



A Randomized Controlled Comparison of the Vaginal Administration of Bromocriptine to Oral Cabergoline in the Treatment of Women with Hyperprolactinaemic Infertility.



Background: Hyperprolactinaemia is a common disorder affecting a third of infertile females.¹ Treatment aims to normalize prolactin levels, alleviate symptoms and restore fertility.² The most common treatment approach is with the dopamine receptor agonists; Bromocriptine and Cabergoline.^{3,4} Cabergoline is preferred but expensive, and Bromocriptine, which is affordable, is often associated with side effects warranting its discontinuation in many; this poses a dilemma in developing countries like Nigeria, where healthcare costs are often prohibitive, with the user-fee payment method being the norm.^{5,6,7}

Objective: To compare the effectiveness and side effects of vaginal administration of Bromocriptine to oral Cabergoline in treating hyperprolactinaemic infertility among women.

Design: A randomized, controlled, double-blinded, equivalence trial with two parallel groups and a primary endpoint of serum prolactin at six weeks was carried out amongst 60 women with hyperprolactinaemic infertility.

Method: Bromocriptine was administered at 2.5mg vaginally daily or oral Cabergoline 0.5mg twice weekly to participants in two randomly selected groups. Follow-up was done over six weeks with a review of side effects and serum prolactin levels at fortnightly intervals. The primary outcome measures were the percentage drop in serum prolactin levels, the rate of normalization of serum prolactin, and the proportion of women who experienced side effects in each group, while the secondary outcome measure was the proportion of women with relief of symptoms at the end of the study.

Results: The level of significance was set at 0.05 for this study. The prolactin normalization rate (73.3% vs. 76.7%, $p=0.508$), the percentage drop in serum prolactin (58.4% vs. 62.2%, $p=0.357$), and symptom resolution rate (73.3% vs. 90.0%, $p=0.065$) was higher in the Cabergoline treated patients than in the Bromocriptine treated patients but not statistically significant. More side effects were recorded in patients who took Bromocriptine (53.3% vs. 40.0%, $p=0.310$); this difference was, however, not statistically significant.

Conclusion: The vaginal route of bromocriptine administration was demonstrated to have comparable effectiveness and side effect profile to the more expensive and less readily available Cabergoline.

Keywords: Hyperprolactinemia, Vaginal Bromocriptine, Cabergoline, effectiveness.

“The cheap and readily available Bromocriptine, with notorious side effects and a high discontinuation rate, was as good as the more expensive gold standard Cabergoline, with comparable side effects when administered through the vaginal route.”



**RCOG WORLD
CONGRESS 2023**
12-14 JUNE 2023 • LONDON



Irshad Asma,¹ Adesiyun Gbadebo Adebisi,¹ Umar-Sulayman Hajaratu,¹ Jibril M. El-Bashir,¹ Irshad Sana,² Madugu Nanahawwa.¹

Ahmadu Bello University Teaching Hospital, Zaria Nigeria¹
Bowling Green State University, Bowling Green, USA²

	Reduction in serum prolactin at week 2 (ng/ml)	Reduction in serum prolactin at week 4 (ng/ml)	Reduction in serum prolactin at week 6 (ng/ml)
Vaginal Bromocriptine	14.1 (28.3%)	7.3 (20.4%)	7.7 (27.1%)
Oral Cabergoline	16.3 (33.1%)	6.7 (20.3%)	7.6 (29.0%)
P Value	0.509	0.659	0.720

Table 1: Percentage drop in serum Prolactin levels during followup

	Side effects at week 2	Side effects at week 4	Side effects at week 6
Vaginal Bromocriptine	16 (53.3%)	1 (3.6%)	1 (3.6%)
Oral Cabergoline	12 (40.0%)	1 (3.8%)	0 (0.0%)
P value	0.801	0.503	0.358

Table 2: Percentage of women who experienced Side effects

References:

1. Kahnmuie F, Asadzadeh F. The Comparison of Side Effects and Patients' Tolerance toward Prolonged use of Vaginal and Oral Bromocriptine. *Bull. Env. Pharmacol. Life Sci.* 2013; 2(9): 39-423.
2. Isah IA, Aliyu IS, Yusuf R, Isah H S, Randawa A J, Adesiyun A G. Hyperprolactinemia and female infertility: Pattern of clinical presentation in a tertiary health facility in Northern Nigeria. *Sahel Med J.* 2018; 21:1-5.
3. Haitham H, Yakoub KPC. Hyperprolactinaemia and female reproductive function: what does the evidence say. *Obstet Gynecol.* 2012; 86:81-6. Available from: <http://onlinetog.org>
4. Al-Husaynei AJ, Mahmoud IH, Aljubori SZ. Comparison of the effects of cabergoline and bromocriptine in women with hyperprolactinemic amenorrhea. *Middle East Fertility Society Journal.* 2008;13(1): 33-38.
5. dos Santos Nunes V, El Dib R, Boguszewski CL, Nogueira CR. Cabergoline versus bromocriptine in the treatment of hyperprolactinemia: a systematic review of randomized controlled trials and meta-analysis. *Pituitary.* 2011; 14(3):259-65. doi: 10.1007/s11102-010-0290-z.
6. Colao A, di Sarno C, Lombardi G, Pivonello R, di Sarno A. Dopamine receptor agonists for treating prolactinomas. *Expert Opin Investig Drugs.* 2002; 11:787-800 [http://dx.doi.org/10.1517/13543784.11.6.787]
7. Mohamed S, Helen M, Penelope C. Prolactin Biology and Laboratory Measurement: An Update on Physiology and Current Analytical Issues. *Clin Biochem Rev.* 2018; 39(1): 3-16