

The Comparison Between Anesthesia Acupuncture and Anesthesia Drugs Which are Conducted by Clinical Aspect in Sheep

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Abstract

The comparison between anesthesia acupuncture and anesthesia drugs which are conducted by clinical aspects from sheep are efficacy to analyse the ability of their reactions. So to select the technique of acupuncture or drugs will support the best result in handling some surgical cases. The research is based on the clinical aspects, such as symptoms, hearth rate, respiration rate and temperature. Each sheep is treated by three times in certain interval, such as Acupuncture, Xylazin (Xylazil-20[®]) and Pentobarbital (Nembutal[®]). While each treatment is divided by three periodic, likes pre anesthesia, anesthesia and post-anesthesia. The periodic are divided into five steps for collecting clinical signs. This results that were trialed in ten heads sheep gave variation in each treatment, because of behavior individual. In general, anesthesia acupuncture showed the constant curved clinical sign, but anesthesia drugs showed the declining graphic. Generally, the treatments of both drugs were formed the curved declining. Generally, anesthesia acupuncture will support to contribute some therapies without any side effect, even-though the on-set of acupuncture are so prolong (20-30 minutes). If the temperamental sheep is nervous or unstable, the anesthesia acupuncture is not appropriate. Honestly, the excellent acupuncture would give the longest duration as still twisting and electro-acupuncture in the place. Also, the post-anesthesia from acupuncture will be quick consciously, without disturbing side effect of acupuncture. The anesthesia of both drugs will be deep depression that helps successfully to handle in surgical cases. Even though the side effect is considered in symptom, the post-anesthesia drugs still showed side effect, especially the organ functions have to be check before giving these drugs in pre-anesthesia.

Keywords: *Acupuncture, Anesthesia, Drugs, Symptom.*

INTRODUCTION

Recently there are management problems in anesthetic drugs, such as difficulty of finding, expensive price and considering of side effect drugs. Accordingly, acupuncture is an alternative method as anesthetic in surgical procedure. Acupuncture anesthesia in human has been used for along time, while in animal it is still new that has to be explored morely.

However, the application of acupuncture anesthesia in ruminant has been effective that are reported by Laksmipathi *et.al.* (1984), Sianturi (1989) and Aliambar *et.al.* (1993)

In western medicine, both techniques (drug and acupuncture) have the same target organ to block centre pain and synaptic nerves, even though there are differences of anesthetic method. Moreover, anesthetic drugs use blood

stream to distribute the active component in the body cavity to get the target organ, while acupuncture use to stimulate certain point of surface skin body (Ganong, 1980 and Guyton, 1983). Therefore, the discrepancy of the symptoms that is produced by both techniques have become the part of the research to be studied, such as physical influencing from stimulated acupuncture compare to the chemical influencing from both drugs to observe clinical signs in sheep.

The acupuncture stimulation produced by inserted needle into surface skin, then trigger with electrical acupuncture (EA) flow to network nerves as fibre A δ and A β from synaptic in spinal cord to center pain in hypothalamus as spinothalamic tract (Melzack dan Wall, 1965, and Munandar, 1982). The vibration from EA inhibit pain in fibre C produced substance P, also resulted substrate of 'morphine-like' into synaptic nerve from spinal cord to hypothalamus, in order to press the feeling pain during surgical action (Beamont and Hughes, 1979, and Zhong, 1980).

Anesthetic drug administered into intra-vein, intra-muscular or subcutaneous that flow blood stream to destinate indirectly in synaptic nerve as center pain. Drug will block the center pain in spinal cord and hypothalamic, in order to inhibit feel pain distribution or free cross synaptic during surgical

application.

MATERIALS AND METHODS

Materials

A total of 10 head young female sheep (ewe) average at 1 year old. Minor surgery tools, included stethoscope and thermometer have to be prepared as a standard for the clinical diagnostic. Anesthetic drugs used were Xylazil-20[®] (Xylazin) and Nembutal[®] (Pentobarbital), while acupuncture equipments were needle size 0.25 X 25 or 1 chun no. 28 and electro acupuncture (EA) model G.6850-2.

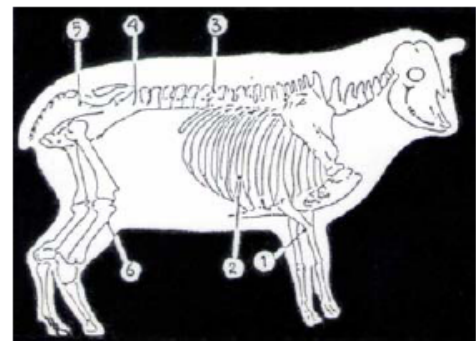
Methods

Animals and single treatment.

Anesthetic drugs were administered into Jugular vein for Nembutal[®], and intramuscular between semitendinous and semimembranous for Xylazil[®]. Anesthesia acupuncture was achieved by inserting acupuncture needle at selected acupoints with their combinations. The needles are connected to electro-acupuncture (EA) as electrical stimulation are palced of that point until animals could not feel pain in certain area of surgical skin when prick with a needle or press with a pincet. Acupuncture points (Bl-30, Liv-14, Gov-30, St-36) and their combinations have been selected as anesthetic with referred to previous research (Aliambar *et.al.*, 1993, and Laksmipathi *et.al.*, 1984). (as can been seen in figure 1).

- (1) Th-8
- (2) Liv-14
- (3) Tianping
- (4) Gov-20
- (5) Bl-30
- (6) St-36

Note: Th (Three heater), Liv (Liver), Gov (Govenor vessel), Bl (Blader) and St (Stomach)



Location of acupuncture points (From Laksmipathi *et.al.*, 1984. Caesarean Section in an Ewe under Acupunctrure Anesthesia.)

Figure1. Analgesia or Anesthesia Acupuncture points in Sheep or Goat.

Table 1. Identification of clinical signs in sheep

No	Periodic Trials	Categories				
	Stadium Treatments	Pre-Anesthesia		Anesthesia		Post-Anesthesia
		I-1	I-2	I-3	I-4	I-5
I	Acupuncture					
II	Xylazil-20 [®]					
III	Nembutal [®]					

Table 2. The comparison of actions between acupuncture anesthesia and drugs.

STADIUM	Pre-Anesthesia	Anesthesia	Post-Anesthesia
Drugs action Treatments	(On-set)	(Duration of Action)	
Acupuncture	15 - 25 min	~ min	1 - 2 min
Xylazil-20 [®]	5 - 19 min	25 - 40 min	5 - 20 min
Nembutal [®]	1 - 2 min	30 - 60 min	5 -10 min

Note : ~ : Unlimited time

Clinical sign and Quantification.

Clinical signs, such as body temperature, hearth rate and respiratory rate, and behavior of unsoundness animals, such as feeling pain, tympanic, hypersalivation and nervousness, included the side effect of drugs or acupuncture have been observed with 5 min interval time.

This research is valued on analytical qualitative data from unsoundness animals and quantitative data from clinical sign that was grouped in 3 steps (pre-operative, operative and post-operative), then substituted to observe into 5 times. Moreover, each head sheep was treated with three treatments regularly (Acupuncture, Xylazil[®] and Nembutal[®]).

RESULTS AND DISCUSSION

The effective time of capable single dose with acupuncture and Drugs. As can be seen in table 2. The onset of anesthesia acupuncture takes the longest time compare to Xylazil-20[®] and Nembutal[®] treatment, because the acupuncture treatment can maintain the anesthesia by stimulate the ability of needle with EA to inhibite pain center from the skin to spinal

cord untill hypothalamus, it was reported by Ganong (1983) and Guyton. (1983). This causes the release of produced peptide opiate in synaptic nerve to inhibit substance P before the surgical action (Zong, 1980, and Ulet, 1983), therefore, the pain feeling was blocked as long the needle prick acupuncture and stimulation of EA is still being continued (Laksmipathi, 1983).

Acupuncture in producing anesthetic needed animal body condition itself, besides the exact and combined points of acupuncture skill. Generally, the category of anesthesia acupuncture will definitely continued or not to surgical action, that it is depend on the succesfully of pre-ansthesia period. Whereas, both drugs (Xylazil[®] and Nembutal[®]) as pre-anesthetic was always succesful for surgical action that are depend on dosis.

The period of anesthesia acupuncture has a long duration that is depend on inserted needle and stimulated EA action. While the post anesthesia action was taken a short period of time that the animal was direct consiousness in a few second after releasing the needle and

stopped EA. This is supported by (Alliambar *et.al.*, 1990) and (Laksmipathi *et.al.*, 1983). It was different with both anesthetic drugs effect that were taken time to be consciousness in post-anesthesia period, because of drugs side effect needed to release from diuresis.

Physiological anesthesia acupuncture was divided into 4 steps of categories that was different with both drugs, because the post-anesthesia that was directly consciousness without any depression from side effect of acupuncture. However, the general side effect of acupuncture was

tympanic and occasionally nervous or not calm as long anesthetic action, because the stimulation of acupuncture increased metabolism also muscles tone were relatively unrelax, especially the anesthesia was not excellent working.

The influenced physiology of both drugs appeared the effect of hypersalivation and diuresis, especially periodic of anesthesia, eventhough the animal was excellent unconsciousness with muscle relaxing.

Table 3. Comparison of unsoundness animal between acupuncture and drugs

No	Trials Period		Categories			
	Stadium	Pre-anesthesia		Anesthesia	Post-Anesthesia	
	Treatments	I-1	I-2	I-3	I-4	I-5
I	Acupuncture	<ul style="list-style-type: none"> - Inserted Needle - Stimulated EA 	<ul style="list-style-type: none"> - Relative calm - Decreased sensitifity - Relative tympanic - From+- till ++ *) 	<ul style="list-style-type: none"> - Good anesthes. - Sleep well - Calm/relax - Suddenly weak up - From+ to +++ 	<ul style="list-style-type: none"> - Direct consiousness 	
II	Xylazil-20[®]	<ul style="list-style-type: none"> - Injected I.M - (Anesthesized) 	<ul style="list-style-type: none"> - Suizer - Salivation - Relative sleepy - No pain in flank area - From+ till ++ 	<ul style="list-style-type: none"> - Depresive - Sleep well - Diuresis - Hipersalivation - From ++ to +++ 	<ul style="list-style-type: none"> - Relative consiousness - Soundness - Salivation 	<ul style="list-style-type: none"> - Good Consiousness
III	Nembutal[®]	<ul style="list-style-type: none"> - Injected I.V - (Anesthesized) 	<ul style="list-style-type: none"> - Sleep well/anesthes. - Salivation - From++ to +++ 	<ul style="list-style-type: none"> - Hipersalivation - Timpanic - Snoring - Sleep well - Good Unconsciousness - +++ 	<ul style="list-style-type: none"> - Relative consiousness - Relative salivation - Soundness 	<ul style="list-style-type: none"> - Good Consiousness - Eat / feed

Note: Type of Consiousness : (+) : Poor ; (++) : Moderate ; (+++) : Good

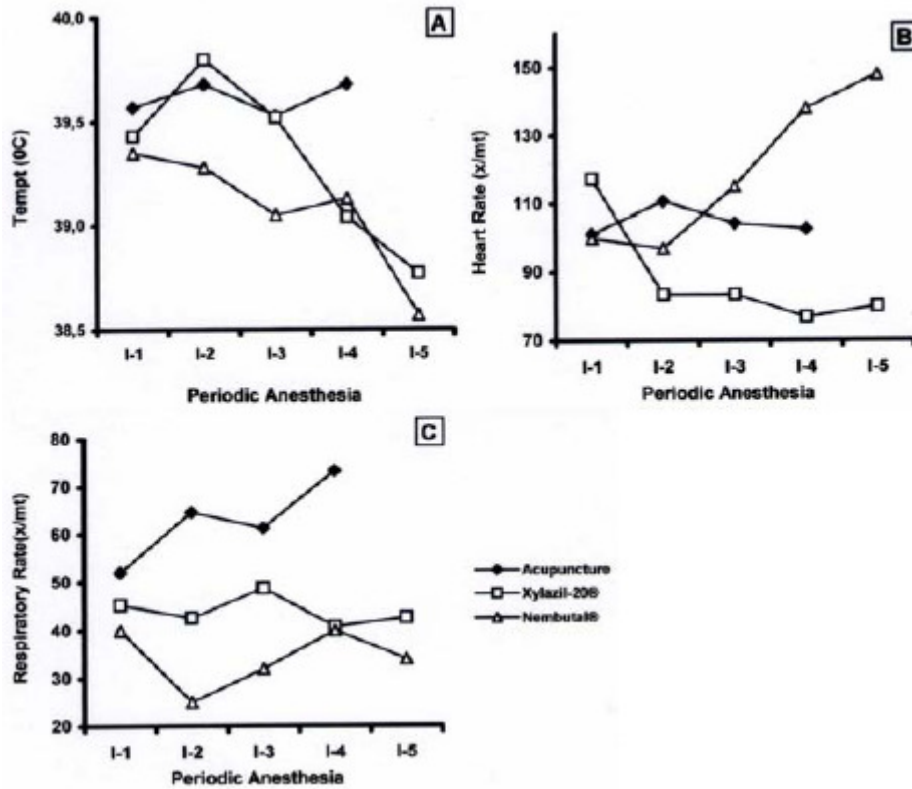


Figure 1. The influence of the treatments to the clinical signs. (A) Temperature, (B) Heart Rate and (C) Respiratory Rate

The effect of anesthesia acupuncture that the temperature was relatively unchange in average constant (1°C), eventhough there was increased body metabolism during treatment. The acupuncture stimulation was also trigger to produced "morphine-like" that affected to anesthesia. In contrast, both anesthetic drugs decreased temperature that was depressed animal physiology.

The influence of acupuncture to hearh rate was not significant, while both anethesia drugs have different effect, Xylazil-20® was decreased, but Nembutal® was increased, because there were different mechanism of drug action during periodic anesthesia

The influence of acupuncture in respiratory rate was tend to increase, because the acupuncture action stilmulated body metabolism, while both anesthesia drugs were similar graphic pattern likes heart rate .

CONCLUSION

The periodic of stadium anethesia influenced the functional organ. The side effect of Akupunktur, Xylazil-20® and Nembutal® showed the variation of clinical sign.

The side effect of anesthesia acupuncture was tympanic rumen and increased respiratory rate, whereas Xylazil-20® and Nembutal® have similar unsoundness with hypersalivation, diuresis and tympanic rumen

If the acupuncture action was excellent anesthetic by showing the animal muscle relaxing, and then post-anesthesia by showing direct consiousness without any side effect. Moreover, both drugs are generally depressive during anesthesia, then post-anesthesia more difficulty consious, because of side effect anesthetic drugs

Generally anesthesia acupuncture was relatively constant in clinical signs of

temperature and heart rate, then respiratory rate was increased because of metabolism effect.

Xylazil-20® was tend to decrease in all clinical signs, while Nembutal® was decreased in temperature, but its increased in heart and respiratory rate during anesthesia that are side effect of depressive body condition.

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