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Perceptions and practices of Finnish dairy producers on disbudding pain in calves

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ABSTRACT

Disbudding causes pain-related distress and behavioral changes in calves. Local anesthesia and non-steroidal anti-inflammatory drugs are effective for treating disbudding-related pain. Dairy producers play a key role in whether or not calves to be disbudded are properly medicated. Pain and distress related to disbudding of calves often remains untreated. Thus, we conducted this study to characterize perceptions and practices of dairy producers on disbudding and disbudding-related pain management. A questionnaire was sent to 1,000 randomly selected Finnish dairy producers (response rate: 45%). Our aim was to investigate producer perceptions about disbudding-related pain, the perceived need for pain alleviation before disbudding, and how these perceptions affect the valuing and use of pain alleviation before disbudding. More than 70% of Finnish dairy farms disbud their calves. Producers who ranked disbudding-related pain and need for pain alleviation higher called a veterinarian to medicate calves before disbudding more often than producers who ranked disbudding pain and need for pain alleviation lower. Among respondents who disbudded calves on their farms, 69% stated that disbudding caused severe pain, 63% stated that pain alleviation during disbudding is important, and 45% always had a veterinarian medicate their calves before disbudding. Producers with a herd healthcare agreement with their veterinarian estimated disbudding-related pain to be higher and had a veterinarian medicate calves more often than producers without such an agreement. Producers with tiestall systems and producers who did not use disbudding valued pain alleviation prior to disbudding higher than producers with freestalls and producers who used disbudding.

Key words: disbudding-related pain, producer perception, management practice, calf welfare

INTRODUCTION

Disbudding, the removal of a calf's horn buds, is a common practice (ALCASDE, 2009) usually performed because hornless cattle are safer among themselves and humans (Prayaga, 2007; Duffield et al., 2008). The European Council (1988) Directive 98/58/EC allows any skilled person to destroy or remove the horn-producing area of animals aged less than 4 wk by chemical or heat cauterization, and no anesthesia or pain medication is required. In Finland, calves over 4 wk of age can be disbudded only by a veterinarian using adequate anesthesia (European Council, 1988; ALCASDE, 2009; Finlex, 2010).

Disbudding causes pain-related distress and behavioral changes in calves (Doherty et al., 2007; Heinrich et al., 2009; Stilwell et al., 2009). Local anesthesia (cornual nerve blocking) delays and alleviates the pain for 2 h (Graf and Senn, 1999), and nonsteroidal antiinflammatory drugs (**NSAID**) such as meloxicam (Heinrich et al., 2009; Stewart et al., 2009; Heinrich et al., 2010) and ketoprofen (McMeekan et al., 1998; Faulkner and Weary, 2000) are effective for treating disbudding-related pain postoperatively. For more information about disbudding-related pain alleviation, see the review by Stock et al. (2013).

Medical treatment is administered before or after calf disbudding on only 20% of European farms (ALCASDE, 2009). In Italy, producers reported that 10% of their disbudded calves received local anesthetics, 4% received a sedative, and 5% received analgesics before disbudding, and the majority of respondents were not willing to pay for veterinary services to treat disbudding-related pain (Gottardo et al., 2011). In Canada, use of sedatives or local anesthetics before disbudding was reported for 45% of herds, but apparently no analgesics were used (Vasseur et al., 2010). In the United States, sedatives or local anesthetics were used by 12% and analgesics by 2% of dairy farmers (Fulwider et al., 2008).

Veterinarians agree that disbudding is painful (Hewson et al., 2007; Hudson et al., 2008; Norring et al.,

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2014) but not all veterinarians alleviate pain before disbudding (Huxley and Whay 2006; Hewson et al., 2007; Misch et al., 2007). It is recommended to use sedatives, local anesthetics, and NSAID to alleviate disbudding-related pain (AVA, 2004; New Zealand Government, 2005; AVMA, 2012), but little is known about how well veterinarians follow these recommendations. Veterinarians are thought to be important consultants for farmers concerning animal health and welfare (Pothmann et al., 2014) and authority figures for producers (Kauppinen et al., 2010). Finnish producers have an opportunity to join a veterinary herd health management program (**VHHM**). In Finland, healthcare veterinarians make at least one annual nonemergency visit to their client farms to focus on possible improvement targets in herd health management and animal welfare (the NASEVA program; ETT ra, 2014). The NASEVA program is expected to increase the use of pain relief during disbudding because it strongly recommends that producers ask veterinarians to treat disbudded calves. However, no studies exist on whether producers who have a herd healthcare agreement use pain alleviation more than other producers. In Denmark, those producers who join VHHM are proactive and curious about new developments and information (Derks et al., 2012).

Because the use of pain alleviation before disbudding is not common (Fulwider et al., 2008; Vasseur et al., 2010; Gottardo et al., 2011) and producers are reported to be unwilling to pay for pain alleviation (Gottardo et al., 2011), more information about factors affecting a producer's choice in using pain alleviation is needed. In Finland, as in other Nordic countries, the use of veterinary drugs is highly restricted and legally controlled (Finlex, 1997); thus, motivation of the producer to use pain alleviation is especially important because use of sedatives, local anesthetics, and analgesic drugs requires veterinary intervention, incurring extra costs to the producer.

The aim of this study was to investigate producer perceptions about disbudding-related pain, the perceived need for pain alleviation before disbudding, and how these perceptions affect the valuing and use of pain alleviation before disbudding among dairy producers. In addition, information is lacking on how producers with different farm types (barn type, milk yield, herd size, having a herd healthcare agreement) differ regarding the use of pain alleviation before disbudding. We characterized management factors, perceptions, and practices of Finnish dairy producers on disbudding calves, the prevalence of disbudding on Finnish dairy farms, the producers' perceived need for pain alleviation, and the use of pain alleviation prior to disbudding. We expected that producers who estimated disbudding pain and the need for pain alleviation to be high would be more willing to pay a veterinarian to medicate their calves. Moreover, we expected that producers joining VHHM would also value and use pain alleviation more.

We previously showed that producers who took disbudding pain seriously (i.e., agreed that disbudding is very painful and that the pain should be treated) also estimated the pain caused by cattle disease to be more severe than the producers who did not rate disbudding pain highly (Wikman et al., 2013). However, it is not known if those producers intending to treat disbudding pain actually call on veterinary services to do so. The theory of planned behavior (Ajzen, 2002) has been used to study producers' motivation in herd health–related decision-making (Lind et al., 2012). The theory proposes that a producer's behavioral intention is strongly correlated with the actual behavior and the behavioral intention is related to attitude, subjective norm, and perceived behavioral control. We wanted to know, therefore, how many of those producers who think disbudding is painful and that pain needs to be treated actually call a veterinarian to medicate their calves.

MATERIALS AND METHODS

Study Design and Subjects

During spring 2010, a 4-page, postage-paid questionnaire was sent to 1,000 Finnish dairy producers. The research protocol was approved by the Finnish Agency for Rural Affairs. The producers were randomly selected from a geographically balanced list of all 11,244 dairy producers in Finland (Tike, 2009).

All data were managed and analyzed without identifying the respondents or their farms. This study is a part of larger study and the study protocol is described in detail in Wikman et al. (2013).

Questionnaire

The questionnaire consisted of 5 sections and included 70 questions (Supplemental File; http://dx.doi.org/10.3168/jds.2013-7668). The first section included background information on the respondent and their farm. Questions reported here included herd size, milk yield, type of housing, and whether the farm has a herd healthcare agreement with a veterinarian. The second section asked about the prevalence of disbudding and the prevalence of polled animals, dairy cows with horns, tipped adult cows, and dangerous situations because of cattle with horns in Finnish dairy farms. The third section was intended only for the farms performing disbudding and questions related to standard disbudding practices reported here included "Does the veterinarian