Determination of follicular wave development in oestrus synchronised beef cows

ABSTRACT

A study was conducted to determine the follicular wave development in terms of dominant follicles size, number of follicular waves and follicles existing at pre- and post-ovulation stage, and length of oestrous cycle in oestrus synchronised beef cows. Thirty cows consisting of 3 breedtypes: KK (n=10), Brakmas (n=10), and Charoke (n=10), were inserted with controlled internal drug releasing (CIDR) device containing 1.38 g progesterone for 7 days and given intramuscular injection of a synthetic prostaglandin analogue of 25 mg prostaglandin two days prior to CIDR withdrawal. It was shown of BK, CK and KK cows had 45%, 35% and 20% 3-follicular waves pattern, respectively. BK cows had higher number of cows having 3-follicular waves ($P<0.05$) compared with KK and KK had a higher ($P<0.05$) percentage of cow having 2-follicular waves pattern, compared with BK and CK cows. In pre ovulation stage, the number of follicles at emergence was significantly higher ($P<0.05$) in KK (4.4±0.6) followed by CK (2.6±0.4), and BK (3.2±0.4). However there was no significant difference ($P>0.05$) observed in terms of mean diameter of follicle at emergence stage in the three breedtypes. The mean diameter of ovulatory follicular development was significantly larger ($P<0.05$) in BK (14.2±0.1 mm), followed with the other two breedtypes, CK (12.2±0.1 mm) and KK (11.8±0.5 mm), and was also significantly faster to become dominant ($P<0.01$) compared to the other two breedtypes. In post ovulation stage or at first follicular wave development, the number of follicles at emergence of KK, BK and CK was 3.8±0.9, 3.2±0.5 and 2.7±0.7, respectively. The first dominant follicle reached maximum diameter of 11.4±0.08 mm; 13.1±0.08 mm and 13.1±0.07 mm in KK, BK and CK, respectively with no significant difference detected among the breeds studied ($P>0.05$). Similarly, there was also no significant difference ($P>0.05$) of the dominant follicle diameter was observed in the second and third (ovulatory follicle) follicular waves patterns among the three breeds of cows studied. The mean diameter of ovulatory follicle in KK was 10.2±0.1 mm, BK 11.6±0.10 mm and CK 10.7±0.1 mm, in KK, BK and KK cows, respectively. There was no significant difference ($P>0.05$) found among the three breeds of cows studied for mean length of oestrous cycle. In conclusion, the results of the present study indicated there was no difference on the follicular wave development in terms of dominant follicles size in pre-ovulation, first, second and third follicular wave development; follicles existing at post-ovulation stage, and length of oestrous cycle in KK, BK and CK cows. However, in terms of the number of follicular waves, BK and CK cows had a higher proportion of 3- and 2-follicular waves development than KK cows. and the number of follicles existing at pre-ovulation stage in KK and BK cows were predominantly higher CK cows.

Keyword: Beef cows; Follicular development; Oestrus synchronization; Kedah-Kelantan cows; CIDR.