Anaesthetic Effect Of Xylazine And Xylazine With Ketamine In <u>Coturnix</u> <u>Coturnix</u> Japonica

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Abstract:

In this study, the xylazine hydrochloride 0.5 mg/kg of the body weight intramuscularly, induced anaesthesia in Japanese quails within 6 minutes for 33.3 minutes ,muscle relaxation was poor with out anv analgesia.Recovery from anaesthesia was rough with leg movement ,head shaking,wing flapping ,salivation and excitation, the combination of xylazine hydrochloride (0.5 mg/kg) of the body weight intramuscularly with ketamine hydrochloride (15 or 30 mg/kg) of the body weight intramuscularly induced anaesthesia depending the dose during 2.5 and 2.1 minutes for 41.3 and 70.6 minutes, respectively. The anaesthetic combination provided adequate analgesia lasted for 54.4 minutes and 65 minutes respectively with good muscle relaxation in Japanese quails.

Introduction:

Xylazine 2-(2,6-xylidine)- 5,6 dihydro 4-H-1,3 is an alpha 2-adreno receptor agonists widely used in veterinary practice as a sedative, analgesia and muscle relaxant (2,9). It is also used with general anaesthesia in animals to improve the quality of anaesthesia accompanied by smooth induced and recovery (4,10), and also used with general anaesthesia such as ketamine 2-(0-chlorophenyl)-2-methylamino) hydrochloride cyclohexan one hydrochloride is a dissociative agent violent convulsion movements during induction and (3,6) recovery with poor muscle relaxation unconsciousness, tonic clonic spasm, salivation, laryngeal and pharyngeal reflexes (2,7). The interaction of the xylazine with ketamine in the Japanese quails may be use ful for minor surgical procedures. Therefore the present investigation was under taken to examine the anaesthetic effect of xylazine alone and combination with ketamine hydrochloride in coturnix coturnix Japonica (3).

Materials And Methods:

Japanese quails age (5-8) weeks of both sexes were maintained under standard housing conditions with water and food <u>ad libitum</u> The quails (n=10/dose group), were injected (I.m.) xylazine in the pectoral muscle with xylazine hydrochloride (2% Injectable solution, Sanofi Sante Nutrition Animal, France) at 0.5 mg/kg of the body weight diluted with physiological saline solution and the volume of administration was at 1 ml/kg body weight, quails in group 2 were injected intramuscularly in to the pectoral muscle with xylazine at 0.5 mg/kg body weight and 0.5 mg/kg body weight (group 3)

Immediately after xylazine hydrochloride administration injected intramuscularly ketamine hydrochloride (50 mg/ml, Park, U.K.) at 15 mg/kg body weight was injected intra muscularly into the pectoral muscle at 15 mg/kg of the body weight (group2) and 30 mg/kg body weight (group 3). The dose of xylazine hydrochloride and ketamine hydrochloride were obtained from literature (16). The latancies to onset of sedation (closing the eye lids and wing dropping), sleep (absence of righting reflex ability when Japanese quails placed on lateral recumbency) and analgesia (loss of comb pinch reflex (4,5) Data were subjected to analysis of variance followed by the least significant difference test (12,13). The level of significant was at p<0.05.

Results:

Dosing of Japanese quails with xylazine hydrochloride at 0.5 mg/kg, intramuscularly induce sedation , sleep, within 6 minutes to 7.8 minutes (group 1) respectively (Figure 1). The duration of anaesthesia (sleep) was 33.3 minutes (Figure2), but Japanese quails when given xylazine alone never achieved astate of analgesia, poor muscle with eye closed and palpebral reflexes were evident during entire anaesthesia occurred within 15 minutes after regaining the righting reflex. The recovery period with xylazine was accompanied with excitement, leg movement and wing flapping.



Figure 1: onset of sedation , sleep and analgesia in Japanese quails anesthetized with xylazine and xylazine-ketamine combinations



with ketamine 30mg/kg, intramuscularly).

Values are mean± S.E. 10 Japanese quails/groups sedation = closing eye lids and wing drooping

Sleep= loss of righting reflex ability Analgesia = loss of pinch reflex.

* significantly different from corresponding value of the xylazine treated group (p<0.05).

** significantly different from corresponding value of xylazine at 0.5 mg/kg combined with ketamine 15 mg/kg treated group(p<0.05)



Figure 2: Duration of sleep and analgesia in Japanese quails anesthetized with xylazine and xylazine-ketamine combination



Wylazine (0.5mg/kg, intramuscularly)

🏢 Xylazine (0.5mg/kg, intramuscularly

with ketamine (15mg/kg, intranuscularly)

- Xylazine (0.5 mg/kg, intramuscularly

with ketamine 30mg/kg, intramuscularly).

Values are mean± S.E. 10 Japanese quails/groups Sleep= loss of righting reflex ability

Analgesia = loss of pinch reflex.

* significantly different from corresponding value of the xylazine treated group (p<0.05).

** significantly different from corresponding value of xylazine at 0.5 mg/kg combined with ketamine 15 mg/kg treated group(p<0.05)

Xylazine hydrochloride (0.5mg/kg) with ketamine hydrochloride (15or30 mg/kg) interaction rapidly induced sedation and analgesia in the Japanese quails within 2.5-4.3 and 5.4 minutes (group 2) to 2.1,3.4 and 4.1 minutes (group3). The duration of analgesia and sleep dose dependently increased 41.3 and 54.4 minutes (group2). To 70.6 and 65 minutes (group3) , respectively (Figure2).

Good muscle relaxation was seen and eye remained open , salivation , palpebral reflex were evident during the entire period of anaesthesia, recovery from anaesthesia was smooth.

Discussion:

In the present experiment xylazine hydrochloride when administrated alone to the Japanese quails caused excitation during induction, insufficient duration of the anaesthesia, rough with leg movement, head shaking, wing flapping, salivation and excitation. Similar signs where seen in birds treated with xylazine (1). But in the this study when xylaxine administrated alone did not induced analgesic effect in the Japanese quails, this finding of consistent with those previously reported in birds treated with xylazine (6,11). Many reflexes are usually maintained during xylazine induced anaesthesia (9,16). The anaesthetic combination with ketamine hydrochloride produced satisfactory anaesthesia in the Japanese quails which was characterized by rapid and smooth induction, good muscle relaxation. These results are in consistens with the reported good anaesthetic effect of xylazine with ketamine combination inbirds (11,15). Ketamine hydrochloride improves the qualtity anaesthesia because of its tranquilizing ,central muscle

relaxant and anticonvalsant properties (8). The analgesic effect of the anaesthetic combination xylazine with ketamine called be attributed to ketamine which may be enhance analgesia (2,14).

The duration of anaesthesia was prolonged in the Japanese quails when xylazine was administered concurrenthy with ketamine. These resultes called attributed to the additional depressant effect of ketamine (7,17). In conclusion, the resultes of the present study that combination of xylazine with ketamine produced smooth anaesthesia in the Japanese quails, and further studies are required to test these possibilities in animals with various anaesthetic levels.

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التأثير المخدر للزايلازين والزايلازين مع الكيتامين في طائر السمان الياباني

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الملخص:

تم في هذا البحث تقييم الفعل المخدر والمسدر للزايلازين بجرعة ٥,٠ ملغم/كغم من وزن الجسم في طائر السمان الياباني محدثا خلال ٦ دقائق لمدة ٣٣,٣ دقيقة وكان ارتخاء العضلات ضعيفا وبدون أي تاثير على تسكين الالم. اما الرجوع من حالة التخدير فكان غير سلسا وكان مصحوبا بحركة الارجل وهز الراس ورفرفة الجناح واللعاب والتشنجات، في حين ادى اعطاء الزايلازين بجرعة ٥,٠ ملغم من وزن الجسم في العضلة مع

الكيتامين بجرعة ١٥و ٣٠ ملغم /كغم من وزن الجسم بالعضلة الى احداث التخدير واعتمادا على الجرعة خلال ٢,٥و ٢,١ دقيقة لمدة ٢,١٤و ٢,٠ دقيقة على التوالي . وفر مزيج الزايلازين مع الكيتامين تاثيرا مسكنا للالام استمر لمدة ٤,٤٥و ٢٥ دقيقة على التوالي مع ارتخاء جيد للعضلات في طائر السمان الياباني .