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Short communication

Effects of wet cupping on some haematological parameters in lamb

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Abstract

This experiment was conducted to examine the effects of cupping on the haematological parameters of lamb blood. Ten male Mehreban lambs weighing 23.4±3.24 kg were assigned to two treatments: control and cupping based experimental group. Wet cupping was performed in several steps of sucking, scarification, secondary sucking, bloodletting and removal. Venal blood sampling was obtained one week after wet cupping and samples were tested for haematological parameters. No significant differences were observed between control and cupping groups in mentioned parameters. Cupping has not any negative effect on haematological parameters of sheep and can be tried in the treatment of some diseases in sheep as is used in human.

Keywords: lamb; wet cupping; haematological factors

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Introduction

Cupping is the one of the ancient practices that have long been used in all of the nations and is known as one of the prevention and curative skills in the traditional medicine (Saadatmandi and Farajzadeh, 2013). Wet cupping is the process of using a vacuum at different points on the body but with incisions in order to remove harmful blood which lies just beneath the surface of the skin (Vaez Mahdavi et al., 2012). There are several hypothesis in the effect of cupping on disease such as theory of pull and molecular chemistry, the hypothesis of existing special anatomical structure of the skin at the site of the cupping, the hypothesis of the influence of the moon gravity on the body and blood chemistry, the hypothesis of reflexes and reactions (Agin and Kheirandish, 1993).

In addition to developing and increasing interest in alternative medicine in medicine, this science is also developing in veterinary medicine. Almost all methods and drugs used in medicine for humans can also be used in veterinary medicine (Afsahi et al., 2014). However, there are few reports about the effect of wet cupping in the animals (Aieni et al., 2013; Afsahi et al., 2014). The purpose of this experiment was to investigate the effects of wet cupping on the Haematological parameters in lamb.

Materials and Methods

Animals

The experiment was conducted in smallholder dairy farm 10 km away from Sarab-Ardebil road-East Azerbaijan State in Iran. Ten male Mehreban lambs weighing 23.4±3.24 kg were housed in an open shed and offered barley and fresh pasture forage for two weeks. All of experimental animals were randomly assigned to two treatments (control and cupping) in a completely randomized design.

Experimental procedures

Wet cupping was performed in the left axillary area of the cupping group in four steps: primary sucking, scarification, secondary sucking, bloodletting and

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removal as described by El Sayed et al. (2013). Venus blood sampling was obtained one week after wet cupping. 4 ml of venous blood was obtained by gel tubes which were soaked with K3EDTA in order to analyse the blood samples. Samples were tested for haematological parameters including red blood cells (RBC), white blood cells (WBC), haemoglobin (Hb), haematocrit (Hct), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), and mean corpuscular haemoglobin concentration (MCHC). Haematological parameters were analyzed using automatic Hum count plus, Haematology analyzer (KX-21, Japan). Differential counting of lymphocytes, monocytes, eosinophil and neutrophils was conducted manually.

Statistical analysis

Data were analyzed using SPSS (version 18). Haematological parameters of control and cupping groups were analyzed by student t-test. P value <0.05 was considered to be statistically significant.

Results and Discussion

Haematological parameters of the venal blood of control and cupping groups are shown in Table 1 and 2. As shown, the venous blood samples from the control group showed no significant difference in haematological parameter in comparison to the cupping group. However, WBC, RBC, MCV, Hct and MCH decreased with cupping and MCHC and Hb increased.

Figure 1 shows the blood smear of a cupping blood sample obtained in our experiment. RBCs in this resemble a teardrop known as dacrocyte.

Wet cupping is performed in four steps: primary sucking, scarification, secondary sucking, bloodletting and removal (El Sayed et al., 2014). During the first step in cupping, collected interstitial fluids with causative pathological substances, filtered fluids (from blood capillaries containing causative pathological substances) and haemolysed blood cells accumulate inside the skin (domes) during suction steps of cupping. No intact blood cells (RBCs, WBCs and platelets) exist in this fluid mixture. Blood cells have diameters in microns that are about 100-1000 times larger than the pores of the skin capillaries (6-100 nm in diameter) and are therefore too big to pass through the pores of the skin capillaries (11- 12) and cannot be filtered (Baghdadi et al., 2015).

It has been suggested that WBCs count in blood obtained from cupping samples is one tenth of their count in venous blood samples (Vaez Mahdavi et al., 2012). Vaez Mahdavi et al. (2015) also showed that WBCs count was lower in blood obtained from cupping than venal blood despite difference was not statistically significant. However, WBCs count in the venal blood of cupping group is higher than the control group. It seems that the inflammation in the cupping area stimulated and activated the immune system (Aiini et al., 2013). Ahmed et al. (2005) reported conventional therapy in rheumatoid arthritis induced significant depression in white blood cell whereas combination conventional therapy with cupping induced marked elevation since the first month compared to baseline. The results of Aieni et al. (2013) study showed an increase in total white blood cells and lymphocytes in double-cupping group than the control group on the day after bloodletting, however, this increase was not statistically significant. They proposed that repeated cupping may be causing a little increase in the level of lymphocytes and white cell blood. However, Vaez Mahdavi et al. (2012) did not observe any significant difference in the WBC content of venous blood samples before and two weeks after cupping as we observed. Afsahi et al. (2014) also observed no significant differences in terms of increase in WBCs, lymphocytes and granulocytes on 3rd, 7th and 18th day after the cupping between experimental and control groups.

RBCs transport haemoglobin which in turn transports oxygen. The amount of oxygen tissues receive depends on the amount and function of RBCs and haemoglobin (Vaez Mahdavi et al., 2012). The studies conducted by Danyali and colleagues (2009) showed that the level of red blood cells, haemoglobin and haematocrit in the blood obtained from cupping were significantly higher than the venous blood. Vaez Mahdavi et al. (2012) also reported RBCs count and Hb concentration in cupping blood samples were significantly well above of those in venous blood samples and this reveals cupping blood is so dense (Vaez Mahdavi et al., 2012). However, there were different reports in terms of the effect of cupping on the RBC content of venal blood. Aieni et al. (2013) observed a significant increase in venous RBC and haematocrit of the group that received wet cupping twice on mice over time. They offered it can be probably effective in anaemia caused by chronic kidney diseases due to its effects on erythropoietin hormone. However, Vaez Mahdavi et al. (2012) reported Hct and Hb level as well as RBCs count in venous blood was significantly decreased two weeks after cupping. Moreover, there was no statistical differences in value of MCV and MCH, however, MCHC levels were more in cupping group than control group, and it means that haemoglobin concentration in RBCs of cupping blood samples was highest. Similarly, Yavari et al. (2014) reported a small reduction in the level of red blood cells, haematocrit and haemoglobin of sheep at day 7 after the cupping compared to the sample before the test, however, this reduction was not statistically significant. Yavari et al. (2014) also observed no significant differences in terms of increase in red blood

Table 1: Comparison of haematological parameters in venous blood samples of control and cupping group

Parameter	Treatments		SEM	P-value
	Venal blood of control group	Venal blood of cupping group		
WBC(N/mm^3)	16650	15700	486.46	0.38
RBC(Mil/cumm)	8.775	8.73	0. 32	0.95
MCV(FL)	69.65	50.90	9.81	0.37
Hct (%)	60.95	42.42	7.37	0.23
Hb (g/dl)	9.47	9.50	0.21	0.95
MCH (Pg)	10.75	11.04	1.12	0. 53
MCHC (g/dl)	18. 40	23. 80	2.29	0. 27

Table 2: Differential leucocytes count (%) in venous blood samples of control and cupping group

Parameter	Treatment		P-value
	Venal blood of control group	Venal blood of cupping group	
Lymphocyte	60.75	61.51	0.76
Monocytes	5.50	4.75	0.27
Neutrophils	30.00	30.25	0.38
Eosinophils	2.50	1.37	0.64
Basophils	1.25	2.12	0.18

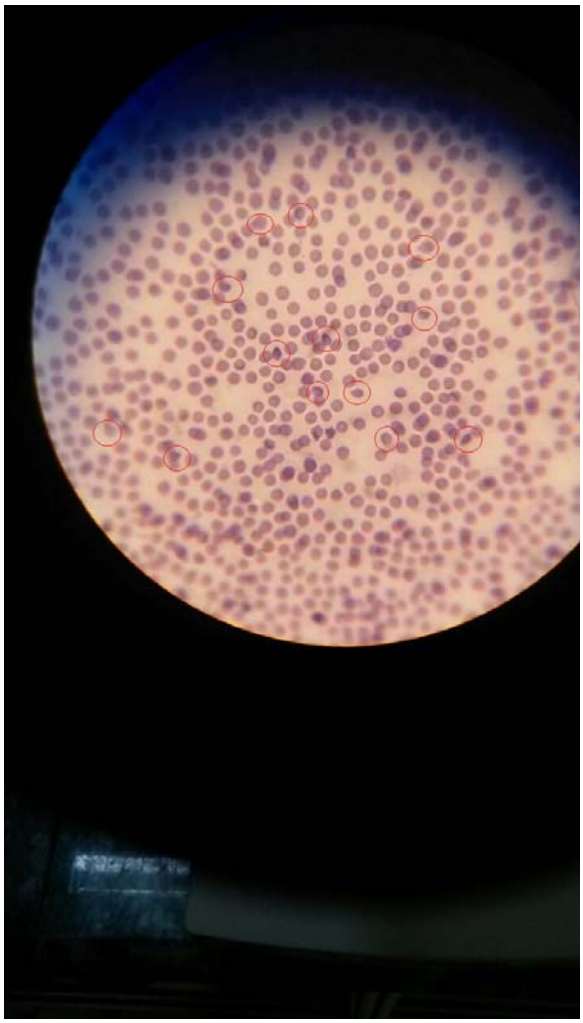

Image 1: Blood smear of a sample obtained from cupping. Dacrocyte have been shown in circle

cells, platelets, MCHC, MCH, MCV, haemoglobin levels on day 3, 7 and 18 after cupping between experimental and control groups of sheep.

Beside the number of blood cells their shape may also vary as a result of various factors. It has been reported that RBCs morphology changed after cupping (Sheykhu, 2008). As said earlier, we also observed abnormality in RBC morphology of cupping blood known as dacrocyte. Dacrocyte or teardrop RBC is an abnormally shaped red blood cell with a single point or elongation. It is suggested that cupping may probably play an important role in excretion of old RBCs (Vaez Mahdavi et al., 2012).

Conclusion

Cupping has no any negative effect on haematological parameters of sheep and can be tried in the cure of some diseases in sheep as is used in human.

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