GnRH Agonists in

Gynecology and Pediatric endocrinology

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Long-acting gonadotropin-releasing hormone agonists for treatment of central (gonadotropin-dependent) precocious puberty

GnRH agonist	Trade names and availability	Dose, frequency, and method of administration
Histrelin acetate subcutaneous implant	Supprelin LA (US)	Subcutaneous implant. Children ≥2 years – 50 mg implant surgically inserted every 12 months. Releases approximately 65 mcg per day over 12 months.
Leuprolide acetate (leuprorelin)	1-month formulations: ▪ Lupron Depot-Ped (1 month) (US) ▪ Lupron Depot (1 month SR) (CAN) ▪ Lucrin, Lutrate, Lorelin Depot, others (EU, UK, elsewhere)	Intramuscular depot injection, given every 28 days. Available strengths: ▪ 3.75*, 7.5, 11.25, or 15 mg Typical starting dose is 7.5 mg but may vary among countries¶.
	3-month formulations: ▪ Lupron Depot-Ped (3 month) ▪ Lucrin Depot Paediatric (3 month) (AU)	Intramuscular depot injection, given every 3 months. Available strengths: ▪ 11.25 or 30 mg Criteria for selection of the 11.25 mg versus 30 mg dose have not been established.
	6-month formulations: ▪ Fensolvi (US) ▪ Lupron Depot-Ped (6 month) (US)	Subcutaneous injection (Fensolvi) or intramuscular depot injection (Lupron Depot-Ped). Available strength: ▪ 45 mg
Triptorelin pamoate	Gonapeptyl (UK, EU, SA, elsewhere) Decapeptyl (UK, CN, elsewhere) Diphereline (AU, CN, elsewhere) Triptodur (US)	Intramuscular depot injections. Available strengths: ▪ 3.75 mg every 28 days ▪ 11.25 mg every 3 months ▪ 22.5 mg every 6 months

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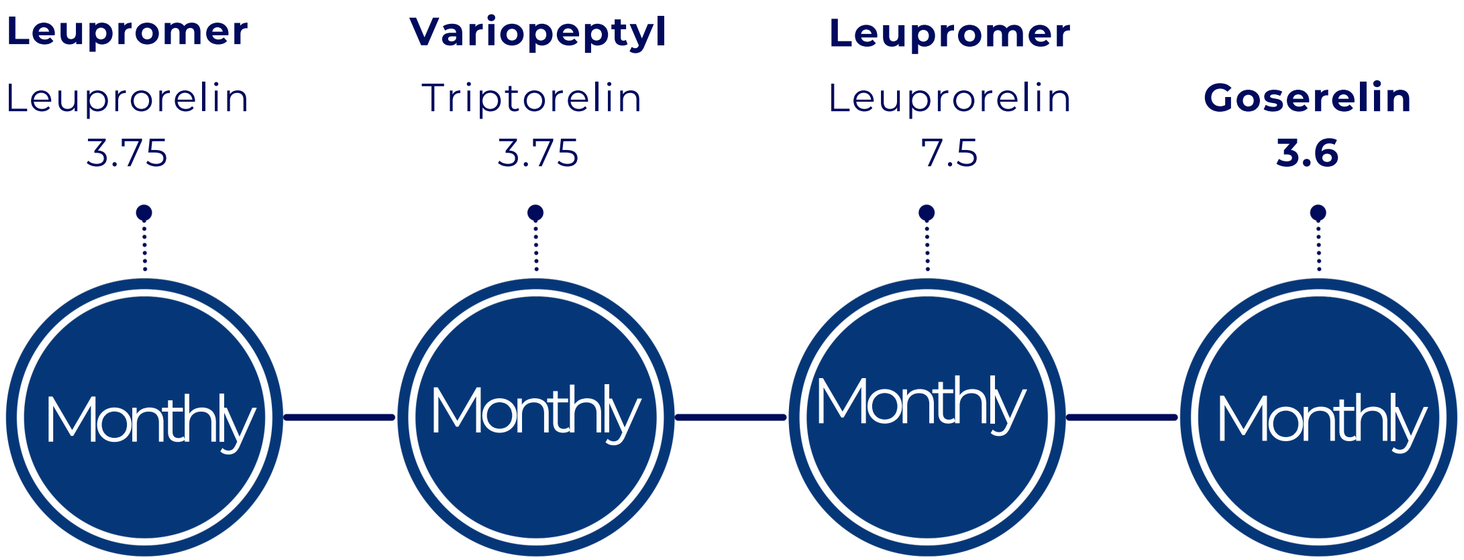
GnRH Agonists



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A review article

Prettyman, Julie et al. “Personalizing Treatment In the Delivery of Care by Nurses To Patients with Prostate Cancer.” Journal of Urological Nursing 39 (2019): 83–99.

2019

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Personalizing Treatment In the Delivery of Care by Nurses To Patients with Prostate Cancer

Julie Prettyman, Lauren Engel, Deborah M. Boldt-Houle, Stuart Atkinson, and Wanda Wilt

Prostate cancer (PCa) is the second most common cancer diagnosis for men in the United States (Scher, Solo, Valant, Todd, & Mehra, 2015). In 2020, the projected incidence for non-metastatic castration-resistant prostate cancer (CRPC) is over 112,000 cases, and for metastatic CRPC is over 43,000 cases (Scher et al., 2015). With recent innovations in the treatment of advanced PCa, patients are living longer, with 98% of patients surviving 10 years, and 96% surviving 15 or more years (American Cancer Society [ACS], 2016). Due to this improved survival rate, long-term disease management has become the new standard, and will require increased education, support, and cancer care team collaboration from nurses in clinics and hospitals. Nurses who work with men diagnosed with prostate cancer will be expected to be familiar with all PCa medications, including their potential side effects and administration methods. Medication use should be considered in the context of each patient's medical history and their disease management plan to effectively communicate patient information to the healthcare team, ultimately resulting in the delivery of improved medical care.

Patients with PCa are usually older; 60% are age 65 years or older at diagnosis (ACS, 2016), and the risk of developing PCa rapidly increases after age 50 (ACS, 2016). Due to advancing age and development of co-morbidities, many patients may be less ambulatory, have low muscle mass, and in some cases, require a wheelchair. As concur-

Prettyman, J., Engel, L., Boldt-Houle, D.M., Atkinson, S., & Wilt, W. (2018). Personalizing treatment in the delivery of care by nurses to patients with prostate cancer. *Urologic Nursing, 39*(2), 83-99. doi:10.7257/1053-816X.2019.2.83

New therapies and evolving scientific concepts are significantly improving outcomes for patients with prostate cancer. A greater emphasis on delivering state-of-the-art nursing care and personalization of treatments is needed. Nurses often spend significant time with patients, caregivers, and their families, and develop personal relationships that present opportunities for enhanced education of treatment options that may reflect patients' lifestyles and personal preferences. Newer drugs are costly, and their use should be discussed with the patient in regard to choice of treatment, potential survival benefits, and overall quality-of-life outcomes.

Key Words: **Androgen deprivation therapy, LHRH agonists, nurse role, monitoring treatment, subcutaneous injections, pharmacoeconomics.**

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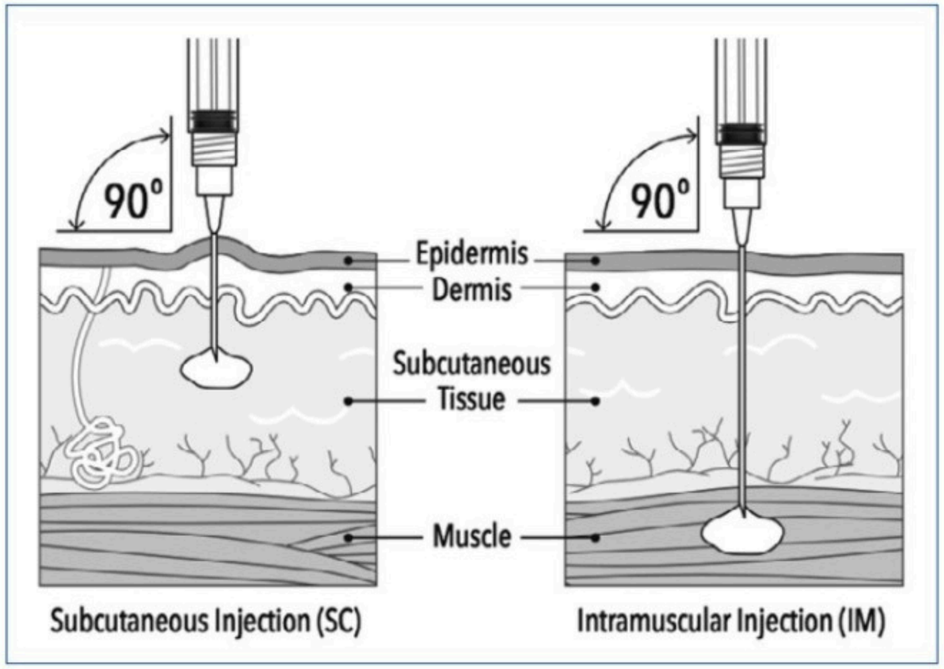
Figure 2.
Injection Angle and Depth for Subcutaneous and Intramuscular Injections



SC injections were administered at a 45- degree angle to ensure delivery of drug into SC tissue and not muscle. Today, smaller volumes of injectate and shorter needles are available, and correct technique is to bunch the skin and inject at 90 degrees, avoiding inadvertent IM or intradermal injections that may be painful.

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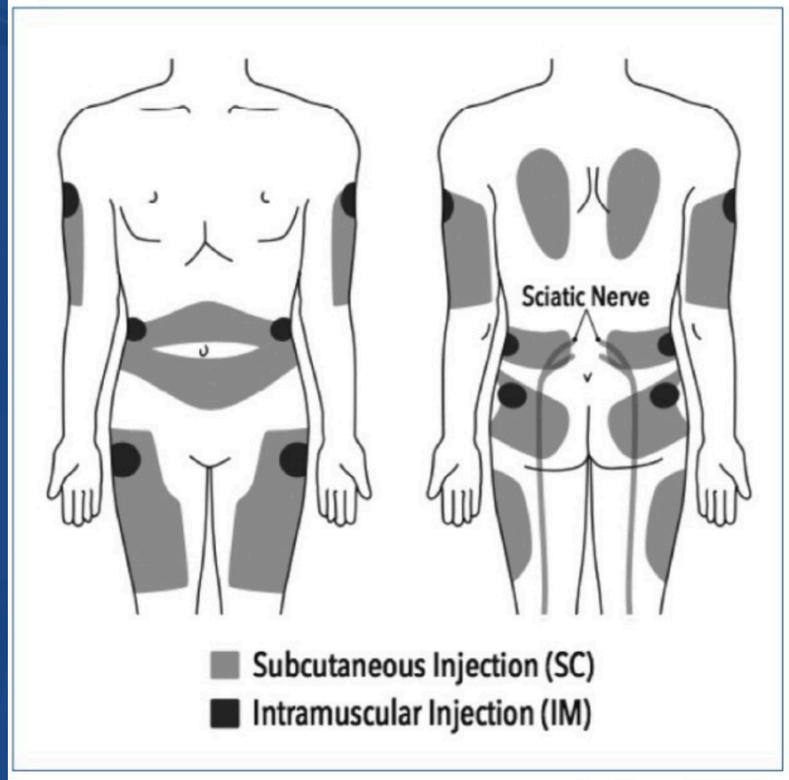
Potential Injection Sites for Subcutaneous and Intramuscular Drugs



SC can be administered at any site with adequate SC tissue. This provides greater access to injection sites IM injections into different muscles can affect the (PK) of drugs absorption in IM injection requires: • normal vascularity • adequate muscle mass • good blood flow IM injection may also induce hematomas in the muscle, especially if the patient is taking anti-coagulant therapies, and these may result in delayed pain; however, local events due to IM injection will likely occur after the patient has left the clinic and may not be reported.

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Advantages of Subcutaneous vs. Intramuscular Injections

Factors to Consider	Subcutaneous Advantages	Intramuscular Advantages
Injection volume		• Larger volumes feasible
Drug absorption	• Consistent absorption rate irrespective of site	• Faster absorption into the bloodstream and quicker therapeutic effect
Symptoms and injury	• Lower risk of bone or nerve injury, reduced level of severity and duration of pain, and fewer cases of injection site bruising • Better safety profile for patients on anti-clotting drugs	• Lower incidence of immediate injection site reactions
Convenience	• Self-administration possible • Has injection sites that do not require privacy • Greater number of injection sites available	• Multiple injection sites available

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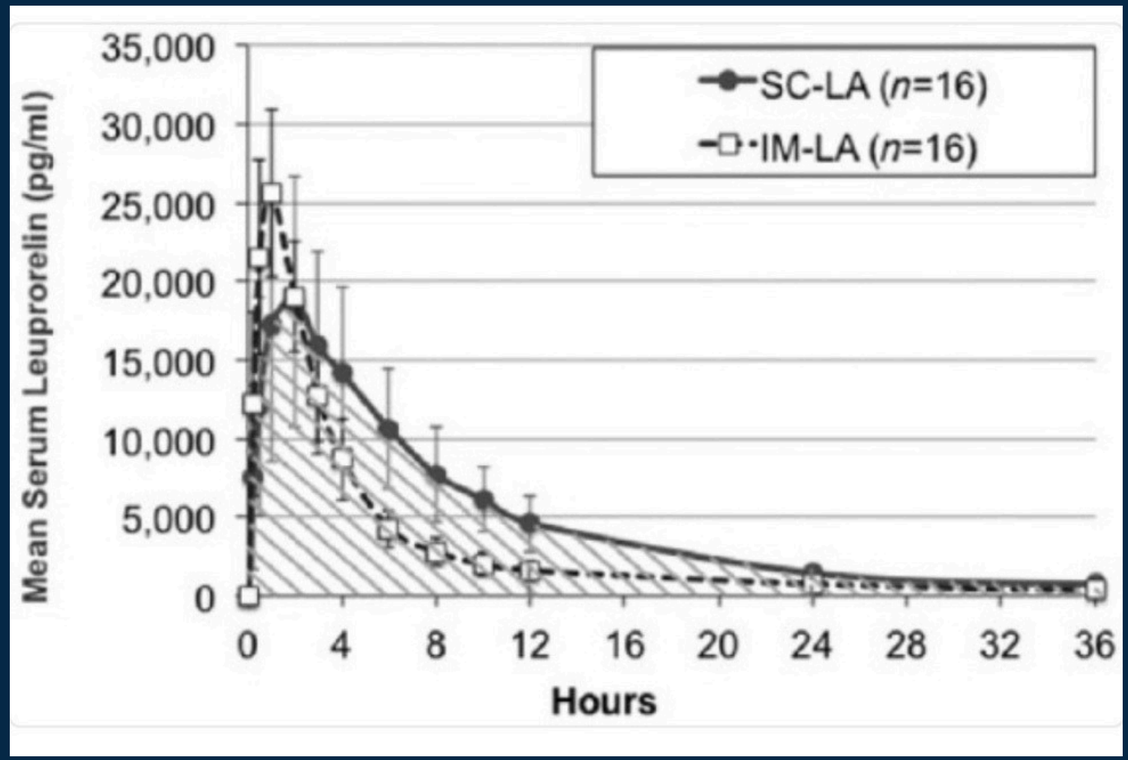
Pharmacokinetic and pharmacodynamic comparison of subcutaneous versus intramuscular leuprolide acetate formulations in male subjects

phase I, open-label, parallel-group study

(Saltzstein et al., 2018)



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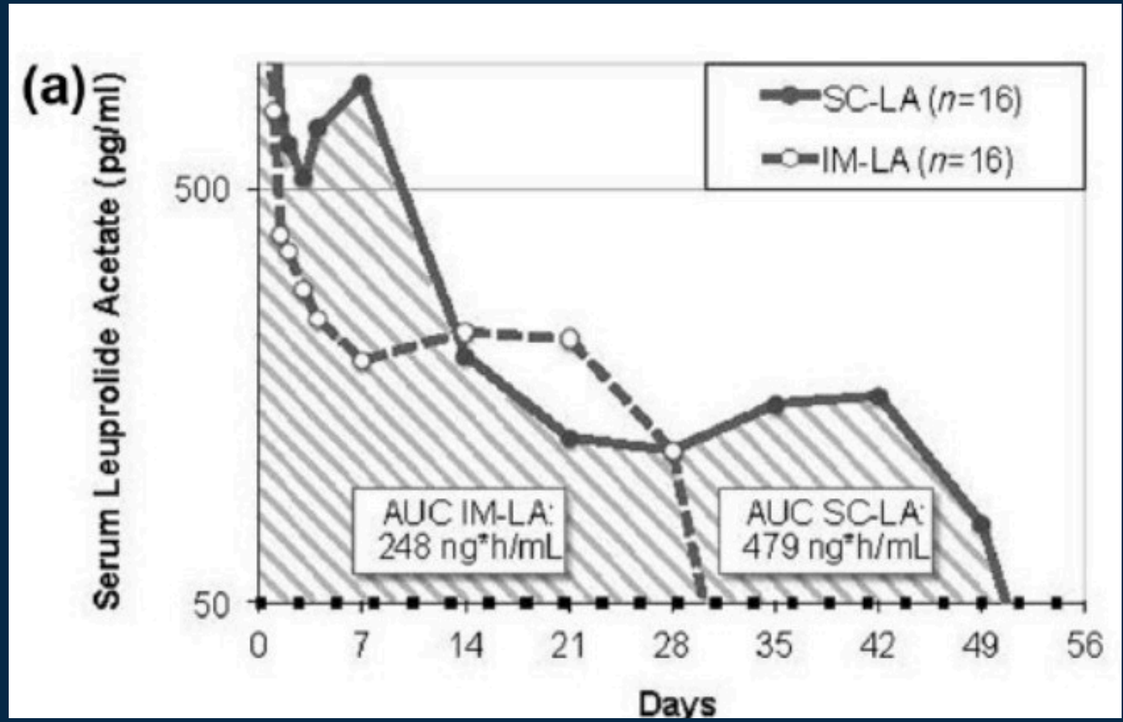

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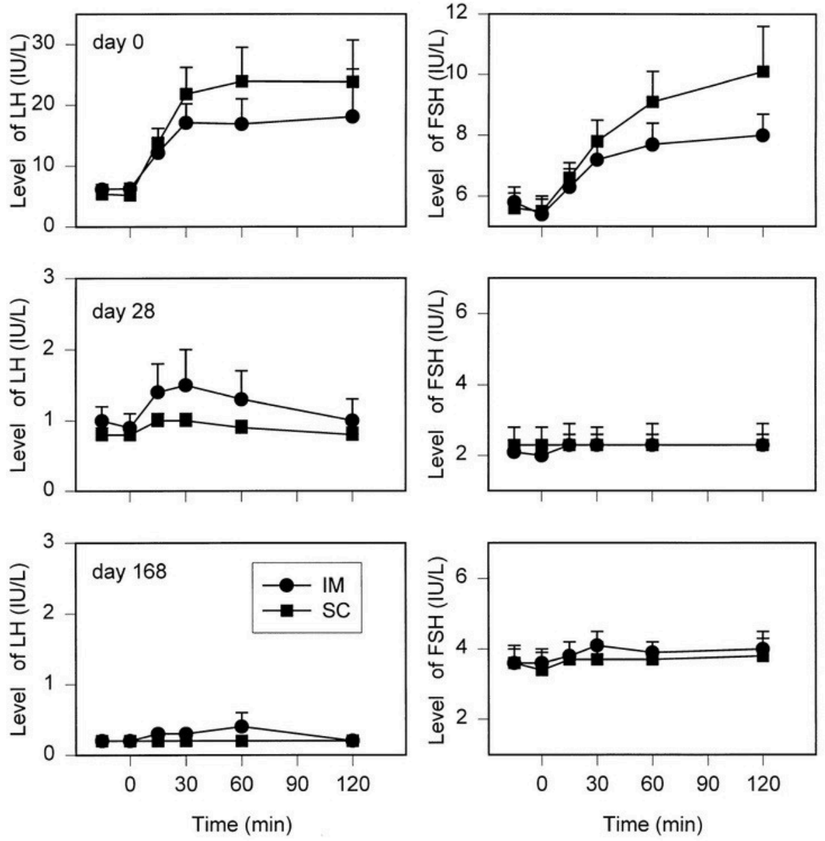
Subcutaneous Administration of a Depot Gonadotropin-Releasing Hormone Agonist Induces Profound Reproductive Axis Suppression in Women

Pharmacokinetics Study To compare the IM and SC routes of depot GnRH agonist administration.
Triptorelin administration (3.75 mg) at 28-day

intervals for 6 consecutive months. In 40 women



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Short Communication

Efficacy Comparison of Two Brands of Triptorelin in Treatment of Idiopathic Central Precocious Puberty

MAHTAB ORDOOEI, MEHRDAD MIROULIAEI[1], ELHAM KHANI[2], AMIRMANSOUR JALALI[3] AND SHAGHAYEGH GHAZAVI[4*]

Department of Paediatric Endocrinology and Metabolism, Children Growth Disorder, Shahid Sadoughi University of Medical Science, [1]Department of Paediatrics Endocrinology Ali-Ebne-AbiTaleb School of Medicine, Islamic Azad University, [2]Department of Paediatrician, Shahid Sadoughi University of Medical Science, Yazd, [3]Department of Pharmacologist, Tehran, [4]Pharm D, Tehran, Iran

In treating central precocious puberty, the monthly formulations of gonadotropin-releasing hormone agonists are the main formulations that have been used. Triptorelin is a gonadotropin-releasing hormone agonist and is approved to be used in central precocious puberty as a 1 mo formulation. This study aimed to compare the efficacy and adverse effects of a subcutaneous formulation of Triptorelin (Varipeptyl) with Diphereline during a double-blinded randomized clinical trial. Girls with idiopathic central precocious puberty were randomly allocated to Group A (intramuscular injection of Diphereline 3.75 mg, IPSEN, France) and Group B (subcutaneously injection of Variopeptyl 3.75 mg, Varian Pharmed, Iran) repeated every 28 d for 3 mo. Hormonal changes, also adverse effects and efficacy endpoints were measured at baseline and mo 3. Out of 35 girls with confirmed central precocious puberty, 18 cases were assigned to take Diphereline (group A) and 17 cases to take Variopeptyl (group B). Mean level of estradiol had a decrease of 31.7±11 pg /ml (p value: 0.00) in group A and 27.3±10 pg /ml (p value: 0.00) in group B. The mean luteinizing hormone's level reduced 3/1±2/3 IU/L (p value: 0.00) in group A and 1.6±0.9 IU/L (p value: 0.00) in group B. No significant side effects were seen. 3 patients in group B had nodules at the injection site and one patient in each group had minimal vaginal bleeding. This study demonstrated that the efficacy of Variopeptyl is as same as Diphereline in suppressing the hypothalamic-pituitary-gonadal axis and can be a substitute for Diphereline.

Key words: Gonadotropin-releasing hormone agonists, precocious puberty, subcutaneous injections, monthly formulations

Central Precocious Puberty (CPP) alludes to precocious activation of the Hypothalamic-Pituitary-Gonadal (HPG) axis and its incidence has been estimated to be 1 in 5000 to 10 000 children[1-3]. Idiopathic CPP is significantly more common in girls[4]. Precocious puberty is defined for the girls as the outset of puberty before the age of 8[5,6]. The goal of treatment in CPP is to suppress the production of gonadotropin and gonadal sex steroids. Such suppression stops and regresses the symptoms of CPP, precludes the risks of early menarche, normalizes growth velocity, and reduces epiphyseal in the diminution of sex hormones to prepubertal levels[12-14].

Sufficient hormonal suppression in children with CPP is usually achieved by 1 mo therapies with depot formulations[7,15]. In the treatment of CPP, the monthly depot forms of GnRH agonists are the main formulations that have been used[16,17]. They provide a steady release of drug and improve remarkably the outcome of treatment without relevant long-term or short-term side effects[13,16,17]. Triptorelin is a synthetic GnRH analog and its 1 mo formulation

TABLE 1: CHANGES IN ANTHROPOMETRIC DATA AFTER 3 MO OF TREATMENT IN TWO GROUPS

		Group A	Group B	P value
Height (cm)	Before treatment	123.69±4.98	122.35±10.4	0.635
	At end of treatment	126.41±5.17	125.52±10.52	0.757
Weight (kg)	Before treatment	25±4.18	25.47±6.06	0.79
	At end of treatment	27.25±4.55	27.20±5.95	0.98
BMI (kg/m^2)	Before treatment	16.30±2.01	16.84±2.21	0.449
	At end of treatment	16.85±1.93	17.19±1.91	0.6

Note: Results are given as mean±SD

TABLE 2: CHANGES IN LH, FSH, AND ESTRADIOL CONCENTRATIONS IN TWO GROUPS

		Group A	Group B	P value
Estradiol (pg/ml)	Before treatment	40.16±14.23	37.29±11.40	0.516
	At mo 3	8.46±3.80	9.94±2.51	0.189
LH level (IU/l)	Before treatment	3.64±2.41	2.19±1.02	0.029
	At mo 3	0.53±0.28	0.58±0.26	0.6
FSH level (IU/l)	Before treatment	4.61±2.58	3.56±2.43	0.227
	At mo 3	0.87±0.33	0.96±0.36	0.436

Note: Data are given with mean±SD

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Thank You!

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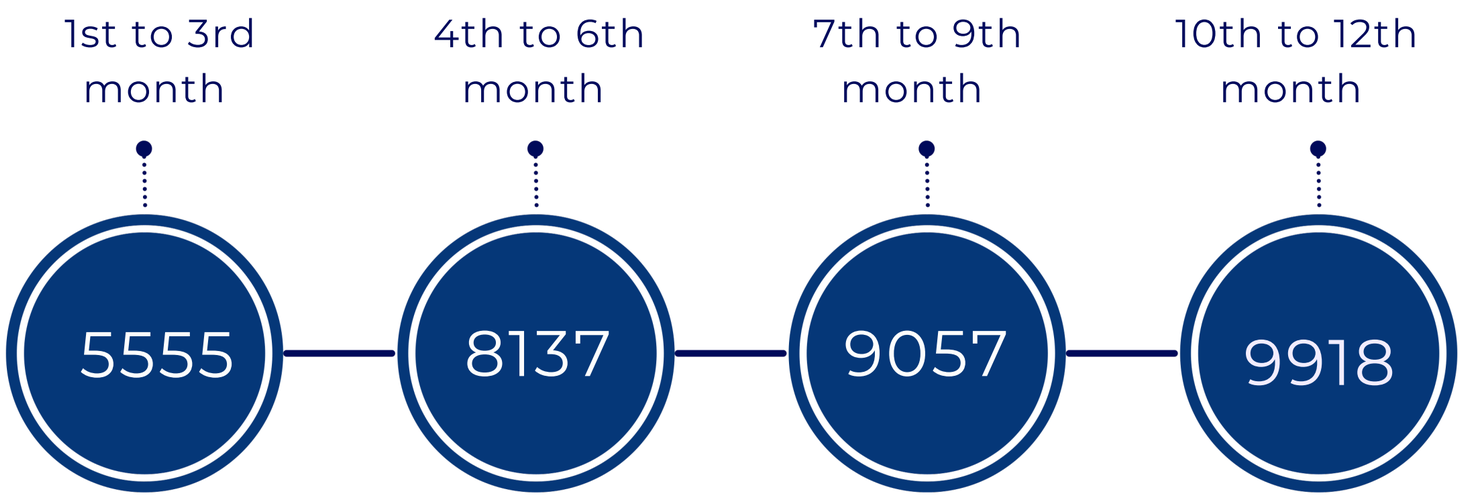
Variopeptyle 11.25 Sales report 2024



Total: 32667

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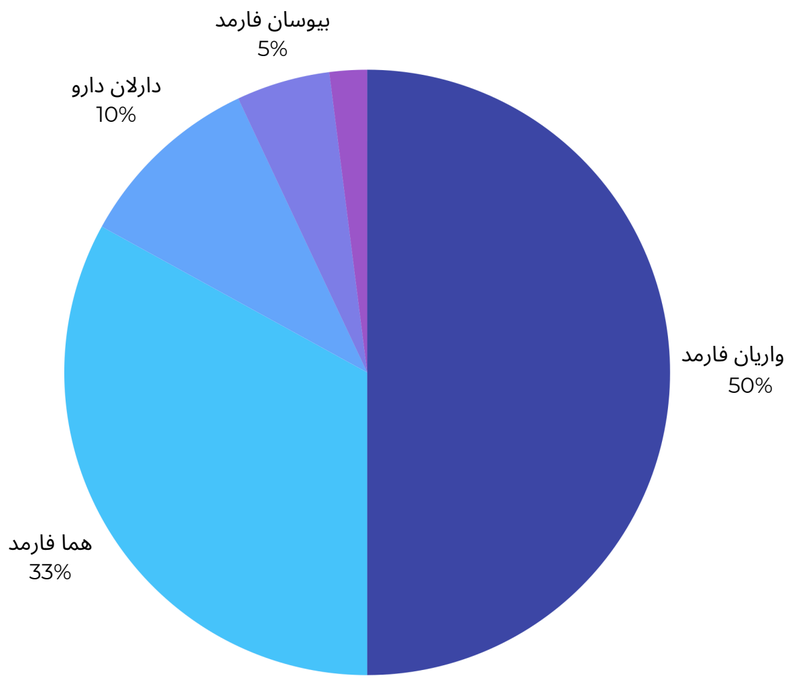
Share Market - Triptorelin 3.75



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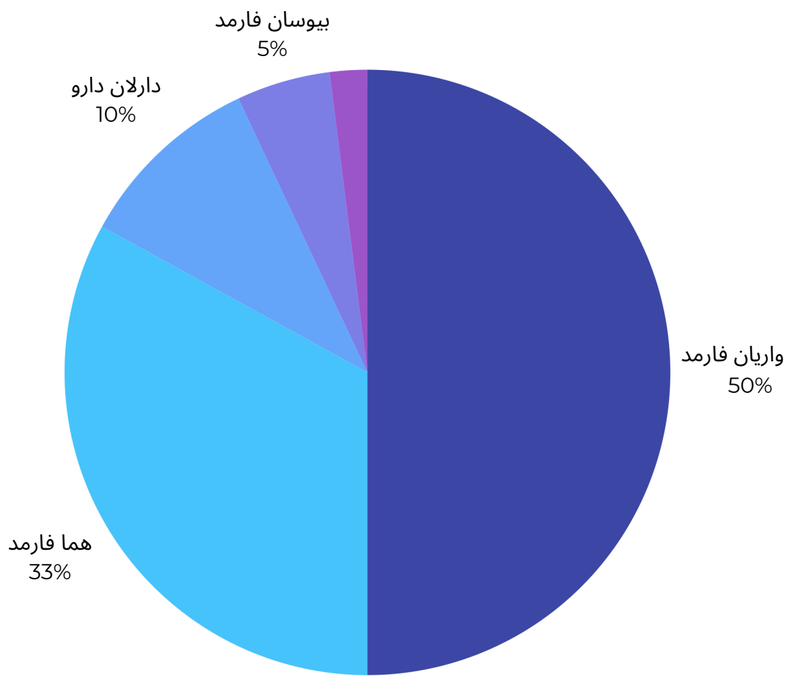

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