THE FACTS
ISSUE 23 • 2025
www.healthandhygiene.co.za
F10 PRODUCTS







Rabbit NEBULISATION

JOHN CHITTY, VETERINARY SURGEON AND RECOGNISED ADVANCED PRACTITIONER

First published in the Summer 2025 edition of RABBITING ON – the magazine of the Rabbit Welfare Association and Fund www.rabbitwelfare.co.uk

Figure 1: Rabits can be nebulised in a carrier or ICU housing.

INTRODUCTION

Nebulisation is regularly touted as a magic answer to respiratory disease in rabbits, and it can certainly seem that way with the apparent ability to send drugs directly into the respiratory system without the need for regular dosing by injection or placing into the mouth. And in this age of concerns regarding antimicrobial resistance, is nebulisation a means of reducing reliance on antibiotics?

As with many areas of veterinary medicine, there are a lot of claims made for this technique and very little actual science. This is in stark contrast to human medicine where a lot is known about nebulisation (there are whole journals on the subject!), and much of this is transferrable to rabbit medicine.

This article will look at some of facts of nebulisation, debunk a few myths, and show how and where nebulisation can be a real aid in medicating our pet rabbits.

WHAT IS NEBULISATION AND WHEN DO WE USE IT?

Basically, nebulisation is the conversion of a medication into a mist of droplets that is then inhaled. It is generally used in respiratory disease and, in human medicine, is used for patients who are unable to use a "puffer" or inhaler device (more formally known as a Metered Dose Inhaler (MDI)) because they cannot coordinate their breathing with the device.

Nebulisation does not require such coordination but, because it relies on producing a "fog" of droplets in a mask, it does not allow for exact dosage of any drug.

Typically, a jet nebuliser (the most common type) consists of a compressor that forces air through a cup of liquid drug, producing droplets by interaction with baffles.

Ultrasonic nebulisers either use a vibrating mesh or direct application of ultrasound waves to generate an aerosol at the surface of the liquid drug.

Jet nebulisers are larger, noisier, and require a separate power source. However, they do not generate heat in the drug and can aerosolise suspensions (ultrasonic nebulisers can only nebulise solutions). They are also (generally) cheaper and are easy to maintain. For these reasons, most people use a jet nebuliser unless there is a particular need for a quiet portable machine and the solution to be nebulised will withstand heating.

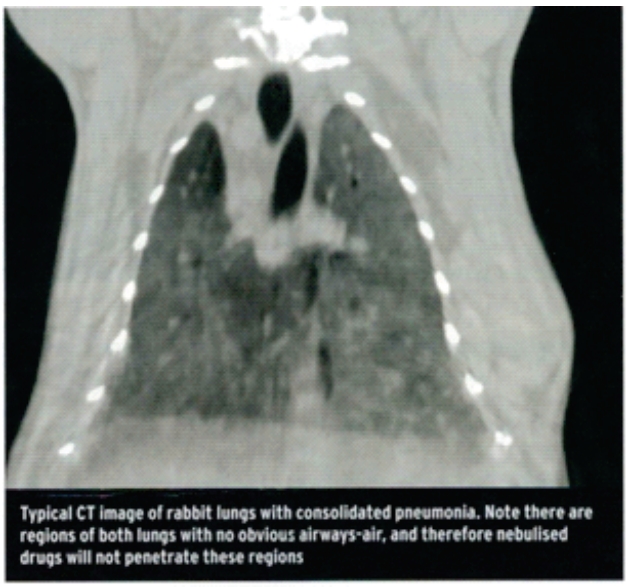
WHICH AGENTS DO YOU NEBULISE?

Many agents have been nebulised in veterinary medicine. However, this doesn't mean they are suitable and the old test that if the nebuliser cup empties it must have been aerosolised is not necessarily true. In human medicine there is a range of specific drugs produced in specific formulations for nebulisation
- and these will have their requirements studied and known. Sadly, we don't have these data in rabbit medicine and often rely on anecdotal uses where we don't always know if the drug has truly aerosolised, and how much has been inhaled, and where the droplets were deposited.

We must also consider that there will always be drug deposited over the entire animal and groomed off later by patient or companion - the drug, therefore, needs to be safe if ingested. Similarly, the drug must be safe to the operator (owner or veterinary staff). We generally nebulise in a chamber (see later), which means that someone will need to remove the patient and will inhale some of the drug. Nebulisation is not a route, therefore, to reduce drug toxicity we must also consider irritant effects - even hypertonic saline has been shown to have adverse effects in normal lungs.

As such, it is hard to recommend a specific drug for use via this route. F10 Antiseptic Solution Ready To Use or F10 Antiseptic Solution Concentrate (diluted 1:250) has a product licence for this purpose (https://www.noahcompendium.eo.uk/?Id=·452522), and, in this author's experience, produced no apparent ill effects. Alternatively, isotonic saline may also be used.

The other reason for not using specific antimicrobials is that they simply will not penetrate most rabbit respiratory lesions - rabbit pneumonia generally consists of solid lesions in the lungs and inhaled agents will simply go around the lesions as no air is being taken into them.



Typical CT image of rabbit lungs with consolidated pneumonia. Note there are regions of both lungs with no obvious airways-air, and therefore nebulised drugs will not penetrate these regions

HOW DO YOU SELECT AND USE A NEBULISER?

As stated earlier, unless there is a specific need, a jet nebuliser is appropriate in most cases. In human medicine there may be a selection case depending on the droplet size that is desired for that drug, and to reach a particular part of the respiratory tree. However, for reasons stated earlier, this is less the case in rabbits and almost all nebulisers (if using saline) will produce a sufficient range of droplet sizes to certainly enter the upper respiratory region, and almost certainly the lower respiratory tract and alveoli (the area of the lungs where oxygen exchange occurs).

Nebulisation will usually take 20-30 minutes to aerosolise a pot of saline/F10. Therefore, restraint and masks are not appropriate in a rabbit (especially as a stressed rabbit will not breathe normally!), and we will, therefore, create a nebulisation chamber so this can be done "hands-off". This is easily done using a large plastic bin bag around a pet carrier - the nebuliser pot is placed inside the carrier and the mouth of the bag gathered loosely around the nebuliser tubing (do not create a seal - as you pump in air it will explode!), and take care to ensure the rabbit does not overheat.

Figure 2: Nebulization agents

https://www.f10products.co.uk/antiseptic-solution-product-information/

DOES IT ACTUALLY HELP RABBITS?

The bulk of this article has been pointing out what nebulisation can't do!

However, it can be very useful:

1. Aerosolising liquid will help in hydrating mucous membranes - this is important in reducing cracking/ physical damage allowing deeper penetration of pathogens. Drying of membranes is an effect recognised by anyone who has been on a plane while suffering from a cold.

2. Rabbit respiratory discharges, in particular, are thick and difficult to clear. Nebulisation does appear (and certainly does in other species) to make these discharges easier to move and will aid in allowing the patient to breathe more easily.

These, basically, are adjunctive therapies that will help the patient "feel better", and it does appear to do this. If you have ever nebulised yourself, the fog is cold and unpleasant and it is a noisy process. Yet many patients will move towards (not away from) the nebuliser pot, and often put their
nose over the fog. This would suggest, at the very least. That it is not an unpleasant experience and, at best, is associated with an immediate easing of breathing.

IS THERE A SIMPLE ALTERNATIVE?

Yes! As a first aid measure, I have often recommended using a steamy bathroom - simply run a bath or shower to create a steamy atmosphere and place the rabbit in the room for 20-30 minutes.

This is nebulisation in its very crudest form, but does appear effective in those rabbits with mild breathing difficulties, if they cannot be seen at the clinic immediately (please note - this steam therapy is NOT recommended for rabbits that are collapsed or suffering severe difficulties. These are emergencies and should be taken for veterinary attention immediately).

ARE THERE MORE ADVANCED ALTERNATIVES?

Again, yes. One of the major drawbacks of nebulisation is the inability to give a measured drug dose; and of course, animals are unable to use an MDI correctly.

However, MDIs can be utilised using a "spacer" device. These are marketed for other species (e.g. the "Aerokat") and consist of a tube placed over the patien·t·s face for a couple of minutes while an MDI is puffed in the other end: I have used these devices when utilising inhaled bronchodilators and corticosteroids for rabbits with primary inflammatory airway disease. With suitable positive reinforcement training, many rabbits will readily accept the spacer for the short period required.

SUMMARY

Nebulisation is not the magic panacea it is often reported as being and as a means of delivering antibacterials, it is not a replacement for conventional drug therapies. However, it is an excellent adjunct therapy that may help our patients feel better... and that's no bad thing!

Manufacturer of F10 Products:
Health and Hygiene (Pty) Ltd
P.O. Box 347, Sunninghill, 2157, South Africa
Tel: +27 11 474 1668 • Fax: +27 11 474 1670
www.healthandhygiene.co.za • www.f10products.co.za