ECRONICON OPEN ACCESS

EC PHARMACOLOGY AND TOXICOLOGY

Opinion

Biopolymers, what is that? Catheters, Guide Catheters, Introducers, Stents. What do they Mean and what Properties do they have?

Henry Collet Cammarillo[1], Daniel Collet Salguiero[2], Freddy Contreras[3] and Manuel Velasco[4]*

[1]*Director of the Catetherization Laboratory of the Collet Foundation, Clinica Avila, Caracas, Venezuela*

[2]*Assistant to the Laboratory Foundation, Caracas, Venezuela*

[3]*Clinical Pharmacology Unit, Vargas Medical School, Central University of Venezuela, Caracas, Venezuela*

[4]*Professor, Director, Clinical Pharmacology Unit, Vargas Medical School, Central University of Venezuela, Caracas, Venezuela*

***Corresponding Author:** Manuel Velasco, Professor, Director, Clinical Pharmacology Unit, Vargas Medical School, Central University of Venezuela, Caracas, Venezuela.

Received: July 10, 2020; **Published:** July 23, 2020

Biopolymers are an advances in Molecular Biology, Engineering, Supramolecular Chemical tissue, Microbio Materials Engineering, and Nanotechnology. These materials can be short-lived. Catheterization Catheters, Guides, Heart Valve Implants, Vascular Graft Pacemakers, Orthopedic Stent Protheses, Aortic Aneurysm Repair Protheses, Mitral Valvuloplasty, Aortic Balloon, with Evolute R, The concept of Polymers are macro molecules that result from chemical bonds, and smaller molecules or units known as monomers, each has a molecular weight that is measured in Dalton which is 1U of mass. A Biopolymer must be biocompatible. These Biopolymers Iodine was added to be visible in the polyglycol ethylene radiography, to avoid the adhesion of red blood cells and as an acid to improve biodegradation. Stents are classified as bio stable, that is, non-biodegradable, biodegradable, copolymer and biological. There are many stents with polylactic acid coating: This reduces the inflammatory response and polyglycolic acid and the sutures is reabsorbable and biodegradable. The invention of a bioabsorbable polymer stents, is a response to the request of cardiologists to avoid the long-term inflammatory phenomenon of restenosis. The inflammatory response is avoided and later the vessel will be healed, which will change the platelet anti-aggregation scheme, with the invention of an absorbable stent complex that would allow more laminar flow, would avoid endothelial dysfunction and positive remodeling. Several studies with polylactic acid are in progress, these studies with these novel stents should be done randomized at long-term. Others are being absorbed paclitaxel-loaded and tyrosine kinase are under study.

Among the polymers seen in cardiac catheterization is the Dacron with a polyurethane coating, such as the catheters are Sones, Opendorf and copper, these same catheters have properties with an internal nylon, which induces a decreased coefficient of friction. Polyurethane catheters have excellent Tensile memory properties, and they recover their shape with the temperature of these are the cordis, and the Judkins. Polyethylene is not soft at body temperature but it maintains its shape, we have some Judkins catheters and Nih catheters and cournard. Teflon catheters are more rigid. Teflon has an extremely coefficient of friction, under which it reduces vascular trauma and increases its combination through the vascular bed and improves contrast flow. Catheters like this the Brockenbrough catheter, Polyvinyl catheters are soft catheters with a high coefficient of friction which reduces negotiation through the vasculature and increases venous spasm. These catheters are associated with increased thrombogenicity and poor tensile and memory properties and cannot be performed. However, this catheter is hydrophilic, the catheters are trilumen catheters, the balloon catheters, to measure wedge pressure. Almost all these biopolymers, and other biopolymers are hydrophilic, resulting in the absorption on water over time, this absorption

makes the catheter soft and not very resistant, even many drugs can stick to the catheter. In summary, the properties of these materials are the coefficient of friction, stiffness, the retention curve, that is memory, and the absorption of drugs. From this we can say that the best catheters with the best curve are those of polyethylene, polyurethane, Teflon.

It is good but at high temperature, polyvinyl is not ideal. With the invention of new procedures such as aortic valve replacement, mitral valve replacement, repair Aortic aneurysm and latest generation of coronary stents, expensive iliac tibia, renal must find in the catheterization room: The properties of this bio materials are known in these catheters, stents, valvuloplasty balloons, can fracture as well as can suffer from material as described in properties of bio materials.

Volume 8 Issue 8 August 2020