

Caudal epidural injection of xylazine in cattle

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Abstract

Giving of local anesthetics in the epidural space to perform regional analgesia may cause hind limb weakness and falling down of animal in addition to analgesia. The general use of xylazine as α_2 agonist drug is sedation, analgesia, and muscle relaxation. In this study five adult female cattle were used to determine the effectiveness and the clinical uses of caudal epidural injection of xylazine in producing regional analgesia without causing motor impairment, and to overcome the undesired side effect of using local anesthetics epidurally and xylazine systematically in cattle.

Introduction

Caudal epidural analgesia is extremely required for various surgical obstetrical and gynecological interventions in cattle. Local anesthetic drugs such as lidocaine HCL are frequently used to induce this purpose (1,2). The nonspecific cause ataxia and limb weakness when motor fibers of the lumbosacral plexus is affected (3). Opioids were used to cause spinal analgesia in human being (4). Xylazine is an α_2 -adrenergic agonist drug widely used as non-narcotic, sedative, and analgesic drug in large animal (1,2,5,6). Recently it was used to induce epidural analgesia in horses (7,8), cattle (9), and rams (10). Other α_2 agonist drugs like medetomidine was also used in goat (11). The purpose of this study is to evaluate the usefulness uses of xylazine to induce caudal epidural analgesia in local breed cattle.

Materials and Methods

Five female adult local breed cattle were used. Each animal injected once only. The area for injection was prepared for aseptic surgery. The animal was restrained in stock, and 2% solution of xylazine HCL was injected in the epidural space between the 1st and coccygeal vertebrae using spinal needle (20 gauge 5 cm length) at the dose of 0.05 mg/kg B.W after dilution with normal saline into 5ml volume. After 10 minutes from injected the animal allowed to walk for determination of ataxia, onset, duration, and extension of analgesia were determined.

Determination of analgesia was done by skin pin prick. Systemic reactions to the drug were also recorded.

Results

In all tested animals, the tail and perineum area was become desensitized to the skin pin prick between 15 to 20 minute (17.6 ± 0.92) after epidural injection of xylazine, and lasted for 1.20 to 1.30 hrs (1.23 ± 0.002) (Table 1). The extension of analgesia was determined in perineum region only. Four animals develop mild ataxic, while one remained standing and walking without ataxia.

Systemic reactions were observed in all animal and the signs include, drooping of head, excessive salivation, frequency micturition and partial ruminal atony with moderate left flank distension (table 1).

Discussion

Epidural administration of xylazine give good time of analgesia (1.23 hr), which was sufficient to make an obstetrical and surgical intervention in perineal region. This time is longer than that gained from injection of lidocaine in cattle (9) and horse (12). Injection of lidocaine epidurally produced marked ataxia due to motor block when it reached to the lumbosacral plexus (2), while using of xylazine epidurally in horse overcome this side effect (7,8). In our experiment there is mild ataxia, that agreed with previous studies (13, 14). Xylazine give systemic side effect when given systematically (6). In this study, the side effects although was present, but was less than that when systemic injected was done. This will encourage the use of xylazine epidurally, but need more study to reduce the absorption of the drug from the vertebral canal to reduce the side effect.

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Table(1) Regional analgesia effect attained by injection of xylazine epidurally in cattle.

No.of animal	Onset of Analgesia	Duration of analgesia	Extension of analgesia away from perineum	Presence of Ataxia	Systemic Reaction
1	20	1.30	-ve	+ve	+ve
2	18	1.20	-ve	+ve	+ve
3	19	1.25	-ve	+ve	+ve
4	16	1.20	-ve	-ve	+ve
5	15	1.20	-ve	+ve	+ve
M±	17.6	1.23			
SE	±0.92	±0.002			

□ استخدام الزيلازين للحقن فوق الجافية في الأبقار

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الخلاصة

يحقن المخدر الموضعي (الليدوكاين) في المجال فوق الجافي للحصول على حالة تخدير وتسكين الالم الناحي وهذا النوع من الحقن اضافة الى تسكين الالم قد يسبب ضعف القوائم الخلفية وسقوط الحيوان احياناً. يستخدم الزيلازين بشكل عام كدواء مخدر ومسكن للالم ومرضي للعضلات، وفي هذه الدراسة استخدم هذا الدواء في الحقن في المجال فوق الجافي (بدلاً من الليدوكاين) في خمس من اناث الأبقار المحلية البالغة. وذلك لتحديد التأثير ومدى الاستفادة السريرية من حقن هذا الدواء في تحقيق تسكين الالم الناحي من دون التأثير على الاعصاب الحركية وكذلك لتفادي التأثيرات الجانبية غير المرغوبة الناتجة من حقن المخدر الموضعي (الليدوكاين) في المجال الجافي وتفادي التأثيرات الجهازية الجانبية الناتجة من حقن الزيلازين جهازياً (عن طريق الوريد او العضلة) في الأبقار.