

A TRIAL FOR TREATMENT OF ANESTRUM IN BUFFALO COWS BY USING FISH PITUITARY EXTRACT AND Gn-RH

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ABSTRACT: A total of 30 pleuriparous buffalo cows having postpartum anestrus over six month period were used in this study. Twenty animals were treated by the i.m. injection of 2ml(10mg) crude extract of carp pituitary gland(CPE),and other ten animals weretreated by the i.m.injection of 5ml(22ug Buserelin acetate) Receptal® (Intervet).From the obtained results,it was noticed that 60 and 80 %were responded as well as 75 and 100 %were conceived with 1.92 ± 0.15 and 1.67 ± 0.21 number of services per conception for buffalo cows treated either by CPE or GnRH, respictively.It could be concluded that CPE can be used safely and successfully in a singel dose of 10 mg crudw extact of carp fish pituitary gland in treatment of anestrum in buffalo cows.

INTRODUCTION

It has been reported that a single gonadotropin was first isolated from the pituitary of the common carp (Buzawa-Gerard,1971),as a glycoprotein composed of non-

covalently linked and subunits, similar to the general structure of glycoprotein hormones in other vertebrates (Buzawa-Gerard,1982). Two chemically distinct glycoprotein hormones, GTH-1 and GTH-H,were isolated from the fish pituitary gland (Suzuki,et al,1988ag; Kawauchi et al.,1991),and each GTH was released by a distinct cell typ in the pituitary (Nozaki et al.,1990).The biological activity of carp GTH-1 and GTH-11 was found to be similar in stimulating steriod secretion from the ovary as well as in vitro oocyte maturation;GTH-1was indicated to control early stages of gametogenesis,while GTH-11 regulates final maturation of oocytees (Swanson,1991;Van der Karsh et al.,1992). However,the crucial role of Gn-Rhin regulating the overian activity via stimulation of biosynthesis and release of gonadotrophins(LH and FSH)from the pituitary gland can not be ignored (Sealfon and Miller,1995;Gordon,1996b).The present study was an attempt to utilize the fish pituiary extract in comparison with Gn-RH

analogue in treatment of anestrus in buffalo cows.

MATERIAL AND METHODS

The present study was carried out on a total number of 30 pleuriperous buffalo cows belonging to the few holders in Kaliobia Governorate. These animals were admitted to the Clinic of Fac.Vet.Med.,Moshtohor, with history of infertility due to postpartum anestrus for at least six months after calving. By asking owner, the animals were fed on a ration consists of 2-3 Kg corn flour or wheat bran,3-5 Kg wheat straw (tebn) and ad. Lib. Green fodder(barseem or darawa).Clinical examination revealed presence ovarian inactivity and flacid uterus.Ovaries were very small in size and free of any structures(follicls or corpora luteas).Affected animals were divided randomly into two groups.The first 20 animals,each was injected intramusclarly(i.m)single dose of 2 ml tissues of fish pituitary gland.These glands of carp fishes were obtained from Abbasa station,General Organization of fisheries,eash crushed and dissolved in a sterile saline solution(Woynarovich and Hórvath,1980) so that each ml contained 5 mg pituitary tissues of CPE.The second group comprised 10 animals,each was injected I.m. with dose of 5 ml

Receptal (22 g Buserlin acetate,synthetic Gn-RH,Intervet, Holand).Animals were considered to be either responded when estrous signs appeared within one week of the treatment,or non responded when the animal failed to show esterus.The responded animals were mated using natural services by a good fertile bull.After two monthes all animals were examined clinically for pregnancy diagnosis. The number of services per conception and the rate of conception of both groups were estimated. The obtained data were statistically analysed, according to Denenberg (1976).

RESULTES

As shown from Table (1),the rate of response to treatment appeared much higher with buffalo cows treated by fish pituitary extract (80.00%) than those treated by Gn-RH (60.00%).However, the conception rate seemed to be better in buffalo cows treated by Gn-RH (100.00%) when compared to those treated by the fish pituitary tissue (75.00%).Similarly,the number of services required per conception appeared lower for buffalo cows injected with Gn-RH (1.67 ± 0.21) than that for buffalo cows treated with fish pituitary tissue (1.92 ± 0.15).However,the mean differences betweenboth groups were minimal.

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Table (1):Effect of fish pituitary extract (CPE) and gonadotropin releasing hormone (Gn-RH) on frtility of buffalo cows.

Criteria	CPE	Gn-RH	Total /Mean ± S.E
Response	16 (80.00)	06(60.00)	22 (73.33)
Non-response	04 (20.00)	04 (40.00)	08 (26.67)
Total	02	10	30
Pregnant	12 (75.00)	06(100.00)	18 (81.82)
Non-pregnant	04 (25.00)	00 (000.00)	04 (18.18)
Total	16	06	22
No. of services	1.92±0.15 ^a	1.67 ±0.21 ^a	1.83±0.12

Values with the same letter are non significant.

DISCUSSION

In practice, a traditional method of induced spawning for cultured fish is based on the injection of crude extract of carp pituitary gland (CPE) as a natural source of GTH-11 in an ovulatory surge (Lam,1982; Lin and Peter,1996). The CPE is commonly used in Abbasa station, during the growing season in the process of final oocyte maturation and ovulation. based on this phenomenon, a similar trial was made on a hazard cases of buffalo cows suffering from infertility due to long period of anestrus. Fortunately, most of the treated cases came into estrus within one of injecting a single dose of 10 mg CPE. Accordingly, work plan was designed as a first trial to use CPE in treatment of common problem of anestrus in Egyptian buffalo cows (El-Naggar et

al,1984;Ghanem et al.,1989;Barkawi et al.,1993). In the present study, only 80 % and 60 % of buffalo cows treated either by CPE or Gn-RH, respectively, showed signs of estrus. The remainders failed to show estrus might be attributed to other factors than the hormonal disturbances e.g. environmental stress, feeding imbalance, parasitic infestation or a disease factor (Hawkins,1993; Peters and Bau,1995;El-Desouky, 1997). However, when the treated buffalo cows came in estrus and conceived the rate of conception was 100% for those treated by Gn-RH analogue, while it was 75 % for those treated by CPE. Such differences might be explained on the fact that Gn-RH can induce an indirect effect through the release of and LH FSH (Chenault et al.,1990) or perhaps a direct effect on reproductive tissues (Hsueh and

Jens,1981),while fish GTH-11 from CPE provides only a direct effect in the regulation of reproduction (Lin and Peter,1996).In the meantime,the results obtained in the present study might be of value as a first trial to implement CPF in treatment of infertility for species other fish,although the fish GTH-11 might have species specificity (Zohar et al.1987).However,there is no acceptable explanation for the non significant increase in the number of services per conception for the animals treated by CPE when compared to the animals treated by Gn-RH a finding which might be due to the difference in the stage of follicular ripening and maturation as well as the time of ovulation in relation to the

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