Purpose: For some patients with chronic limb-threatening ischemia (CLTI) revascularization procedures are not enough to induce wound healing. ‘Rheocarna’ is a novel therapeutic apheresis that has recently been developed (Kaneka, Japan) as an adjuvant therapy for patients with CLTI. This study investigated the effectiveness of Rheocarna.

Methods: Four CLTI patients (3 female, 1 male; mean age 70±4.9 years) with foot wounds were treated with Rheocarna. Two patients had diabetes and the other two were on hemodialysis. Though all patients underwent revascularization before the use of Rheocarna, their wounds had not healed. Skin perfusion pressure (SPP) levels were 43.5 mmHg, 38.5 mmHg, 23.5 mmHg, and 24 mmHg, and the average diameter of the wounds were 0.5 cm, 0.9 cm, 0.8 cm, and 3.5 cm, respectively. Treatment with Rheocarna was administered twice weekly for 2 hours, for a maximum of 12 weeks.

Results: The wounds of 3 patients had healed with the following improvements in SPP: 54.5 mmHg, 41 mmHg, and 35.5 mmHg. The number of treatments was 7, 6, and 10 sessions, respectively; while the wound healing time was 10, 21, and 132 days, respectively. Rheocarna reduced blood viscosity by adsorbing low-density lipoprotein and fibrinogen, thereby improving peripheral circulation in the lower extremities. Only 1 wound, with the largest average diameter of 3.5 cm and pre-treatment SPP level of 24 mmHg, had not healed even after 15 treatments. During the treatments, no adverse events specific to Rheocarna were observed in any of the patients.

Conclusions: Rheocarna improved circulation and increased the wound healing rate to 75%. In the Japanese multicenter clinical trial including our cases, the wound healing rate within 6 months was 45.9% (28/62 wounds). Rheocarna will be the primary adjuvant therapy for no-option patients with CLTI.