VYGON Vet
Veterinary Supplies

The use of Needle-Free Devices in Veterinary Medicine

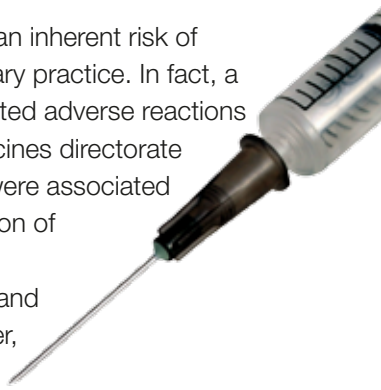
Catheter Site Infections

Intravenous catheters are now in routine use in most veterinary practices for the administration of fluids, medications, blood products and potentially parenteral nutrition. As a direct conduit from the outside of the patient to the inside, catheters require careful handling and care to minimise complications such as thrombus formation, thrombophlebitis and sepsis.

Infections associated with intravenous catheters are reported to be one of the most frequent causes of nosocomial infection in hospitalised patients in both human and veterinary medicine[1]. The most commonly cultured organisms from catheters that are known to be infected are generally transient skin bacteria such as Staphylococcus spp, Steptococcus spp, Enterobacter spp and Pseudomonas spp. Bacterial colonisation of catheters is commonly present but the incidence of septicaemia is reported as less than 5% in human studies[2]. The low human incidence of septicaemia is due to a vigilant catheter management programme. This includes the use and disinfection of closed intravenous systems incorporating needle-free access devices to minimise intraluminal progression of bacteria. Catheter related infections in veterinary patients are not thoroughly investigated, cultured and reported in the same way but the figure is likely to be much higher due to the nature of catheter positioning and patient compliance.

Intravenous catheter related infections are the result of many different factors. However, hub colonisation and intraluminal progression, which are associated with more severe infections, have been proposed as the most common cause of peripheral catheter related infection in veterinary patients[1]. The frequent opening and manipulation of the intravenous catheter is likely to be the cause, allowing the migration of bacteria from the patient's skin, the surrounding environment or the hands of the person handling the catheter into the lumen of the catheter and into the vascular access system.

Needle-Stick Injuries



Needle-stick injuries (NSIs) are an inherent risk of handling needles in any veterinary practice. In fact, a massive 74% of human suspected adverse reactions reported to the veterinary medicines directorate involving injectable medicines were associated with accidental NSI[3]. A proportion of NSIs in veterinary medicine are associated with subcutaneous and intramuscular injections however, the majority of needle-stick injuries are access associated i.e. where the patient has a peripheral or central intravenous catheter in situ and medications need to be administered via this route.

There are serious outcomes that can result from an needle-stick injury (NSI) including significant trauma, secondary infection and drug reaction (allergic, toxic or idiosyncratic). This has been recognised in the NHS: The Royal College of Nursing and UNISON have raised awareness of sharps injuries introducing a `Safer Needles Network' comprising of healthcare professionals with an interest in sharps awareness. The UK Department of Health has recommended an overall reduction in the use of sharp devices wherever possible and to consider introducing needle-free and needle protective devices. The introduction of the pet passport scheme has allowed for the travel of companion animals between different nations, including non EU countries. Although there is not the level of risk from blood borne pathogens in veterinary medicine such as HIV, there is now an increased risk from zoonotic pathogens in the UK from abroad. In despite of this, the veterinary profession as a whole remains to have a relatively lax approach.

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What is the Solution?

To address the challenges associated with vascular access, products have been developed that maintain a closed system of intravenous access and also eliminate the risk of NSI. These needle-free devices, although developed initially for human healthcare workers, are even more beneficial to veterinary practitioners because the level of patient co operation is much lower.
If you are considering introducing a new product into your practice, the following should be taken into account:

- Once a cannula is in place, vascular access will often be required on numerous occasions. It is therefore essential that any product introduced into a practice is suitable for multiple accesses and tested accordingly.

- The product should be easy to clean effectively. When patients are taken out into the yard for respite breaks, contamination of the product may occur. Any product that is not easy to clean heightens the risk of bacterial contamination of the bloodstream.

- The requirement for vascular access is patient dependant; a standard neutering procedure will not require as many infusions/bolus injections as a Tibeal Plateau Levelling Osteotomy (TPLO) procedure. As such, a wide range of products should be available to suit clinical requirements.

- There are devices on the market which allow for negative displacement of fluid when either a syringe or fluid administration set is removed from the device. This means that blood will be drawn back into the cannula upon disconnection and if allowed to remain there can result in a total occlusion. A neutral or positive pressure device is therefore recommended.

- The concept of introducing a needle-free policy in some practices can be somewhat overwhelming. With large numbers of staff and varying levels of clinical experience, training and support should be readily available from the product manufacturer to ensure a smooth introduction of any new products and procedures.

- A product that can be used with needles encourages clinicians to use needles. A true needle-free connection is therefore recommended to ensure compliance with a needle-free policy.

The Vygon Vet Solution

Bionector was first commercially available in the UK in 1994. Since this time we have sold over 40 million units and we remain the market leader.

In vitro studies conclude the Bionector membrane has a 0% bacterial colonisation rate following disinfecting with alcohol[4] and is safe to use for either 150 accesses or seven days. Being a neutral pressure device, Bionector is not associated with the risk of occlusion caused by blood reflux within a cannula upon disconnection of a male luer or fluid administration set.

The range of products has grown and developed as clinical demands have changed and can now be used on virtually any type of vascular access device. In addition, Bionector vial access caps and fluid bag spikes are also available, eliminating the risk of needle-stick injury when drawing-up medications and fluids. The bionector system does not permit the use of needles, thereby forcing compliance with needle-free policies.

A full training and education package is available from Vygon to ensure staff compliance and understanding. Due to the nature of staff rotations within veterinary practices it is essential that continued support is available so that new staff are fully up to date with hospital policies and products. Vygon is proud to be able to offer this service.

By providing a true closed system for vascular access without the use of needles, Bionector is a safe and economic solution to overcoming the challenges associated with vascular access.

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References

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