

MICROCIRCULATION HEMORHEOLOGY AND TISSUE OXYGENATION IN CLINICAL AND EXPERIMENTAL PRACTICE: CEMOT ACTIVITY IN THE LAST TWO YEARS

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1. INTRODUCTION

The study of microcirculation has always been an important target for many scientists, because it is there that the main functions linked with tissue life are realized. It is well known that the main functions of the microcirculation are the transport and exchange of metabolic substances, oxygen, carbon dioxide and nutrients between the blood and tissues. Many alterations in microcirculation induce changes in physiology and consequently induce pathologies.

During proliferation of capillaries (angiogenesis) there is often thickening of the capillary basement membrane and arterial wall. In other situations (such as system vasculitis) it is possible to have rarefaction of capillaries (decrease in capillary loop number), in hypertension it is also possible to find an increase in vascular tortuosity, connected with microaneurisms. Endothelial swelling and capillary plugging are often present in diabetes and metabolic disease (proteinosis). In inflammatory diseases, leukocyte adhesion is present in many previous pathologies, often it is possible to see hyperviscosity, hemoconcentration and sludges with a decrease in Red Blood cell (RBC) deformability, and a decrease in tissue oxygenation. In these conditions vasomotion abnormalities are often present.

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2. CEMOT AIM

The aim of CEMOT is to encourage collaboration between different scientists in order to optimize the study of tissue oxygenation, microcirculation and hemorheology in different pathologies strongly related to interested specialities (Fig 1).

CEMOT operators are connected and continuously exchange their scientific and clinical experience with colleagues operating in the Departments of General Surgery and Liver Transplantation, Hematology, Nephrology, Physics, Internal Medicine, Ophthalmology, Obstetrics, and Neurology (Fig.2).



Figure 1: The CEMOT logo

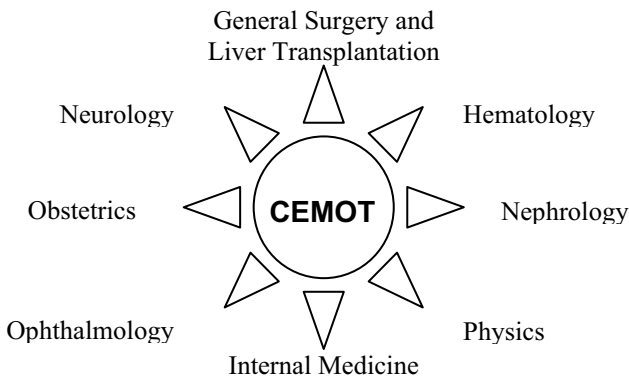


Figure 2. The Structure of CEMOT

3. CEMOT: A SHORT HISTORY

CEMOT began as a simple laboratory of microcirculation in hypertension. Dr. Giuseppe Cicco and only two co-workers were employed in this laboratory. Later, in 1993, the laboratory became the 'Laboratories of hemorheology and microcirculation' still under the direction of Dr. Giuseppe Cicco.

In 1996 the first LORCA (Laser assisted Optical Rotational Red Cell Analyzer) from the Netherlands arrived in these laboratories. Many results were produced on this instrument between 1996 and 1998. Much of this work was presented at the Second