

Comparative study between follicles size on right and left ovaries in local Iraqi ewes and related with different seasons

دراسة مقارنة بين احجام الجريبات على المبيضين الايمن والايسر في الاغنام العراقية المحلية وعلاقتها بالفصول المختلفة

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Abstract

This study was conducted on 424 ovaries (212 slaughter Iraqi ewes) in Al-Shulla and Al-Kut abattoirs during period from December 2015 to November 2016, age of animals were 3-5 years. We collected ovaries and divided to three groups of follicles included small follicles (SF) <2mm, medium follicles (MF) 2-5mm and large follicles (LF) ≥5mm in both ovaries. We divided the follicles into four groups according to seasons (autumn, winter, spring, summer). Results revealed in the right ovary the number of SF during winter were highly significant ($P<0.05$), more over the number of MF during winter and autumn were increase significant ($P<0.05$), and the number of LF recorded highly significant ($P<0.05$) at autumn. While in the left ovary the number of SF during winter were highly significant ($P<0.05$), while the number of MF during autumn and winter were highly significant ($P<0.05$), The number of LF during winter were highly significant ($P<0.05$). The number of SF in right ovary recorded increase significant ($P<0.05$) in winter as compared with left ovary, as well as the number of MF in the right ovary were highly significant ($P<0.05$) during winter as compared with left ovary and the numbers of LF in the right ovary during autumn were highly significant ($P<0.05$) as compared with left ovary. In conclusions from this study the activity of ovaries were included all seasons, and the activity in right ovary was better at autumn, while in left ovary was better activity in winter on Iraqi ewes.

[Key words: follicles size, ewes, ovary.]

المستخلص

اجريت الدراسة على 424 مبيض (212 نعجة عراقية مذبوحة) في مجزرتي الشعلة في بغداد والكوت في واسط للفترة من كانون الأول 2015 ولغاية تشرين الثاني 2016 وتراوحت اعمار الحيوانات من 3-5 سنوات. المبيض التي جمعت قسمت الى ثلاث مجاميع تضمنت جريبات صغيرة ≥ 2 ملم، جريبات متوسطة الحجم 2-5 ملم جريبات كبيرة ≤ 5 ملم ولكلا المبيضين. قسمت الجريبات الى اربعة مجاميع تبعا للموسم (الخريف، الشتاء، الربيع، الصيف). أظهرت النتائج في المبيض الأيمن ان عدد الجريبات الصغيرة الأفضل معنويا ($P\leq 0,05$) في الشتاء، وعدد الجريبات الوسطية الأفضل معنويا ($P\leq 0,05$) في الشتاء والخريف، وان عدد الجريبات الكبيرة الأعلى معنويا ($P\leq 0,05$) في الخريف. اما المبيض الأيسر فكانت اعداد الجريبات الصغيرة افضل معنويا ($P\leq 0,05$) في الشتاء، وان اعداد الجريبات المتوسطة الأفضل معنويا ($P\leq 0,05$) في الشتاء والخريف، وان اعداد الجريبات الكبيرة الأعلى معنويا ($P\leq 0,05$) في الشتاء. سجلت اعداد الجريبات الصغيرة عدد أكبر معنويا بمستوى ($P\leq 0,05$) في المبيض الأيمن في الشتاء مقارنة مع المبيض الأيسر كذلك كانت اعداد الجريبات المتوسطة أكبر معنويا بمستوى ($P\leq 0,05$) في المبيض الأيمن في الشتاء مقارنة مع المبيض الأيسر، وكانت اعداد الجريبات الكبيرة الأفضل معنويا ($P\leq 0,05$) في المبيض الأيمن في الخريف مقارنة مع المبيض الأيسر. نستنتج من هذه الدراسة ان نشاط المبايض يشمل كافة المواسم، وكان نشاط المبيض الايمن الأفضل في الخريف بينما كان فصل الشتاء الأفضل نشاطا بالنسبة للمبيض الأيسر في النعاج العراقية.

[كلمات مفتاحية: حجم الجريبات، النعاج، المبيض.]

Introduction

The sheep are among of the important mammals to be domesticated and valued for both wool and meat production [1]. Many studies concentrated on follicle size and composition to investigate the increasing knowledge of follicular development, oocyte maturation and follicular atresia [2,3], also the metabolic activity and the blood barrier of follicle have variation during the growth phase of follicle in different size[4,5]. The oocyte and granulosa cells development and maturation are due to initiating differentiation from small to large follicle [6]. Oocyte of mammals progress and reached to ovulatory development inside the follicle [7]. Many authors reported that they present the relationship between size of follicles with high ratio of successful fertilization and they recorded highly significant ($P<0.05$) related with large and medium follicles compared with small follicles [8, 9, 10, 11 and 12].The purpose of this study to investigate the relationship between follicles size on both right and left ovaries with different seasons in Iraqi ewes.

Materials & Methods

This study was conducted on 424 ovaries (212 slaughter Iraqi ewes) in Al-Shulla and Al-Kut abattoirs during period from December2015 to November 2016, aged of animals were 3-5years, collecting ovaries have mainly different size of follicles and many corpus luteum and we divided the follicles into three categories included small ($<2\text{mm}$), medium (2-5mm) and large ($>5\text{mm}$) in both ovaries (right and left). The ovaries had been cleaned from ligaments and tissues and had been washed by physiological saline (0.9% NaCl) and we used electrical vernier (read 0.01mm) to estimate the size of follicles (Ineco-China). The statistical analysis of data in this study included mean, standard error, Chi-square and F-test [13].

Results & Discussion

The outcomes in table-1- showed the number of SF, MF and LF on right ovary in different seasons and that they recorded significant changes ($P<0.05$) related with SF and MF compared with LF in winter, but in spring they significantly ($P<0.05$) related with SF and LF related with MF, while in summer and autumn they recorded highly significant ($P<0.05$) related with MF and LF compared with SF, these findings mean the activity of ovaries in Iraqi ewes for showing estrus behavior was extended along three seasons (spring, summer and autumn), but with different ratio and concentrated in autumn and these facts reported by many authors [1,4,5 & 12] due to relation between the lighting and reproduction in ewes (short day), as well as the results in table-1- that they recorded significant ($P<0.05$) of the number of small follicles related with winter compared with other seasons and they recorded significant ($P<0.05$) between spring, summer and autumn, there results indicated to the activity of the ovaries starting in winter [11, 14 & 15]. The number of MF recorded significant ($P<0.05$) related with winter and autumn compared with spring and summer and these findings agreement with [5 &12], while the number of LF recorded significant ($P<0.05$) in autumn compared with other seasons and these fact mean the reproductive activity concentrated in autumn compared with other seasons due to increase ovarian activity [10, 12 & 15], but the results observed in table-2- which recorded the number of different size of follicles on left ovary in different seasons and they recorded the same observations in right ovary related with activity of ovaries (number of different size of follicles) in different seasons accept that the action of right ovary was better than left ovary [4, 7, 13 &15]. Finally the outcomes in table-3- which observed that they recorded the number of SF was similar in all seasons accept spring, that the number of SF on right ovary was recorded significantly ($P<0.05$) compared with left ovary, but non significantly related with MF in all seasons related with right and left ovary and these results found by many authors[6, 12, 13 & 16], while the LF was recorded best significantly ($P<0.05$) on left ovary compared with right ovary in winter and highly significant ($P<0.05$) on right ovary compared with left ovary in autumn. In conclusion from this study that the activity of ovaries (right & left) extended for along the year but concentrated in spring and autumn compared with winter and

summer as well as the number of SF recorded highly significant compared with MF and LF in most seasons.

Table-1-Number of different size of follicles on right ovary during different seasons in Iraqi ewes.

Season	No. of small follicles		No. of medium follicles		No. of large follicles	
	No.	%	No.	%	No.	%
Winter Dec-Jan-Feb	336	39.1	102	36.9	41	27.3
	a A		a A		b B	
Spring Mar-April-May	207	24.1	51	18.4	34	22.8
	a C		b B		a C	
Summer Jun-Jul-Aug	68	7.8	34	12.3	23	15.3
	b D		a C		a D	
Autumn Sept-Oct-Nov	250	29.0	89	32.4	52	34.6
	b B		a A		a A	
Total	861	100	276	100	150	100

Different small letters means sig. differences (P<0.05) within seasons.

Different capital letters means sig. differences (P<0.05) between seasons.

Table -2-Number of different size of follicles on left ovary during different seasons in Iraqi ewes.

Season	No. of small follicles		No. of medium follicles		No. of large follicles	
	No.	%	No.	%	No.	%
Winter Dec-Jan-Feb	300	41.6	89	35.8	43	36.2
	a A		b A		b A	
Spring Mar-April-May	137	19.1	40	16.2	29	24.3
	b C		b B		a B	
Summer Jun-Jul-Aug	52	7.2	34	13.7	14	11.8
	b D		a B		a C	
Autumn Sept-Oct-Nov	232	32.1	85	34.3	33	27.7
	a B		a A		b B	
Total	721	100	248	100	119	100

Different small letters means sig. differences (P<0.05) within seasons.

Different capital letters means sig. differences (P<0.05) between seasons.

Table -3-Number of different size of follicles on right and left ovary during different seasons in Iraqi ewes.

Season	No. of ovaries	No. of small follicles		No. of medium follicles		No. of large follicles							
		R.O.	L.O.	R.O.	L.O.	R.O.	L.O.						
		No.	%	No.	%	No.	%	No.	%				
Winter Dec-Jan-Feb	124	336	39.1	300	41.6	102	36.9	89	35.8	41	27.3	43	36.2
		a A		a A		a A		b A		b B		b A	
Spring Mar-April-May	110	207	24.1	137	19.1	51	18.4	40	16.2	34	22.8	29	24.3
		a C		b C		b B		b B		a C		a B	
Summer Jun-Jul-Aug	92	68	7.8	52	7.2	34	12.3	34	13.7	23	15.3	14	11.8
		b D		b D		a C		a B		a D		a C	
Autumn Sept-Oct-Nov	98	250	29.0	232	32.1	89	32.4	85	34.3	52	34.6	33	27.7
		b B		a B		a A		a A		a A		b B	
Total	424	861	100	721	100	276	100	248	100	150	100	119	100

Different small letters means sig. differences (P<0.05) within seasons, between right and left ovary related with SF, MF & LF.

Different capital letters means sig. differences (P<0.05) between seasons, between right and left ovary related with SF, MF & LF.

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