



TREES

Translational REsearch on Stroke

ICTUS dal laboratorio al letto del malato

Hot topics in acute stroke: from bench to bedside and back again

Corso FAD - Webinar 19 ottobre 2021

SCIENTIFIC RATIONALE

Since the breakthrough of endovascular stroke therapy, mechanical thrombectomy has become the standard of care in patients with large vessel occlusion – related stroke and successful reperfusion was reported in up to 71% of patients. (Goyal et al, Lancet 2016). However, a substantial proportion (54.5%) of patients experience futile recanalization, defined as poor long-term outcome despite successful reperfusion (van Horn et al, 2020).

The mechanisms behind this phenomenon are not clear, but several possibilities exist. Chief among them is the so-called “reperfusion injury”: it is a functional, microscopic and macroscopic injury consequential to blood flow restoration. Oxidative stress, leukocyte recruitment and breach of the blood-brain barrier (BBB) may sometimes follow the re-introduction of oxygen to such an oxygen-deprived tissue, leading to adverse functional, metabolic, or structural changes in ischemic tissues, which compromises and antagonizes the beneficial effect of reperfusion (Yang and Betz, 1994; Aronowski et al, 1997; Sun et al 2018). In clinical practice, reperfusion injury occurs mostly as vasogenic edema and hemorrhagic transformation, both related to the increased permeability of the BBB.

The approach to reperfusion therapies continues to evolve, and neuroimaging is acquiring a greater role in the diagnostic work-up and treatment decisions as shown in recent clinical trials with extended time window. The paradigm shift in the management of AIS from “Time is Brain” to “Imaging is Brain” brings a renewed interest in the state of the ischemic tissue and therefore in basic research. Preclinical investigation provides an important means of understanding the role of neurovascular disruption in determining the clinical outcome, in order to find new predictors of clinical deterioration and therapeutic strategies.

LEARNING OBJECTIVES

Pharmacological and mechanical recanalization therapies, representing the only strategies that have substantially improved acute ischemic stroke outcomes, were largely developed omitting conventional preclinical methods. However, a continuous comparison between clinical and preclinical research is still necessary in order to be able to answer specific clinical questions: there is still no explanation why a substantial proportion of patients with acute LVO-related stroke have a poor clinical prognosis despite successful flow restoration. Pre-clinical research may help understanding the neuronal and vascular underpinnings of Futile Recanalization, identify potential treatment targets and lead to clinical translation. Among others, major questions to preclinical research are:

Which mechanistic insight could be given by preclinical research to explain the different evolution of hypoperfused tissue? why does Mechanical Thrombectomy not improve stroke outcome in all patients? And, how can stroke reperfusion treatments be further improved?

This workshop will display recent advancements in clinical and preclinical research aimed at answering these long-standing questions.

E.C.M CREDITS

L'evento è accreditato nel **Programma Nazionale di Educazione Continua in Medicina**, con l'identificativo **182-331550**, secondo le attuali disposizioni. Obiettivo nazionale di riferimento: **Contenuti tecnico – professionali (conoscenze e competenze) specifici di ciascuna professione, di ciascuna specializzazione e di ciascuna attività ultraspecialistica, ivi incluse le malattie rare e la medicina di genere.**

Aperto a nr 100 Medico chirurgo; Tecnico sanitario laboratorio biomedico; Tecnico sanitario di radiologia medica.

Eroga **4.5** (quattro,cinque) crediti formativi al superamento del questionario di apprendimento.

REGISTRATION

Free of charge registration: www.datre.net/ictus

NOTE

English language course



SCIENTIFIC BOARD

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PROGRAM

10.00 – 10.10 Welcome and Introduction – **M. Baldereschi; C. Sarti**

Chairs: **M. Baldereschi; C. Sarti**

10.15 – 10.45 Opening Lecture: Stroke - from therapeutic nihilism to precision medicine - **D. Inzitari**

10.45 – 11.00 Advanced Neuroimaging in stroke clinical practice – **E. Fainardi**

11.00 – 11.15 New frontiers in stroke neuroimaging – **J. Kennedy**

Chairs: **A. L. Allegra Mascaro; E. Conti**

11.15 – 11.30 MRI on animal models of stroke – **R. Dijkhuizen**

11.30 – 11.45 Advanced optical imaging in preclinical stroke research – **A. Bauer**

11.45 – 11.50 STROKELAB2BED project in a nutshell and preliminary results – **E. Conti; B. Piccardi**

11.50 – 11.55 NIMBLE project in a nutshell and preliminary results – **A. Sodero**

Chairs: **B. Giusti; A. Gori; B. Piccardi**

11.55 – 12.15 Blood Biomarkers in acute ischemic stroke – **A. Bustamante**

12.15 – 12.30 Plasticity of the brain - from mesoscale to cellular levels - to restore sensorimotor and cognitive functions after stroke – **A. S. Wahl**

12.30 – 13.00 Lecture: Immune biomarkers and neuroprotection – **J. Anrather**

13.00 – 13.20 Epigenetic Pathways as Molecular and Druggable Targets in Stroke, and conclusive remarks – **L. Annunziato**



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