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ALGIO DR ZYSMAN TEAM

el PACiENTE con DOLOR NEUROPáTiCO.
el PACiENTE con DOLOR iRRUPTiVO.

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el DOLOR no es simplemente un impulso nervioso,
es una EXPERiENCiA única, variable e intransferible
dependiente de la genética, el ambiente y las vivencias individuales.

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DOLOR NEUROPáTiCO

dolor que surge como consecuencia directa
de una lesión o enfermedad que afecta el sistema somatosensorial.

signo de enfermedades neurológicas
causado por un trastorno anatómicco y/o funcional del SNC y/o SNP
que no tiene función homeodinámica.

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DOLOR NEUROPáTiCO

- TRANSMiSióN EFáPTiCA

- DESóRDENES del SNP SiMPáTiCO

- ALTERACióN del SiSTEMA DESCENDENTE de CONTROL del DOLOR

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TRANSMiSióN EFáPTiCA

contacto entre membranas de fibras dañadas (no hay sinapsis)

activación de fibras no estimuladas (traspaso y efecto multiplicador)

estímulo no doloroso es percibido como doloroso: alodinia

NEUROPATíA SENSiTiVA

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DESóRDENES del SNP SiMPáTiCO

disfunción de la microcirculación

efecto vasoconstrictor simpático

alteración de nociceptores y fibras

incremento de la inervación de fibras simpáticas postganglionares

NEUROPATíA SENSiTiVA

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DOLOR NEUROPáTiCO

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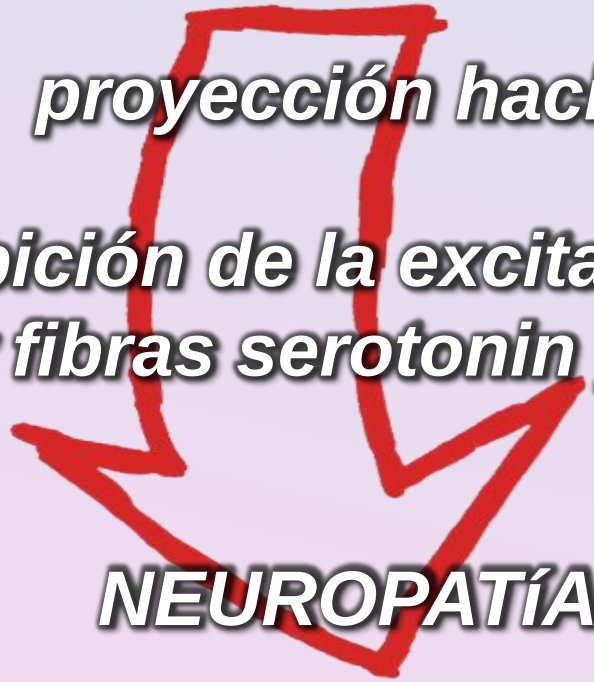
ALTERACIÓN del SISTEMA DESCENDENTE de CONTROL del DOLOR

áreas periventriculares y periacueductales
(analgesia endógena: sistema descendente de control del dolor)



proyección hacia la SGADME

inhibición de la excitabilidad nociceptiva
por fibras serotonin y noradrenérgicas

NEUROPATÍA SENSITIVA

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TRATAMiENTO MéDiCO

conjunto de procedimientos y terapias utilizadas
por los profesionales de la salud
para prevenir, aliviar y/o curar
diversas enfermedades y condiciones médicas.

TRATAMiENTO del DOLOR NEUROPáTiCO

WSAVA Global Pain Council
Pain Management Protocol

The following pain management protocol is tiered to ensure a global relevance, recognizing that not all analgesic modalities are available to veterinary practitioners and vary from region to region around the world. Its implementation will be guided by the various analgesic modalities available along with the needs of the individual patient requiring treatment. This protocol is reproduced from the WSAVA Global Pain Treatise, a succinct yet comprehensive review of pain assessment, various pain modalities, and the treatment of various clinically painful scenarios in both dogs and cats. The WSAVA GPC Pain Treatise published in the *Journal of Small Animal Practice* and is available for open access at the GPC pages of **www.wsava.org**.

Neuropathic pain

Neuropathic pain requires several classes of medications and procedures as it cannot be adequately managed with a single pharmacological or non-pharmacological therapy. Prior to, and during any surgical procedure, various different analgesic drugs and modalities can be used to reduce the inciting nociceptive afferent impulse. Many of these are continued postoperatively to reduce both peripheral (PNS) and central (CNS) sensitization.

NSAIDs
There is evidence to support an inflammatory response driving the pathophysiological changes of the peripheral and central nervous systems resulting in neuropathic pain and augmentation of pain processing by spinal prostanoids. While no studies are reported at this time, human clinical trials are currently underway investigating various modalities to target specific components of the neuroinflammatory process. It is advised that NSAIDs be used in the treatment of neuropathic pain.

Opioids
Opioids may be included in a multimodal regimen to manage neuropathic pain, but not as a stand alone analgesic. Opioids may have reduced effectiveness, where tactile allodynia (Abeta stimulus) is a component of neuropathic pain and where opioid receptors in the descending inhibitory pathway are reduced or inactivated, which may occur in neuropathic pain. Also, the closer the nervous system lesion is to the CNS, the less effective opioids may be; peripheral nerve injuries tend to respond better to opioid therapy than nerve root injuries, which respond better than spinal cord injuries. The shorter half-life of fentanyl is an advantage in patients with acute CNS or PNS pain/injury as withdrawal for assessment is more easily planned. Opioids with less propensity to cause emesis (e.g., fentanyl, methadone, butorphanol) should be titrated cautiously in any trauma patient to avoid potential vomiting and wretching, which will cause a marked and sudden increase in intracranial pressure in patients with known, suspected or occult brain injury. The naloxone titration technique to reverse side effects of opioids is recommended (see Table 1 of the full Guidelines). Buprenorphine OTM may be suitable for continuing home management for cats and small dogs.

NMDA antagonists
Low-dose ketamine is frequently used pre-, intra, and postoperatively to prevent and treat neuropathic pain. Following the administration of an opioid and an NSAID (when not contraindicated), an IV loading dose >0.5—4 mg/kg (to effect) of ketamine is administered, followed by a CRI 0.2—2 + mg/kg/h. Amantadine (3—5 mg/kg once daily orally) may be continued after ketamine is discontinued for longer-term therapy at home.

Local anaesthetics
Lidocaine systemically administered has been shown to be effective in the treatment of several neuropathic pain disorders. Lidocaine infusions should not be used in cats. Lidocaine 5% dermal patches may be of benefit where pain originates. Pharmacokinetic studies of the lidocaine patch in dogs are reported; however, no analgesic efficacy studies have been reported in dogs or cats for IV infusions or transdermal patches for neuropathic or chronic pain.

Anti-epileptics
Studies in humans and laboratory animals indicate that perioperative administration of gabapentin to animals with nerve injury may reduce the potential establishment of, or ongoing, neuropathic pain. Based on blood concentrations in dogs, dose at 10 mg/kg PO q8h (5 mg/kg PO q12h in cats), increasing as needed to effect (dose range 10—15 mg/kg in dogs). The dose limiting side effect is sedation. Some animals need several weeks to months for resolution of pain, or longer. A benefit of long term administration of gabapentin following trauma was reported in three cats; however, to date there are no prospective veterinary studies investigating the long-term effects of multimodal analgesia including gabapentin.

Alpha$_2$ adrenoceptor agonists
Medetomidine and dexmedetomidine may be added to a multimodal regimen. As an example, dexmedetomidine (1—2 µg/kg/h), in addition to low-dose fentanyl (4—3 µg/kg/h) and corticosteroids, can be effective for management of the severe pain associated with meningitis in the dog. Intra- and postoperative pain management for intervertebral disc herniation is another example. No observed adverse effects are noted at this low dose other than potential for increased urinary output.

Acupuncture and medical massage
These should be included in the analgesic regimen as soon as possible. Neuropathic pain is difficult to manage with pharmaceutical agents alone, therefore the use of acupuncture and other integrative techniques should be included as adjuncts to a multimodal pharmaceutical regimen.

Serotonin and norephinephrine re-uptake inhibitors
These (e.g., amitriptyline, dogs: 1—2 mg/kg orally q12—24 h; cats: 2.5—12.5 mg/cat orally q24h, gabapentin [see above]) may be beneficial as a home medication in combination with those listed above, as the descending inhibitory system appears to be dysfunctional in neuropathic states.

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TRATAMiENTO del DOLOR NEUROPáTiCO

¿POR QUé se FRACASA frente al DOLOR NEUROPáTiCO?

- fármacos para el alivio del dolor sintomático y no etiológico,
- eficacia limitada,
- farmacorresistencia secundaria (expresión de los receptores),
- función y grado de interacción con el analgésico,
- efectos indeseables asociados,
- costos…

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TRATAMiENTO del DOLOR NEUROPáTiCO

1- farmacológico.

2- no farmacológico.

- respuesta raramente predecible (ensayo - error).
- rehabilitación funcional y disminución de la signología dolorosa.

- anticomiciales
(fenitoína, gabapentina, pregabalina, topiramato, levetiracepam);
- antidepresivos
(amitriptilina, venlafaxina, fluoxetina, duloxetina, bicidafine);
- anestésicos locales
(lidocaína EV, mexiletina PO)

¿1ra línea?

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TRATAMiENTO del DOLOR NEUROPáTiCO

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- respuesta raramente predecible (ensayo - error).
- rehabilitación funcional y disminución de la signología dolorosa.

AiNEs, analgésicos opioides, neurolisis
acción refractaria.

antagonistas NMDA (ketamina, nemantina, amantadina), corticoides, agonistas α^2 adrenérgicos (xilacina, dexmetomidona, detomidina, medetomidina), inhibidores de la acción de la sustancia P (lanepitant, maropitant, capsaicina)
acción regular.

agonistas cannabinoides, antagonistas de factores neurotróficos (TNF, NGF)
efecto aceptable.

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TRATAMiENTO del DOLOR NEUROPáTiCO

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- respuesta raramente predecible (ensayo - error).

- rehabilitación funcional y disminución de la signología dolorosa.

- anticomiciales
- antidepresivos
- anestésicos locales
- agonistas cannabinoides
- antagonistas de factores neurotróficos

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TRATAMiENTO del DOLOR NEUROPáTiCO

1- farmacológico.
2- no farmacológico.

- respuesta raramente predecible (ensayo - error).
- rehabilitación funcional y disminución de la signología dolorosa.

fisiokinesioterapia, neuroestimulación eléctrica transcutánea (TENS), estimulación medular, bloqueos nerviosos, acupuntura, cirugía.

¿otros métodos?

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2- no farmacológico.

- respuesta raramente predecible (ensayo - error).
- rehabilitación funcional y disminución de la signología dolorosa.

anticomiciales, antidepresivos, anestésicos locales, agonistas cannabinoides, antagonistas de factores neurotróficos, fisiokinesioterapia, TENS, estimulación medular, bloqueos nerviosos, acupuntura, cirugía.

¡ 1ra línea MULTiMODAL !

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TRATAMiENTO del DOLOR NEUROPáTiCO

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ACVP · 2017 VETERINARY PHARMACY CONFERENCE MEMPHIS, TN

Treatment of Pain

- Approach to Pain Management (PLATTER)
  - PLan
    - Pt specific pain assessment and treatment plan
  - Anticipate
    - Preventative or treatment
  - TreaT
    - Treat based on type, severity and duration
  - Evaluate
    - Evaluate efficacy and appropriateness
  - Return
    - Follow-up

Journal of Feline Medicine and Surgery 2015, 17:251-272

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AMERICAN COLLEGE OF VETERINARY PHARMACISTS

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DOLOR iRRUPTiVO

exacerbación del dolor de forma súbita y transitoria,
de gran intensidad y corta duración (inferior a 20-30 minutos),
que aparece sobre la base de un dolor persistente estable,
cuando este se encuentra reducido a un nivel tolerable.

52% etiología mixta (nociceptivo + neuropático);
28% nociceptivo;
10% neuropático.

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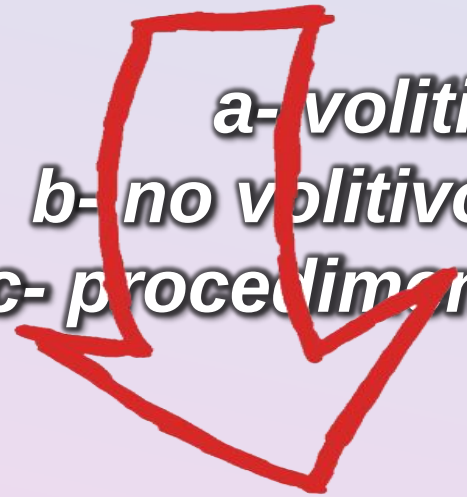
DOLOR iRRUPTiVO
(ONCOLoGiCO)



1- incidental:

a- volitivo *(voluntad: correr, etc);*

b- no volitivo *(involuntario: estornudar, etc);*

c- procedimental *(acto médico: inyección, etc).*

2- espontáneo

50% incidental / 50% espontáneo

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TRATAMiENTO del DOLOR iRRUPTiVO

- en todo paciente oncológico debería evaluarse su presencia.
- en todos estos pacientes evaluar de forma específica ese suceso.
- el manejo debe ser individualizado.
- considerar los factores desencadenantes.
- evaluar la modificación de la analgesia basal (pautada a horas fijas).
- los opioides son la “medicación de rescate” de elección.
- la dosis del opioide “de rescate” debe titularse de forma individual.
- los analgésicos no opioides pueden ser útiles.
- las medidas no farmacológicas pueden ser útiles.

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SIAVet SOCIEDAD IBEROAMERICANA DE ALGIOLOGÍA VETERINARIA

DE PATAS

VETONCOLOGIA SERVICIO DE ONCOLOGIA VETERINARIA

Anoikis

CONGRESO VETERINARIO CHILE

¡MUCHAS GRACiAS!