PLACENTAL PATHOLOGY AND SARS-CoV-2 INFECTION: THE EXPERIENCE AND THE MANAGEMENT OF A REGIONAL REFERRAL CENTER

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Several studies have been conducted about how SARS CoV-2 infection affected the respiratory or cardiovascular system but also about placental histopathology and pregnancy outcome in pregnant affected women. SARS-Cov-2 outbreak progression in Italy showed two different peaks, with different regions distributions: in Liguria, starting from the first outbreak peak, all placentas of positive mothers were collected at San Martino hospital while Istituto Gaslini collected placentas from the rest of the region. In the period from February 2020 to February 2021, 74 placentas were collected in San Martino hospital while 25 placentas were sent to Istituto Giannina Gaslini. All the placentas were examined for gross and histologic findings and the reports are now available for Istituto Superiore di Sanità, in association with clinical information of pregnant women. The aim of this multidisciplinary project consists of describing placental findings in women with SARS-CoV-2 infection and correlate them with eventual vertical transmission. Although many reports of COVID-19 in pregnancy describe complications, such as preterm birth (1), our data do not confirm any evidence suggestive for an acute event: moreover, the majority of the study population had a third trimester gestational age, demonstrating that SARS CoV-2 infection doesn't increase the risk of preterm birth. Vertical transmission is apparently rare (2) and this may be related to the presence of a placental barrier (3). A hypothetic way of transmission may be represented by intervillous hemorrhage, a situation characterized by maternal and fetal blood mixture. Interdisciplinary collaboration between gynecologists and pathologists is really important to having a global knowledge about health pregnant women, in particular about SARS-CoV-2 infection timing: generally, placental lesions need of months to develop and produce significant effects. This proposed multidisciplinary collaboration may help pathologists to comprehend the true nature and severity of placental lesions detected and try to understand even more the hypothetic mechanisms and prevalence of vertical transmission of SARS CoV-2.

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NEW PROTOCOLS FOR REGENERATIVE MEDICINE IN POST COVID-19 TREATMENT CONFIGURED ON THE PERSONALIZED USE OF OXYGEN AND OZONE-BASED THERAPIES

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Resolving the pulmonary and somatic consequences of COVID-19 infection have created a new milestone for regenerative medicine. Our research group, which has been dealing with therapies based on the use of Oxygen-Ozone (O_2-O_3) for more than 20 years, is proceeding in biomedical research both from a molecular and a clinical point of view. In addition to COVID-19, a growing body of scientific findings supports the existence of what is known as post-COVID syndrome, also referred to as long COVID (long haul COVID fighters), a pathologic entity, which involves persistent physical, medical, and cognitive sequelae following COVID-19. It is thus needed also for this condition a targeted treatment. The correct line to follow for an effective post COVID-19 treatment consists first of all in the personalization of the therapy, adapting it to each individual patient. The personalization passes through a modeling of the subject that starts from the evaluation of blood tests and from the genetic background, obtaining organized datawarehouse sorted according to temporal parameters. The datawarehouse, native and derived from algorithmic processing (control and statistics), constitute the "virtual subject" on which the treatment simulations are applied, and the verifications are performed through the prediction algorithms. The protocol linked to the simulation is used to personalize the therapy on the real patient. The data deriving from each application will enrich both the specific database of the single patient and the general database, linked to post COVID-19 therapy. In this study, a group of age-sex matched post-COVID patients was analyzed. Although considered "resolved", they continued to show symptoms like Chronic Fatigue Syndrome, such as fatigue, generalized pain, dyspnea and difficulty in concentration. We propose for the first time, the implementation of new specific procedures and protocols for a personalized O_2-O_3 therapy, with the aim to intervene quickly and specifically on post COVID-19 tissue recovery. Thanks to the activation of the "virtual subject", we want to maximize the efficacy of the O_2-O_3 therapy, starting from the widely scientific demonstrations on the regenerative, immunomodulatory, anti-inflammatory and antioxidant properties of O_3.

PNPLA3 AND TLL-1 POLYMORPHISMS AFFECT DISEASE SEVERITY IN PATIENTS WITH COVID-19

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Albeit the pathogenetic mechanism of COVID-19 is yet partly unclear, the course and outcome seem to be significantly influenced by host factors supporting a strong proinflammatory response and inducing a massive release of cytokines leading to a "cytokine storm" ultimately causing severe alveolar damage but also multiorgan failure. It is thus conceivable that the complexity of host genetic background in terms of polymorphisms in genes involved in SARS-CoV-2 receptor-dependent endocytosis, antiviral responses and modulation of cell infection and reinfection, inflammation, or immune stimulation may play a key role in pathogenesis and outcome of COVID-19. To probe the possible effects of host's genetic polymorphism in different segments of the innate antiviral response, we aimed to assess some specific functional Single