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New Forensic Protocol in the Era of SARS-CoV-2

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During the Sars-CoV-2 pandemic in Italy, even though many people died due to virus-induced complications, there was a warm advice from the government against performing body autopsies, instigating their incineration. It was a reckless decision, leaving clinicians and scientists empty handed when it comes to studying infection-induced tissue changes and subsequent organ failures, making it more difficulties in finding a better clinical solution for combating the virus.

The pharmaceutical industries were ready to develop different "vaccines", or better said *new drugs*, able to activate the immune system. New drugs do not contain the attenuated virus mixed with adjuvants and other ingredients, as was the usual case in the vaccine practise. Instead, new nanotechnology systems supplied with mRNA or DNA entities are adopted. Once inside the cell, these drugs alter the local metabolism and stimulate the synthesis of a protein, normally being of foreign origin, but now self-SPIKE-protein, recently shown responsible for impairing endothelial function on its own [1].

The new technology uses liposomes filled with mRNA molecule. These Trojan horse's introduce synthetic RNA inside the cell. Normally, an RNA filament alone has no possibility to enter the cell: the cell membrane sensors mount an action against "non-self" intruders, where specific enzymes are removing the threat. However, introducing the N1-methylpseudouridine base in the mRNA of the spike protein, changes mRNA's degradability, half-life and immunogenity [2]. The cell probably sees nanotech-liposome particle as "just another lipid particle". Thus, it gets phagocytised, introducing its content inside the cell's cytoplasm. Currently, there are no publicly available scientific data regarding kinetics of the nanoparticle content transcription, removal, clearance and finally, no data are available regarding the fate of the lipid particle constituents.

We can assume that before entering "targeted" cells (i.e. APCs and macrophages), the liposomes traveling through the blood circulation are prone to establish nano-bio-interactions with the blood proteins, enzymes and circulating cells. Studies about these phenomena are currently not available.

Occasionally, the newspapers report cases of side effects upon receiving the vaccine. Sometimes, side effect is more central than sided, especially when lethal. In such cases, the court cannot deny families requesting autopsy in order to understand the reason of sudden death.

Currently, autopsies are done according to the "standard" forensic protocols, which is the same as in case of death due to weapon shooting, chemical intoxication, serious injury, etc.

In the case of deaths following vaccination, one could ask if there was a link between the components of the vaccine, cytokine storm (if presented) and tissue-(organ)-associated damage. As new drugs are using nanotechnology products in manufacturing

process, new diagnostic approaches are needed to test if there was a bio-interaction event inside the affected tissue or organ, when death is idiopathic. A tool that can study nanotechnology aspect of the new vaccines is Field Emission Gun Environmental Scanning Electron microscopes and Transmission Electron Microscopes (FEGE-SEM-TEM).

Using FEGE-SEM-TEM, it has been already shown that old manufacturing technology supplies vaccine with inorganic contaminants beyond the nano-size [3]. Is it sane to question the presence of foreign nano-bodies inside vials of novel drugs? If there are indeed foreign bodies, then these can actually be the markers searched during autopsy, as nano-particles (especially inorganic) show strong bio-interaction affinity[4]. For example, liver endothelial cells are rich in receptor repertoire, as they can pick up blood-borne entities such are pathogen- and damage-associated molecular patters, micro- and nanoparticles. This can point further towards endothelial cells of any highly vascular tissue - if presented with histology or morphology changes, then it should be checked for presence of spike protein (mass-spectrometry, immuno-fluorescence, western-blot) or spike-coding nucleic acids (immunohistochemistry, PCR on solid and liquid tissues), but also for presence of nano- or micro-particle contamination (FEG-ESEM-TEM). Of course, other approaches to detect the presence of Spike protein and its dissemination could be performed, but then explanted tissues must be kept at very low temperature, which is not always an easy task [4].

This strategy should be applied upon harvesting affected organs (notably heart and brain), especially if thrombi (primary or disseminated) are present. Preparation of the rest of the tissue lies still in the frame of standard medical procedures [5].

Finally, diagnostic protocols must be obligatory when it comes to blood and organs donation. In the case of a person who passed away shortly after receiving the new immunotherapy (vaccine), "nano-aimed" diagnostic must be done, as nano-particles show strong retention inside tissues. An example would be if a person still having viable nanoparticles (in this case liposomes) with preserved structure and organic content. As such, nano- and micro-particles can get access into the receiving body. The subsequent possible effects are unknown, since no study tested side effects of non-degraded liposomal particles (primarily autoimmune response).

If these studies prove to be useful, they are to fortify current trend of personalized medical care – drugs, immunotherapy and (most importantly) safety measures chosen and adjusted for each person.

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