To our Valued Customers,

We want to thank you for your continued business and let you know that we have completed the acquisition of the Solomon Scientific port, catheter and needle product lines. The complimentary product offerings and strong strategic fit is in line with our strategy to build a broader portfolio of products to support pre-clinical research. If you have any questions, please don’t hesitate to give me a call.

Cheers & best wishes. Pam
pwolf@norfolkmedical.com

THE FUNNELCATH - tapered during the extrusion process

....provides a very small distal catheter tip for intravascular placement in rodents while providing a way to connect these catheters to an infusion source requiring a large ID - an access port, luer stub adaptor or pump.

HYDROMER COATING - the environmentally friendly surface

....a highly lubricious, non-eluting surface coating for the reduction of biofilm adhesion and bacterial colonization.

Drug testing using animals became important in the twentieth century with the passing of the 1938 Federal Food, Drug and Cosmetic Act. The regulation was as a result of the “Taste of Raspberries, Taste of Death” 1937 Elixir Sulfanilamide Incident, required safety testing of drugs on animals before they could be marketed. Kathleen Hobson was eight years old when her mother unknowingly dosed her with poisonous cough syrup. As FDA scientists would quickly realize, the syrup was lethal because it was sweetened by a compound known as diethylene glycol which kills by causing acute kidney damage. the 1938 act was the first major upgrade of 1906 legislation. This law established the U.S. Government as a guardian of the American people’s safety was in many ways a piece of regulatory lace full of exemptions and exceptions. The new law filled many of the holes.

Uncoated catheter in the left femoral artery of a dog, showing no vessel thickening, and no clot formation

Hydromer coated catheter in the right femoral artery of a dog, showing no vessel thickening, and no clot formation

FROM THE ANNALS OF HISTORY

Access “TipS”

is published by:

Summer 2014
a continuing controversy - where is the

IDEAL CATHETER TIP LANDING ZONE

Central venous cannulation is currently an indispensable technique and with this comes the continuing debate among physicians, veterinarians, nurses, and federal regulatory agencies regarding the correct position for the tip of a central venous catheter.

The traditional approach, for this underappreciated criterion, has been to place the catheter tip in the distal third of the superior vena cava, a location thought to minimize complications such as catheter migration, extravasation of irritant agents, vascular perforation, local vein thrombosis, catheter malfunction and cranial retrograde injection. While some believe that the performance and durability of the catheter will be improved by positioning the catheter tip within the upper right atrium, in veterinary medicine the position for the tip of a jugular venous catheter is described as caudal to the first rib and cranial to the right atrium.

While the exact location is subject to discussion, the consensus is that three criteria need to be met to provide an optimal environment and continued function; they are:

- the tip should be in an area of high blood flow to provide dilution of the infusate
- the tip should lie parallel to the vessel wall so that it is free floating within the vessel to minimize irritation of the vessel wall
- the tip should be in an area where the contraction of the atria provide pulsatility and turbulence that prevents stagnation of blood

Why Does The Catheter Tip Is Location Matter?
...because one of the frustrations encountered is the apparent 'failure' of the catheter & the question....

Why can I infuse but not withdraw?
2 of the most common reasons are............

Incorrect positioning of the catheter tip - the catheter may be in a position that results in the tip abutting against the vessel wall, thereby resulting in a partial occlusion due to malposition. The catheter functions for infusion, but when aspiration is attempted negative pressure “pulls” the tip of the catheter up against the vessel wall preventing inflow. Optimal catheter tip location in a large vessel or at the right atrial - vena cava junction generally reduces this complication.

Thrombus formation at the catheter tip - the catheter tip is probably rubbing the endothelial lining of the vessel creating irritation and platelet aggregation. No secret why blood return is difficult to establish, since constant tip irritation leads to fibrin formation and consequently a PWO.

Why Does The Catheter Diameter Matter?
...what determines the flow rate through the catheter?

Why not use a catheter with a larger inner diameter?
The optimal proportion between the catheter diameter and vessel diameter is a balancing act and relates to one of the pillars of Virchow’s triad - Stasis. It is presumed that the presence of a catheter within the lumen of a vein will decrease blood flow and potentially create venous stasis. This being the case, the outer diameter of the catheter versus the inner diameter of the vein therefore may have significant impact on patency. Catheter size selection may in fact be a controllable patency risk factor.

Although some clinical studies have shown a statistically significant increase in thrombosis with larger versus smaller catheters, the degree to which a given catheter impacts flow has not been described. General guidelines recommend that the target vein must be able to “accommodate the catheter”, but I have not found any specific size guidelines. If you have any information on this subject, please will you share it. There is an interesting paper on this subject by Nifong T., McDevitt T. “The Effect of Catheter to Vein Ratio on Blood Flow Rates in a Simulated Model of Peripherally Inserted Central Venous Catheters” (Chest 2011; 140;48-53). We do have copies available if you are interested in learning more.

How large a catheter is too large?

Our hypothesis is:
When the catheter takes up over 3% of the total area of the vessel, occlusion due to stasis is more likely to occur.

Good Reads
you may have missed


Access Technologies Acquires Solomon Scientific Product Lines

All the Solomon products will be maintained, supported and manufactured in our FDA registered and ISO 13485 certified facility in Chicago, Illinois and will allow Access Technologies to offer an expanded line of products for all species and access targets. If you have any questions about any of the Access Technologies or Solomon Scientific products please let us know.

**custom Rodent Catheter Design**

*the importance of the retention bead*

Designed in collaboration with leading researchers, and manufactured from medical grade polyurethane and silicone. These rodent catheters feature both vessel and subcutaneous retention beads, a rounded tip and are packaged with a stainless steel plug and Luer stub adaptor. All catheters ship sterile - EtO exposed.

If necessary, our standard catheters can be modified to suit your application.

Call to enroll in our validation program where you can receive up to ten rodent catheters of your choice for an in-house evaluation study.

**the LoVol™ Port Design**

*the ultra-low dead volume port for CSF infusion and withdrawal*

The ultra-low dead volume of the LoVol™ ports facilitates enhanced CSF (cerebrospinal fluid) collection and is perfect for any application requiring minimal dead volume, i.e., unusually expensive test article studies. The dead space in the LoVol is reduced by about 90% compared to that of traditional ports.