care 7-8 April 1999, Boston, Massachusetts. Diabetes Care 22: 1354-1360.
3. Morris AD, McAlpine R, Steinke D, Boyle DI, Ebrahim AR, et al. (1998) Diabetes and lower-limb amputations in the community. A retrospective cohort study. DARTS/MEMO Collaboration. Diabetes Audit and Research in Tayside Scotland/Medicines Monitoring Unit. Diabetes Care 21: 738-743.
4. Asres A, Eder U, Bucar F (2000) Studies on the anti-inflammatory activity of axtracts and compounds from the leaves of Melilotus elegans. Ethiopian Pharmaceutic J 18: 15-24.
5. Plesca-Manea L, Parvu AE, Parvu M, Taamas M, Buia R, et al. (2002) Effects of Melilotus officinalis on acute inflammation. Phytother Res 16: 316-319.
6. Khorram Khorshid HR, Sadeghi B, Heshmat R, Abdollahi M, Salari P, et al. (2008) *In vivo* and *In vitro* genotoxicity studies of Semelil (ANGIPARS™). DARU J Pharm Sci 16: 20-24.
7. Abdollahi M, Farzamfar B, Salari P, Khorram Khorshid HR, Larijani B, et al. (2008) Evaluation of acute and sub-chronic toxicity of Semelil (ANGIPARS™), a new phytotherapeutic drug for wound healing in rodents. DARU 16: 7-14.
8. Heshmat R, Mohammad K, Mohajeri Tehrani MR, Tabatabaie Malazy O, Kes-

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htkar AA, et al. (2008) Assessment of maximum tolerated dose of a new herbal drug, Semelil (ANGIPARS™) in patients with diabetic foot ulcer: A Phase I clinical trial. DARU 16: 25-30.

9. Masoompour SM, Bagheri MH, Borhani Haghighi A, Novitsky YA, Sadeghi B, et al. (2008) Effect of ANGIPARS™, a new herbal drug on diabetic foot ulcer: A phase 2 clinical study. DARU 16: 31-34.

10. Larijani B, Heshmat R, Bahrami A, Delshad H, Ranjbar Omrani G, et al. (2008) Effects of intravenous Semelil (ANGIPARS™) on diabetic foot ulcers healing: A multicenter clinical trial. DARU 16: 35-40.

11. Bahrami A, Kamali K, Ali-Asgharzadeh A, Hosseini P, Heshmat R, et al. (2008) Clinical application of oral form of ANGIPARSTM and in combination with topical form as a new treatment for diabetic foot ulcers: A randomized clinical trial. DARU J Pharm Sci 16: 41-48.

12. Ebrahimi M, Bakhshayeshi S, Heshmat R, Shahbazi S, Aala M, et al. (2010) Post marketing surveillance on safety and effectiveness of ANGIPARS in treatment of diabetic foot ulcers. DARU J Pharm Sci 17: 45-49.