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Nigerian Veterinarians'attitude and response to small animal pain management

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Nigerian veterinarians' attitude and responses to pain management predominantly in small animals were evaluated using a structured questionnaire. The questionnaires were administered to representatives of seventy small/large animal clinics and hospitals distributed across ten states of the country. The respondents possess the Doctor of Veterinary Medicine (DVM) (58.6%), Master of Veterinary Science MVSc (32.9%) degrees, fellowship diplomas (5.7%) and PhD (2.9%) degree. Majority of the respondents (92.9%) had less than 20 years of post DVM clinical experience. Seventy- nine percent (79%) had good understanding of animal pain perception while 43% still hold the misconception that some degree of pain is beneficial to an animal after surgery. Pain rating excellently assigned to fracture reduction by 83% of practitioners, but inappropriately assigned by 66% of practitioners to caesarean section, 66% to laparotomy, 63% to ovariohysterectomy, 60% to mastectomy and 60% to dental procedures. Xylazine, lignocaine and ketamine were anaesthetic/analgesics commonly used. Respondents (98%) recognized pain based on animal's response to painful body part palpation, attitude of animal (97%), history by care giver (80%) and inappetence (73%). Determinants of analgesic drug choice for dogs/cats were: analgesic efficacy (99/29%); potential for toxicity (95/38%); availability (93/43%), side effect (86/42%), cost (82/37%), availability of information on the drug (76/36%), and ability of analgesic drug to cause sedation in the animal (65/33%). Respondents sourced information for analgesic therapeutics from: literature (73%), internet (80%), and drug leaflet (98%). In conclusion, most veterinarians surveyed had understanding of animal pain perception and use anaesthetic protocols that provide analgesia. Nonetheless, some of them still hold on to the misconception that minimal pain perception is beneficial to the patient at the post-operative period which may have influenced their non-provision of additional analgesia post-operatively.

Key words: Pain, management, small animals, Nigerian veterinarians.

INTRODUCTION

Global response to pain concerns of veterinary patients' is on the increase (Joubert, 2001; Brearley, 2003; Flecknell, 2008; Lorena et al., 2014). Animals experience significant pain perception contrary to previous assumptions (Flecknell, 2008). Recent advances in research have shown that animal species; reptiles, birds,

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and mammals, possess the neuro-anatomic and neuro-pharmacologic components necessary for the transduction, transmission and perception of noxious stimuli (Flecknell, 2008; Lorena et al., 2014).

Pain types, be it nociceptive; inflammatory or pathologic, induce complex systemic derangements with severe physiologic and emotional consequences (Flecknell, 2008; Zaki, 2013, Epstein et al., 2015). This makes animal pain alleviation not just a professional obligation by veterinarians, but a key element of compassionate, humane patient care necessary to successful management outcomes. Professional approach to pain management demands pre-empting and recognising pain perception, understanding relief modalities and instituting the best pain therapy. Despite the large empirical data on animals' pain perception studies (Capner et al., 1999; William et al., 2005; Hewson et al., 2006; Joubert, 2006; Weber et al., 2012), there is still an overall general low usage of analgesics in veterinary medicine (Flecknell, 2008; Bell et al., 2014).

Following Hansen and Hardie`s (1993) report on the attitude of veterinarians to pain recognition and management in companion animals, several articles have been published on the subject (Capner et al., 1999; William et al., 2005; Hewson et al., 2006; Joubert, 2006; Weber et al., 2012). A position paper by the American Animal Hospital Association (AAHA) and the American Association of Feline Practitioners (AAFP) has also helped to standardize approach to pain management in dogs and cats (Epstein et al., 2015). Similar articles have evaluated veterinarians attitude on analgesic usage in dogs and cats among Brazilian (Lorena et al., 2014), New Zealand (Williams et al., 2005), French (Hugonnard et al., 2004), Finnish (Raekallio et al., 2003), Canadian (Hewson et al., 2006), South African (Joubert, 2001) and the British (Capner et al., 1999) practitioners.

There is however a dearth of information on veterinarians attitude and perception of analgesic usage in clinical practice in Nigeria. If humane animal patient care through proper usage of analgesic modalities will be achieved globally, assessment of a country's veterinarians' perception, attitude and use of analgesics for animal pain management cannot be over-emphasized. This paper therefore reports veterinary practitioners' perception and attitude to analgesic usage especially in small animal patient management in Nigeria.

MATERIALS AND METHODS

Survey instrument design, pre-test and reliability

A structured questionnaire was developed to evaluate and access veterinarians' perception of analgesia need and its provision to small animals in Nigeria. The questionnaire consisted of seven parts with questions pertaining to: Clinician's demography, practice type and case load, assessment of veterinarians' understanding of/ attitude to pain and pain control in animals, assessment of pain rating for various surgical procedures, assessment of criteria for pain recognition/ evaluation, assessment of determinants of analgesic drug choice, assessment of analgesic type for selected surgical procedures in dogs and cats, and assessment of source of knowledge for pain recognition and treatment. The Likert's scale was adopted as respondent indicator for the study. A draft version of the questionnaire was validated through experienced veterinarians, and their comments used to modify the final version of the instrument. Additional validity and reliability (internal consistency) of instrument sample data was high with the Cronbach Alpha reliability coefficient of 0.76.

Instrument administration

The questionnaires were administered between December 2016 and March 2017. Some of the questionnaires were administered at state's veterinary medical association meetings while others were delivered to clinicians at their practice locations.

Enrolment criteria

Veterinary practitioners in small and mixed practice were enrolled. One questionnaire was served to each practice even when more than one clinician works in the same clinic or hospital. Incompletely filled questionnaires were not used in the analysis.

Data analysis

The responses (Practitioners' bio-data and questions) were coded and entered into Microsoft windows excel spread sheet (Version 2010). Data generated within each section were presented in percentages with standard deviations.

RESULTS

Demography, location and practice type of respondents

Representatives, (males, 51 and females -19) of 70 veterinary clinics distributed across 10 states of Nigeria (Figure 1) participated in the survey. Majority of the respondent veterinarians have less than twenty years post DVM clinical experience (92.9%) with very few (7.2%) having over 20 years' experience. The highest academic qualification of many of the respondents is DVM (58.6%) while the lowest qualification is PhD (2.9%). A total of 32.9% respondents have a second degree (MVSc) and 5.7% have fellowship diplomas. The largest percentage of the clinics (58.6%) operated mixed practice (small and large animals), while 40% handle small animal patients alone with 1.4% handling only large animal patients.

Assessment of veterinarians' attitudes to pain relief

Most of the respondents (79%) agreed that animals feel pain. Some respondents (56%) believe that pain control is necessary following animal surgeries, while others (43%) feel some degree of pain is beneficial to the animal after surgery (Table 1).

Assessment of practitioner's pain rating of surgical procedures

If analgesic was not administered within 24 h following surgical procedures, 83% of practitioners rated fracture reduction to elicit the most severe pain, followed by caesarean section (66%), laparotomy (66%), ovariohysterectomy (63%), mastectomy (60%), and dental procedures (60%). Procedures rated as producing mild to moderate pain by a large number of respondents included surgical repair of aural haematoma (83%), burn wound debridement (78%), wound stitching (74%) and orchiectomy (72%). Cherry eye and skin tumour excision were rated to produce moderate to severe pain by 72 and 70% respondents respectively. One or two respondents indicated that the animal feels no pain without analgesic provision in the first 24 h of surgery following aural haematoma, skin tumour excision, caesarean section, laparotomy, dental procedures, orchiectomy, wound stitching and cherry eye repair (Table 2).

Assessment of criteria for pain recognition/evaluation

Most respondents (98%) recognize pain based on the animal's response to palpation of painful body part, followed by the animal's attitude (97%), information by care-giver (80%) and inappetence (73%) (Table 3).

Assessment of factors influencing analgesic choice

Analgesic efficacy, potential for toxicity and drug availability were the major factors that influence choice of analgesics among other factors by practitioners (Table 4).

Assessment of analgesic drugs used for surgical procedures in respondents' practices

Lignocaine by site infiltration was mostly used for aural haematoma (surgical repair) (46%); wound repair, (51%); orchiectomy (46%); wound debridement (44%) and dental procedures (29%). Xylazine was mostly used for skin tumour excision (33%); cherry eye repair (31%); fractures (31%); laparotomy (30%) and ovariohysterectomy (30%). Ketamine, lignocaine and bupivacaine were mostly used for caesarean section (Table 5).

Assessment of source of knowledge about recognition and treatment of pain

All the respondents had knowledge about pain recognition and treatment through practice experience, and additional knowledge through literature (87%), internet (79%) and drug leaflet (77%) (Table 6).

DISCUSSION

The results of this study showed that Nigerian veterinary practitioners have understanding of animals' pain indicators and the need for pain amelioration. It is noteworthy that the survey of veterinary clinics and hospitals representatives rather than individual practitioner may have been responsible for the smaller sample size in comparison with previous studies (Dohoo and Dohoo, 1996a,b; Watson et al., 1996; Capner et al., 1999; Lascelles et al., 1994; Williams et al., 2005; Hewson et al., 2006; Joubert, 2006; Weber et al., 2012).

Survey of clinic and hospital representatives was necessary to prevent repetition of information that may defeat the objective of the survey. Most of the veterinarians surveyed manage small animals predominantly, although a good number do see few large animal patients. Most of the respondents had their practice in the Southern part of Nigeria. Previous studies have established the predominance of small and mixed practice in the southern part of the country due to predominance of dogs for companionship and security concerns (Eyarefe and Oyetayo, 2016). The greater percentage of male than female respondents may not reflect the actual picture of male to female veterinary practitioner's ratio in the country, since the statistics captured practice representatives although a previous study had also given a capture with similar ratio (Eyarefe and Oguntoye, 2016).

Pain relief is very important in animal patient management, irrespective of pain type (nociceptive; inflammatory or pathologic). Some Nigerian practitioners however still uphold the misconception that some amount of inflammatory pain is beneficial to animal patient following surgery (Table 1). This shows that many veterinary practitioners may require more awareness on current information about animal pain perception and management in line with global best practice (Mathews et al., 2014).

Majority of the practitioners assigned pain rating for fractures correctly but pain rating for other procedures incorrectly (Table 2). A clinician's pain rating skill could influence his sense of judgment of analgesia requirement for a patient, and this could be a disadvantage to the patient if his pain assessment skill is imperfect (Mathews, 2000; Epstein et al., 2015). Virtually, all the respondents recognized pain based on patients' attitude (Table 3). Behavioral change often accompanies pain, and therefore, a key point in pain recognition, and management (Fox, 2014).

Practitioners' choice of analgesic drug for dogs and cats were influenced by drug efficacy, availability and cost among others (Table 4). Noticeably, more than half

Table 1. Assessment of veterinarians attitudes to pain relief in animals.

S/N	Statements	No response (%)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)	$\bar{x}$	SD
1	Animals do not feel pain	4 (5.7)	6 (8.6)	5 (7.1)	6 (8.6)	49 (70)	1.43	1.02
2	Pain threshold in animals is higher than in man (humans feel more pain than animals for the same type of surgery)	6 (8.6)	8 (11.4)	29(41.4)	16(22.9)	11 (15.7)	2.31	1.14
3	Some degree of pain following surgery is beneficial in animals	4 (5.7)	5 (7.1)	25(35.7)	21 (30)	15(21.4)	2.17	1.04
4	Pain control is unnecessary following animal surgeries	2 (2.6)	2 (2.6)	4 (5.7)	23 (32.9)	39 (55.7)	1.50	0.78

SD, Standard deviation.

Table 2. Assessment of pain rating for various procedures.

S/N	Procedure	No response (%)	No pain (%)	Mild pain (%)	Moderate pain (%)	Severe pain (%)	$\bar{x}$	SD
1	Aural haematoma (surgical repair)	1 (1)	1 (1)	18 (26)	40 (57)	10 (14)	1.90	0.76
2	Wound repair (stitching)	1 (1)	2 (3)	19 (27)	33 (47)	15 (21)	1.91	0.81
3	Wound debridement (burn wounds)	1 (1)	0 (0)	27 (38.6)	27 (38.6)	15 (21.4)	1.86	0.80
4	Cherry eye repair	5 (7.1)	2 (2.8)	13 (18.6)	30 (42.9)	20 (28.6)	2.24	1.06
5	Skin tumour excision	2 (2.9)	1 (1)	11 (16)	29 (41)	27 (39)	2.27	0.85
6	CS	2 (3)	1 (1)	5 (7)	16 (23)	46 (66)	2.63	0.77
7	Laparatomy	1 (1)	1 (1)	6 (9)	16 (23)	46 (66)	2.59	0.77
8	Fractures	3 (4)	0 (0)	2 (3)	7 (10)	58 (83)	2.90	0.54
9	Mastectomy	0 (0)	0 (0)	8 (11)	20 (29)	42 (60)	2.49	0.70
10	Ovariohysterectomy	1 (1)	0 (0)	8 (11)	17 (24)	44 (63)	2.54	0.72
11	Dental procedures	1 (1)	1 (1)	10 (14)	16 (23)	42 (60)	2.46	0.81
12	Orchiectomy	1 (1)	1 (1)	18 (26)	32 (46)	18 (26)	2.00	0.80

SD, Standard deviation.

of the respondents did not give any response concerning cats (Table 4). This may be because they either rarely see cats or have never seen cats before in their practice. The low case load of cats in the survey is due to the general negative myths associated with cat keeping (Eyarefe and Oyetayo, 2016). Drug availability for pain management is an important factor influencing drug choice in poor resource settings. Apart from tramadol and pentazocine which are available as human preparations, no other commonly used opioid analgesics in veterinary medicine is readily available in the market for veterinary use except the practitioner places a special order for them from outside the country (personal observation). The study result also showed that lignocaine (site infiltration), xylazine and ketamine were drugs used for various procedures for provision of

Table 3. Assessment of criteria for pain recognition/evaluation.

S/N	Statements	No response (%)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)	$\bar{x}$	SD
1	Animals' attitude	2 (3)	56 (80)	12 (17)	0 (0)	0 (0)	3.71	0.75
2	Information by care giver	6 (9)	16 (23)	40 (57)	6 (9)	2 (3)	3.26	3.77
3	Animals' response to palpation of painful part	1 (1)	59 (84)	10 (14)	0 (0)	0 (0)	3.80	0.58
4	Inappetence	3 (4)	20 (29)	31 (44)	14 (20)	2 (3)	2.90	0.96

SD, Standard deviation.

Table 4. Determinants of choice of analgesic .

S/N	Factor	Dogs					Cats				
		No Response (%)	SA (%)	A (%)	D (%)	SD (%)	No Response (%)	SA (%)	A (%)	D (%)	SD (%)
1	Availability	0 (0)	35 (50)	30 (43)	1(1)	4 (6)	39 (56)	14 (20)	16 (23)	1 (1)	0 (0)
2	Cost	1 (1)	18 (26)	39 (56)	5 (7)	7 (10)	39 (56)	9 (13)	17 (24)	4 (6)	1 (1)
3	Side effect	4 (6)	27 (39)	33 (47)	2 (3)	4 (6)	38 (54)	13 (19)	16 (23)	1 (1)	2 (3)
4	Potential for toxicity	3 (4)	32 (46)	34 (49)	0 (0)	1 (1)	41 (59)	15 (21)	12 (17)	0 (0)	2 (3)
5	Difficulty in getting exact dose	4 (6)	4 (6)	22 (31)	16 (23)	24 (34)	38 (54)	5 (7)	9 (13)	11 (16)	7 (10)
6	Record keeping requirements	10 (14)	5 (7)	19 (27)	15 (21)	21 (30)	40 (57)	4 (6)	11 (16)	7 (10)	8 (11)
7	Causation of sedation	8 (11)	15 (21)	31 (44)	7 (10)	9 (13)	40 (57)	4 (6)	19 (27)	2 (3)	5 (7)
8	Analgesic efficacy	1 (1)	38 (54)	31 (45)	0 (0)	0 (0)	40 (57)	15 (21)	14 (20)	1 (1)	0 (0)
9	Availability of information on the drug	9 (13)	27 (39)	26 (37)	1 (1)	7 (10)	42 (60)	14 (20)	11 (16)	2 (3)	1 (1)

SA, Strongly agree; A, agree; disagree; SD, strongly disagree.

analgesia by the respondents. The frequent usage of lignocaine and xylazine reported here is contrary to results from a survey in Canada where a low usage of local anaesthetics and alpha-2 agonists was observed (Hewson et al., 2006). However, both local anaesthetics and alpha-2 agonists are powerful adjuncts in perioperative pain management (Pascoe, 2000; Lemke and Dawson, 2000; Lemke, 2004), and the low prevalence of their usage in the Canada survey was one of the reasons given for inadequate analgesia provision by veterinarians in that survey (Hewson et al., 2006).

Only very few respondents filled the option of additional analgesia with any other agent which may be due to unavailability of analgesics packaged for veterinary use (personal observation). With the exception of tramadol and pentazocine no other commonly used opioids or nonsteroidal anti-inflammatory drugs (NSAIDs) for veterinary medicine is readily available in the country (personal observation) as earlier mentioned. It may also be that practitioners feel that there is adequate analgesia provision since the xylazine, ketamine and lignocaine all possess analgesic properties. This situation is similar to what was reported in a survey in South Africa (Joubert, 2001) where a high number of the respondents did not include any drugs specifically for their analgesic properties in the premedication and induction of cats (83.6%) and dogs (80.75%) undergoing routine sterilization. However, when the author included premedication and induction

Table 5. Analgesic type enquiry.

S/N	Procedure	Ketamine (%)	Xylazine (%)	Site infiltration with lignocaine (%)	Epidural block with lignocaine (%)	Epidural with bupivacaine (%)	Diclofenac (%)	None (%)	Others (specify) (%)
1	Aural haematoma (surgical repair)	16 (23)	14 (20)	32 (46)	0 (0)	0 (0)	3 (4)	4(6)	1 (1)
2	Wound repair (stitching)	12 (17)	14 (20)	36 (51)	0 (0)	0 (0)	3 (4)	4(6)	1 (1)
3	Wound debridement (burn wounds)	7 (10)	10 (14)	31 (44)	1 (1)	0 (0)	7 (10)	13 (19)	1 (1)
4	Cherry eye repair	21 (30)	22 (31)	6 (9)	1 (1)	1 (1)	5 (7)	12 (17)	2 (3)
5	Skin tumour excision	13 (19)	23 (33)	21 (30)	1 (1)	0 (0)	3 (4)	8 (11)	1 (1)
6	CS	21 (30)	15 (21)	5 (7)	15 (21)	3 (4)	3 (4)	7 (10)	1 (1)
7	Laparatomy	19 (27)	21 (30)	7 (10)	11 (16)	2 (3)	3 (4)	6 (9)	1 (1)
8	Fractures	20 (29)	22 (31)	7 (10)	4 (6)	1 (1)	5 (7)	9 (13)	2 (3)
9	Mastectomy	18 (26)	14 (20)	14 (20)	9 (13)	0 (0)	2 (3)	12 (17)	1 (1)
10	Ovariohysterectomy	19 (27)	21 (30)	5 (7)	11 (16)	2 (3)	4 (6)	7(10)	1 (1)
11	Dental procedures	11 (16)	18 (26)	20 (29)	4 (6)	0 (0)	8 (11)	8 (11)	1 (1)
12	Orchiectomy	12 (17)	14 (20)	32 (46)	3 (4)	0 (0)	3 (4)	5(7)	1 (1)

Table 6. Assessment of Source of knowledge about recognition and treatment of pain.

S/N	Knowledge source	No response (%)	Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)	$\bar{x}$	SD
1	Experience from practice	2 (3)	56 (80)	12 (17)	0 (0)	0 (0)	3.81	0.39
2	Internet	6 (9)	16 (23)	40 (57)	6 (9)	2 (3)	2.76	1.00
3	Drug leaflet	1 (1)	59 (84)	10 (14)	0 (0)	0 (0)	2.84	1.03
4	Literature	3 (4)	20 (29)	31 (44)	14 (20)	2 (3)	3.06	1.01

SD, Standard deviation.

agents with analgesic properties, this percentage was reduced to 34.2%. The author concluded that a large number of practitioners were unaware of the pharmacology of many of the drugs. Nevertheless, in order to provide optimal analgesia making the animal feel more comfortable a multimodal approach of analgesia should be employed (Lascelles et al., 1994; Lundeberg, 1995; Mathews et al., 2014).

A few practitioners in this study use diclofenac for analgesia provision (Table 5). Multimodal analgesia involves the combining of different classes of analgesic drugs that allows the veterinarian to optimize the management of pain, while limiting the occurrence of side effects. Drugs most commonly used in multimodal analgesia include opioids, NSAIDs, local anaesthetics, NMDA antagonists and alpha 2 adrenoceptor agonists. Furthermore, the lack of indication of any other analgesic agent by most of the respondents suggests that they do not consider post-operative analgesia provision highly necessary otherwise it may be that they think the analgesia provided by the most frequently used drugs after the lignocaine, that is, ketamine and xylazine are adequate. Indeed, alpha 2-adrenergic agonists are known to have potent analgesic

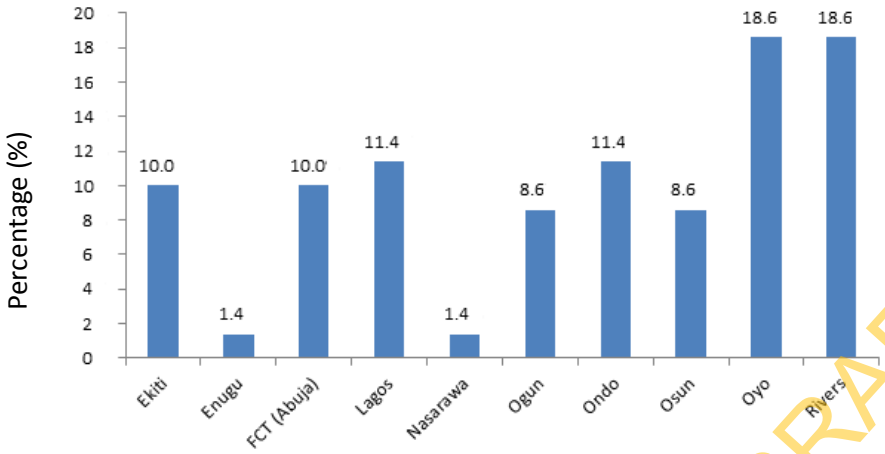

Figure 1. Percentage distribution of surveyed respondents per state.

properties (Paddleford and Harvey, 1999; Clarke et al., 2001) and sub anaesthetic doses of ketamine given pre-operatively have been shown to be effective in reducing post-operative pain (Slingsby and Waterman-Pearson, 2000).

Nevertheless, the analgesic effect of alpha 2 adrenergic agonists does not last as long as the sedative effect (Paddleford and Harvey, 1999), therefore xylazine does not contribute much to post-operative analgesia (Lascelles et al., 1994).

Conclusion

A substantial number of the veterinarians surveyed are well informed about animal pain perception, and use anaesthetic protocols that provide analgesia. Nonetheless, some of them still hold on to the misconception that minimal pain perception is beneficial to the patient at the post-operative period which may have influenced their non-provision of additional analgesia post-operatively.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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