Costin Aurel Militarul et al., J Infect Dis Ther 2018, Volume 6
DOI: 10.4172/2332-0877-C6-053



# The use of chicken immunologically active proteins (CIAP) for the treatment of bone, joint and soft tissue infections with antimicrobial resistance (AMR) germs in Romanian patients

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**Introduction:** Infections with antimicrobial resistance (AMR) germs are a strong concern of present medical practice, imposing a stringent need for efforts to identify alternative treatment approaches. Chicken Immunologically Active Proteins (CIAP) including Immunoglobulin (Ig)-Y represent powerful tools obtained from the eggs of chickens immunized with antigens of the hospital-isolated AMR germs (1-3). This study presents the use of CIAP in AMR infections of bones, joints and soft tissue in Romanian patients.

**Patients group:** We have performed a study on 8 patients (6 male and 2 female) aged 43 to 72 years with AMR infections of bones, joints and soft tissue of the lower limbs and with diverse superposed debilitating pathologies (uncontrolled diabetes mellitus, high blood pressure, atheromatous arteriopathy) that were treated orally and topically with CIAP. Patients were subjected to thorough medical investigations including haemoleucogram, inflammatory markers, glycemia, liver and kidney function tests, vascular imaging, lower limb radiographs, microbiological culture from wounds and pus collections. In diabetic patients, glycemic control was acquired by insulin or oral antidiabetic drugs administration and in one patient the blood flow to the affected lower limbs was restored by axillary-bi-iliac by-pass. Orthopedic surgery was performed in order to correct bone and joints pathology.

**Results:** The evolution was favourable after orthopedic surgery in all patients treated orally and topically with CIAP in the absence of any simultaneous antibiotic treatment, thus salvaging the affected inferior limbs. CIAP treatment led to buildup of bone, remodelling of soft tissue and recovery of independent ambulatory capabilities. The obtained results are very suggestive of the immunomodulatory actions and treatment potency of CIAP products in infections with AMR germs in humans.

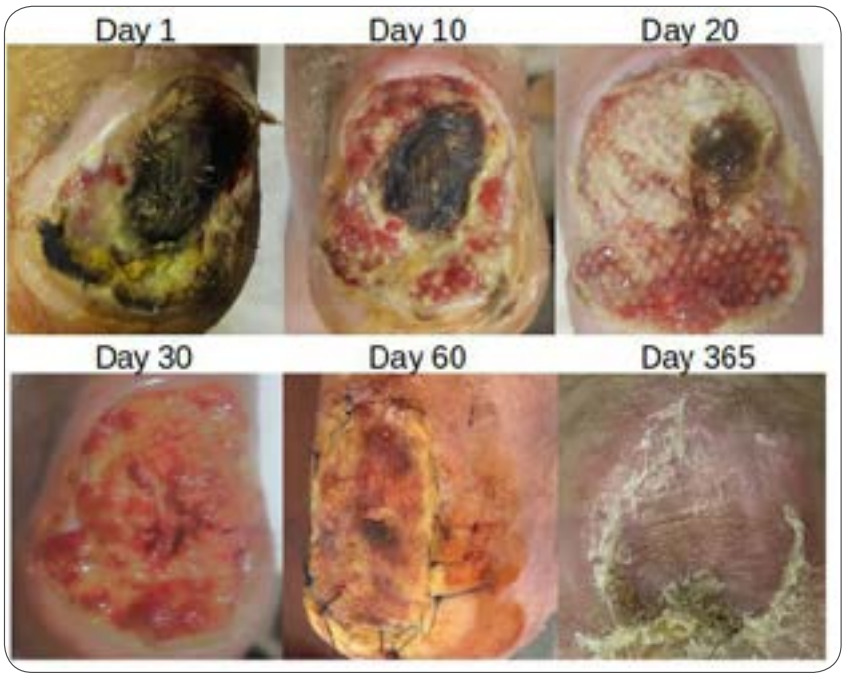


**Figure 1:** Salvage of inferior limb in a representative patient with diabetes mellitus, high blood pressure, bi-iliac arterial occlusion, calcanean necrosis infected with antibiotic resistant Pseudomonas aeruginosa, after axillary-bi-iliac by-pass, necrotic bone resection, IMUNOINSTANT MULTIPLU (CIAP) oral and topic administration, without additional antibiotic treatment

**Recent Publications**

1. Schade R, Pfister C, Italatsch R, Henklien P. Polyclonal antibodies from chicken egg yolk-an alternative to the production of mammalian IgG type antibodies in rabbits. ATLA. 1991, 19: 403-419.
2. Patrascu Ionel Victor. Active immunity by passive immunity. 2017 Annual Session of the Romanian Academy.
3. Pătrașcu Ionel Victor. Active immunity by passive immunity. I-spga as a new Immunogen. A Modest Contribution to the Fight Against the Antimicrobial Resistance. SDG Lab, Davos, January 24, 2018, World Economic Forum Annual Meeting, 23-26 January 2018, Davos-Klosters, Switzerland, Media Tenor Global Agenda.

**Biography**

Costin Aurel Militarul is having more than 20 years of clinical practice. The complicated cases of frail patients with debilitating pathologies including infections with antimicrobial resistance (AMR) germs that he encountered during his clinical practice fueled his interest in the collaboration with scientists developing chicken imunologically active protein (CIAP) products.

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