

## PAPER



OPEN ACCESS

# Dexmedetomidine oromucosal gel for noise-associated acute anxiety and fear in dogs: a randomised, double-blind, placebo-controlled clinical study

M. Korpivaara, K. Laapas, M. Huhtinen, B. Schöning, K. Overall

Veterinary Record (2017) 180, 356  
cite as doi:  
10.1136/vr.104045

**M. Korpivaara,**  
**K. Laapas,**  
**M. Huhtinen,**  
Orion Corporation, Orion  
Pharma, Finland  
**B. Schöning,**  
Hohensasel 16,  
Hamburg, Germany  
**K. Overall,**  
University of  
Pennsylvania, USA

E-mail for  
correspondence:  
mira.korpivaara@  
orionpharma.com

This is a summary  
of a paper that is  
published in full at  
veterinaryrecord.  
bvapublications.com

Published Online First  
February 17, 2017

## Context

Sensitivity to noise is among the most common behavioural concerns for dog owners but is often inadequately or inefficiently treated. Without appropriate intervention noise sensitivity is a progressive condition, in the worst cases leading to noise phobia and/or the worsening or development of other anxiety disorders. Regular exposure to anxiety-inducing stimuli over time can negatively affect the physical, mental and social health of the dog and reduce quality of life. Despite the high prevalence of this welfare concern, less than a third of owners recognising the problem currently seek professional advice, partly due to a lack of available treatment options.

The aim of this study was to evaluate the effect of dexmedetomidine oromucosal gel at a subsedative dose for alleviation of noise-associated acute anxiety and fear in dogs, using a randomised, double-blind, placebo-controlled design.

## Main conclusion

The anxiolytic properties of dexmedetomidine gel in treating dogs suffering from acute anxiety and fear associated with fireworks were measurable, clinically relevant and statistically significant. Dexmedetomidine significantly reduced behaviours related to fear and anxiety. The overall treatment effect and clinical success of treatment were superior to placebo. Furthermore, the low dose was safe and devoid of clinical sedative effects.

## Approach

On New Year's Eve 2012/13, 182 dogs with a history of acute anxiety and fear associated with fireworks received study treatment as needed up to five times: 89 dogs received dexmedetomidine and 93 dogs received the placebo. Dog owners assessed the overall treatment effect and the signs and extent of anxiety and fear. Functional alertness of the dogs was assessed to evaluate any potential sedative effect of the treatment.

## Results

The overall treatment effect was statistically significant ( $P < 0.0001$ ). Excellent or good treatment effect distinguished a higher proportion of dogs treated with dexmedetomidine (64 of 89, 72 per cent) from those receiving placebo (34 of 93, 37 per cent) (Fig 1). Additionally, dexmedetomidine-treated dogs expressed significantly ( $P < 0.0314$ ) fewer signs of fear and anxiety despite exposure to fireworks noise. No local tolerance, sedation or safety concerns occurred during the study.

## Interpretation

Owner-reported scales were chosen for assessments because no validated scales for assessing canine anxiety and fear associated with noise in the natural environment of pet dogs are available. Owner-reported scales were found most appropriate as dog owners are aware of both the situations that produce fear and the specific behavioural patterns their dogs display in fear-inducing circumstances. All assessments were made when the dogs were exposed to fireworks in their home environment. This real-life approach conducted under conditions of intended use together with the use of a randomised placebo was considered to be the most predictive approach to assess the efficacy of dexmedetomidine gel.

The intention of the study was to use the anxiolytic effect of low dose dexmedetomidine, without the clinical sedation achieved at higher doses given as injection. Most dogs (>85 per cent) in both treatment groups were fully functional throughout the study.

The response rate of dogs in the placebo treatment is comparable to other veterinary clinical studies.

Video assessment would have provided an objective method for observation, but was technically too complex given the multiple home environments used as study sites, the various geographical areas and the nocturnal nature of the study.

## Significance of findings

This clinical study demonstrated that dexmedetomidine gel at a low dose is a safe and efficacious treatment for acute anxiety and fear associated with noise.

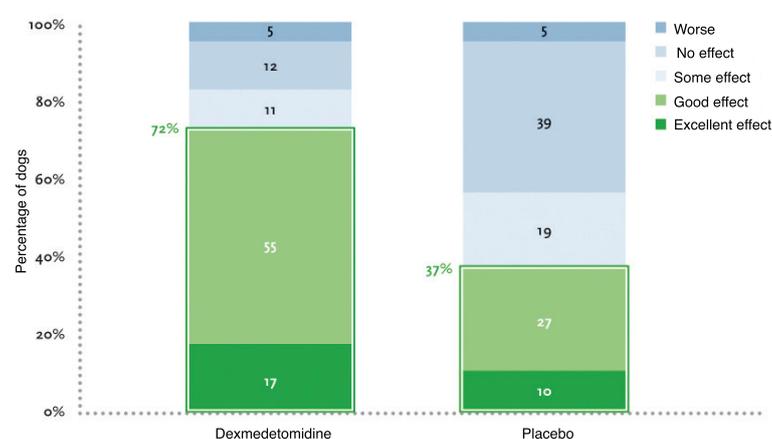


FIG 1: Overall treatment effect on the behaviour of the dog compared with previous year(s) without treatment.