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UNIVERSIDADE ESTADUAL PAULISTA "JÚLIO DE MESQUITA FILHO"
FACULDADE DE MEDICINA

Marcela Carneiro de Oliveira

Validated pain scales improve decision-making of untrained students to indicate analgesia in animals

Dissertação apresentada à Faculdade de Medicina, Universidade Estadual Paulista "Júlio de Mesquita Filho", Câmpus de Botucatu, para obtenção do título de Mestra em Anestesiologia.

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Palavras-chave: Analgesia; Bem-estar animal; Cuidados pós-operatórios; Dor aguda pós-operatória; Medição da dor.

ATA DA DEFESA PÚBLICA DA DISSERTAÇÃO DE MESTRADO DE MARCELA CARNEIRO DE OLIVEIRA, DISCENTE DO PROGRAMA DE PÓS-GRADUAÇÃO EM ANESTESIOLOGIA, DA FACULDADE DE MEDICINA.

Aos 01 dias do mês de março do ano de 2024, às 08:00 horas, por meio de Videoconferência, realizou-se a defesa de DISSERTAÇÃO DE MESTRADO de MARCELA CARNEIRO DE OLIVEIRA, intitulada **Validated pain scales improve decision-making of untrained students to indicate analgesia in animals**. A Comissão Examinadora foi constituida pelos seguintes membros: Prof. Dr. STELIO PACCA LOUREIRO LUNA (Orientador(a) - Participação Virtual) do(a) Depto. de Cirurgia Veterinária e Reprodução Animal / FMVZ/Botucatu - Unesp, Profa. Dra. RENATA NAVARRO CASSU (Participação Virtual) do(a) Universidade do Oeste Paulista (UNOESTE), Profa. Dra. ALICE RODRIGUES DE OLIVEIRA (Participação Virtual) do(a) Depto. de Anatomia, Patologia e Clínicas Veterinárias / EMEVZ/Salvador - UFBA. Após a exposição pela mestranda e arguição pelos membros da Comissão Examinadora que participaram do ato, de forma presencial e/ou virtual, a discente recebeu o conceito final: aprovada _ _ _ _ _ _ . Nada mais havendo, foi lavrada a presente ata, que após lida e aprovada, foi assinada pelo(a) Presidente(a) da Comissão Examinadora.

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Resumo

Objetivo Nosso objetivo foi investigar se estudantes sem treinamento avaliam a dor aguda pós-operatória de forma semelhante a um especialista e comparar as indicações para analgesia de resgate com base nas opiniões dos estudantes versus sua pontuação nas escalas de dor validadas. Também analisamos como os fatores demográficos e pessoais afetaram a sua avaliação.

Desenho do estudo Prospectivo, encoberto, aleatorizado e transversal.

Animais Vídeos de um touro, um cavalo, um gato, um porco e uma ovelha.

Métodos Alunos do primeiro e terceiro anos de Medicina Veterinária e alunos do quarto ano de Zootecnia assistiram a um ou dois vídeos de animais com dor intensa, de uma ou duas espécies (touro, cavalo, gato, porco e ovelha). Alunos de diferentes turmas assistiram a vídeos de diferentes espécies. Os alunos desconheciam a intensidade da dor de cada animal, responderam se indicariam analgesia de acordo com sua opinião e pontuaram as escalas de dor validadas específicas para cada espécie. Suas pontuações foram comparadas com as pontuações de um professor sênior (especialista) que estava ciente da condição dolorosa apresentada pelos animais. Para a análise estatística, foram utilizados testes de qui-quadrado e modelos de regressão logística.

Resultados A indicação de analgesia de resgate segundo a opinião dos estudantes (81,12%) foi inferior à indicada com o uso das escalas (98,6%) ($p = 2.584e-06$). A maioria dos alunos (75%) pontuou dentro da margem de erro de 20% estabelecida a partir da pontuação do especialista para todas as espécies combinadas ($p = 2.897e-09$), para o touro ($p = 2.089e-08$) e o cavalo ($p = 8.868e-05$). Os alunos subestimaram a nota do especialista em 8 a 20%, exceto no caso do cavalo. O sexo, a idade, a experiência anterior do aluno em relação à dor e a experiência de trabalho na área da saúde ou em estágio na área da

medicina veterinária ou zootecnia não influenciaram a pontuação ou a indicação de analgesia. Os alunos que tiveram contato doméstico com as espécies que estavam avaliando tiveram maior probabilidade de pontuar exatamente o mesmo escore atribuído pelo especialista ($p = 0.0331$).

Conclusões e relevância clínica Estudantes não treinados podem detectar dor intensa em animais com precisão semelhante à de um especialista. O contato doméstico com a espécie melhora a capacidade dos alunos de pontuar a dor com o mesmo escore que um especialista. O uso de escalas de dor validadas otimizou a indicação para fornecer analgesia quando os animais sofriam dor intensa.

Palavras-chave: Analgesia, Bem-estar Animal, Cuidados Pós-Operatórios, Dor Aguda Pós-Operatória, Medição da Dor.

Abstract

Objective We aimed to evaluate if students without training assess pain similarly to an expert and to compare indications for rescue analgesia based on students´ opinions versus scale scoring. We also analyzed how demographic and personal factors affected their assessment.

Study design Prospective, blind, randomized, cross-sectional study.

Animals Videos of one bull, horse, cat, pig, and sheep.

Methods First- and third-year Veterinary students and fourth-year Animal Science students watched videos of a bull, horse, cat, pig, and sheep. The students were unaware of each animal´s pain intensity, responded as to whether they would indicate analgesia according to their opinion and scored the species-specific validated pain scales. Their scores were compared with a senior professor´s scores (expert).

Results The indication for rescue analgesia according to the students' opinion (81.12%) was lower than according to their scale scores (98.6%) ($p < 0.05$). Most students (75%) scored within the 20% margin of error of the expert score for all species combined ($p < 0.05$), the bull ($p < 0.05$) and horse ($p < 0.05$). Students underestimated the expert's score by 8 to 20%, except for the horse. Gender, age, student's previous experience with pain, and their experience in healthcare or in an internship did not influence their scores or indication for analgesia. Students who had domestic contact with the species they were evaluating were more likely to score the exact score assigned by the expert ($p < 0.05$).

Conclusions and clinical relevance Untrained students can detect intense pain in animals with a similar accuracy to an expert. Domestic contact with the species improves the ability of students to score pain like an expert. The use of scales optimized the indication for providing analgesia when animals were suffering intense pain.

Keywords Analgesia, Animal Welfare, Postoperative Care, Acute Postoperative Pain, Pain Measurement.

Introduction

Body language is key component to expressing and detecting animal pain (Reid et al. 2007; Brondani et al. 2013; Tomacheuski et al. 2023). Whole-body behavioral changes are easily observed, clinically applicable, non-invasive, and can be assessed remotely (Luna et al. 2020; Monteiro et al. 2023).

Species-specific validated acute pain scales have improved the accuracy and reliability of assessing pain in almost all domestic species (Reid et al. 2007; Brondani et al. 2013; de Oliveira et al. 2014; Taffarel et al. 2015; Luna et al. 2020; Silva et al. 2020; de Oliveira et al. 2021; Haddad Pinho et al. 2022; Fonseca et al. 2023). Their cut-off analgesic rescue indicative scores assist in the decision-making for analgesic provision.

Although scales are the closest to gold standard methods to assess pain in animals, they present limitations. For example, pain scales have usually been validated in controlled studies by experienced and trained veterinarians. Personal and professional experiences (Catanzaro et al. 2016; Adami et al. 2023), age (Valros & Hanninen 2018), and gender (Doodnaught et al. 2017; Evangelista & Steagall 2021; Moody et al. 2022) may alter the final score attributed by different observers, and these differences can interfere with treatment decisions and conclusions about treatment efficacy (Benito et al. 2017). Although recent studies suggested that training may not be necessary to use the Glasgow Feline Composite Measure Pain Scale (CMPS-Feline) (Moody et al. 2022) and that the Feline Grimace Scale can be reliably used by assessors with different experience

levels (Evangelista & Steagall 2021), inexperienced evaluators may have difficulty using these tools (Barletta et al. 2016), and some veterinarians do not feel capable of adequately assessing pain in animals (Lorena et al. 2013; Morales-Vallecilla et al. 2019).

There are useful free accessible scales (www.animalpain.org) and applications available on the internet (Vetpain: https://play.google.com/store/apps/details?id=com.vetpain.app for Android and https://apps.apple.com/ca/app/vetpain/id6462712970 for IOS), to improve knowledge, provide training and enhance accuracy to assess pain in large, small, and lab animals.

We hypothesized that untrained undergraduate students with little or no experience in pain assessment do not score pain as accurately as an expert evaluator and that the use of scales optimizes the precision to indicate rescue analgesia in large and small animals suffering intense pain. Therefore, the current study aimed to investigate whether untrained students can similarly score pain scales and indicate rescue analgesia compared to an experienced evaluator and to compare the indication of rescue analgesia based on the students´ opinion and scale scoring. As a secondary objective, we evaluate the impact of demographic and personal factors on the pain scores assigned by students.

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Conclusions

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When using species-specific validated scales, although untrained students

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tend to underestimate intense pain, they indicate rescue analgesia in animals similarly to

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329 an expert. Students' domestic contact with the species improves their ability to score pain
330 like an expert.
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