Progesterone

Bibliographies and References

1. **Influences of Percutaneous Administration of Estradiol and Progesterone on Human Breast Epithelial Cell Cycle In Vivo.** Chang KJ, et al. Fertil Steril (1995) 63(4):785-91.

Randomized placebo controlled study of 40 premenopausal women scheduled for excisional biopsy of benign lesions. Study groups were given either progesterone (Pg) 25mg or estradiol (E2) 1.5mg or both topically everyday (qd) to the surgical breast 10-13 days before surgery. Findings: Both E2 and progesterone readily penetrated the skin, increasing the progesterone level x100. Progesterone induced a major reduction in the acinar cell proliferation rate whether used alone or in combination with E2. The serum levels did not reflect the topical hormone supplementation.

2. **Transdermal Progesterone Cream for Vasomotor Symptoms and Postmenopausal Bone Loss.** Leonetti HB, et al. Obstetrics and Gynecology (1999) 94:225-7.

Randomized study: 102 premenopausal women divided into placebo or daily topical progesterone (20mg) groups and monitored for 12 months. The results showed improvement or resolution of vasomotor symptoms in 25 of 30 (83%) treatment subjects and 5 of 26 (19%) placebo subjects (P<.001). Bone density scores showed no statistically significant difference, though bone density scores were all within normal limits.

3. **Osteoporosis Reversal: The Role of Progesterone.** Lee JR. International Clinical Nutrition Review (1990) 10(3). http://www.naturodoc.com/library/hormones/osteo_rev.htm

Dr. Lee followed 100 women average age 65.2 for 3 years. All women were treated with 30mg of topical progesterone twice daily (bid). Serial vertebral bone density studies (at 6-month or 1-year intervals) showed a progressive rise. “It was common to see a 10% increase in the first 6-12 months and an annual increase of 3-5 % until stabilizing at the levels of healthy 35-year-olds”. The degree of rise was greatest in the patients with the lowest bone density. Concomitant estradiol therapy was not a factor. Patients often noted a return of normal libido.

4. **Topical progesterone cream has an antiproliferative effect on estrogen-stimulated endometrium.** Leonetti HB, et al. Fertility and Sterility (2003) 79:221-2.

- Challenged 32 postmenopausal women with topical progesterone (0, 1.5% or 4% bid) while exposed to 0.625 CEE.
- Monitored endometrial biopsies for proliferative changes following 2 weeks of progesterone.
- “The plasma concentrations of progesterone were low and varied greatly among individuals. However, elevated serum levels are irrelevant, provided one obtains the desired clinical outcome.”
- Conclusion: Topical progesterone clearly showed an antiproliferative effect, which was the same in both 1.5% or 4% groups.

5. **Hormones in Saliva.** Vining RF and McGinley RA. Critical Reviews in Clinical Laboratory Sciences. (1986) 23(2):95-146.

An excellent review article looking at the constituents of saliva. Conclusion: “Saliva flow rate does affect saliva pH and the concentration of many salivary ions. This has led many clinicians to assume that it would also affect all salivary steroid levels. This is not the case—a number of clinically important steroids, such as cortisol, testosterone, estradiol and progesterone, have salivary concentrations which are not appreciably affected by saliva flow rate. However, the conjugated steroids (e.g., DHEAS) and some unconjugated (e.g., cortisone) steroids may exhibit marked flow rate dependence.”

6. **Climacteric Stress: Its Empirical Management.** Malleson J. British Medical Journal (1956) 44(5006):1422-5.

Eloquent discussion of premenstrual syndrome (PMS) and postmenopausal symptoms with a summary of the available therapeutic options. Progesterone injections (15-20mg qd) were the only formula, yet still showed significant benefits including calming and diuretic qualities. It was used to treat premenstrual tension and toxemia of pregnancy. It also showed androgenic qualities. A must read for a historical perspective.

7. **Treatment of Benign Breast Disease by Progesterone Applied Topically.** Sitruk-Ware, et al. International Symposium on Percutaneous Absorption of Steroids, Academic Press (1980) pp 219-229.

Authors showed a remarkable improvement in estradiol (E2) induced breast disease signs and symptoms (mastodynia, nodularity and fibrocystic changes) in women who applied 30mg of topical progesterone daily.

8. **Progesterone Inhibits Arterial Smooth Muscle Cell Proliferation.** Wen-Sen L, et al. Nature Medicine: 3(9):1005-8.

In-vitro study showing inhibition of human and rat arterial smooth muscle cell DNA production and cell proliferation. The implication for prevention of atherosclerosis is most important and may explain why males are at greatest risk of heart disease.

9. **Progesterone Inhibits Human Infragenicular Arterial Smooth Muscle Cell Proliferation Induced by High Glucose and Insulin Concentrations.** Brennan J, et al. J Vasc Surg (2002) 36:833-8.

Cultures of human smooth muscle the tibial arteries of type II diabetics when exposed to glucose and insulin show increase proliferation, which is inhibited by physiologic doses of progesterone. “Therefore, progesterone may have a protective role against the atherosclerotic changes associated with type II diabetes.”

10. **Prevention of Coronary Hyperreactivity in Preatherogenic Menopausal Rhesus Monkeys by Transdermal Progesterone.** R. Kent Hermsmeyer, et al. Arterioscler Thromb Vasc Biol. 2004; 24:955-961.

11. **Natural Progesterone, but Not Medroxyprogesterone Acetate, Enhances the Beneficial Effect of Estrogen on Exercise-Induced Myocardial Ischemia in Postmenopausal Women.** Giuseppe M. C. MD FACC, et al. J Am Coll Cardiol 2000;36:2154-9.

12. **Inhibition of Testosterone Conversion to Dihydrotestosterone in Men Treated Percutaneously by Progesterone.** Pierre Mauvais-Jarvis, et al. J Clin Endocrinol Metab 38: 1 1974, June 18, 1973 Pg, 142 – 7.

13. **Intraarticular Progesterone: Effects of a Local Treatment for Rheumatoid Arthritis.** Miguel Cuchacovich, et al. J Rheumatol 1988;15:561-565.

14. **Percutaneous Administration of Progesterone: Blood Levels and Endometrial Protection.** Frank Z Stanczyk, et al. PhD, Menopause, Vol. 12, No. 2, 2005, 232-7.