Hormones and Cardiovascular Disease in Women

Although heart disease is sometimes thought of as a man's disease, cardiovascular disease is the #1 cause of death for women; in 2017, 21.8% of all female deaths were from heart disease. Nine out of ten heart disease patients have at least one risk factor. Several medical conditions and lifestyle choices can put women at a higher risk for heart disease, including:

- High cholesterol Cigarette smoking
- High blood pressure Overweight and obesity
- Diabetes Physical inactivity
- Poor diet Alcohol use

However, the significance of hormone insufficiency should not be overlooked.

It is rare that a premenopausal woman dies of a heart attack, though the incidence of cardiac mortality among older women eventually matches or exceeds that of males. It was once thought that the difference between younger and older women was due to a lack of estrogen after menopause. Estrogen can, after all, improve a woman's lipid profile, and has the cardiovascular benefit of relaxing the blood vessels which can protect against heart attack. However, when estrogen levels are too high, its protective value in heart disease is reversed as the risk of blood clots and fluid imbalances rises. It is known that progesterone deficiency
down-regulates estrogen receptors and sufficient progesterone up-regulates estrogen receptors, resulting in more estrogenic activity without changing the amount of estrogen already present. Progesterone seems to be the key player.

We know that progesterone levels after menopause are almost zero. Estrogen, on the other hand, falls only 40-60% with menopause. According to John Lee, MD, lipid profiles improve when progesterone is supplemented. Progesterone increases the burning of fats for energy and, in addition, has anti-inflammatory effects, both cardio protective actions. Progesterone protects against blood clots due to excess estrogen. Progesterone protects the integrity and function of cell membranes, whereas estrogen allows an influx of sodium and water while allowing loss of potassium and magnesium.

Several studies have illustrated the importance of progesterone in protecting heart health. Bioidentical progesterone has been shown to inhibit arterial smooth muscle cell proliferation, both in type II diabetics and in otherwise healthy individuals. Coronary hyperreactivity (vasospasm) in rhesus monkeys was shown to be prevented by subphysiological doses of progesterone. An additional study examined exercise-induced myocardial ischemia in patients taking estrogen/medroxyprogesterone acetate (MPA) versus bioidentical estrogen/progesterone. The combined bioidentical estrogen/progesterone supplementation increased exercise time to myocardial ischemia as compared to estrogen/MPA.

Supplementing with bioidentical hormones, not conjugated equine estrogens (CEE's) and synthetic progestins, is essential, as also illustrated by the Women's Health Initiative. The findings suggest that Estrogen + Progestin does not protect the heart and may even increase the risk of coronary heart disease (CHD). The women in the WHI were taking one tablet containing conjugated equine estrogens (0.625 mg) and medroxyprogesterone acetate (2.5 mg) each day (Prempro). Overall, there was a 24% higher risk of CHD among women in the Estrogen + Premarin study compared to women taking placebo. To this day, 20 years later, many primary care providers continue to confuse the impact of synthetic progestins with bioidentical progesterone, to confuse CEE's with bioidentical estradiol and estriol. In this confusion, the message resounds "hormones after menopause are dangerous, particularly". "Risk of blood clot is high". What nonsense. Optimizing the progesterone/estradiol ratio can go a long way in improving cardiovascular health long past menopause.

References

- Brennan J, et al. "Progesterone inhibit human infragenicular arterial smooth muscle cell proliferation induced by high glucose and insulin concentrations." J Vasc Surg 2002 36:833-8.
- Giuseppe MC, et al. "Natural Progesterone but not Medroxyprogesterone Acetate Enhances the beneficial Effect of Estrogen on Exercise-Induced Myocardial Ischemia in Postmenopausal Women." J Am Coll Cardio 2000 36:2154-9.
- Hermsmeyer RK et al. "Prevention of Coronary Hyperreactivity in Preatherogenic Menopausal Rhesus Monkeys by Transdermal Progesterone." Arterioscler Thromb Vasc Biol 2004 24:955-961
- Lee, John R. MD. What Your Doctor May Not Tell You About Menopause. Warner Books. 1996. Chapter 14.
- Rossouw JE, et al. "Risks and benefits of estrogen plus progestin in healthy postmenopausal women: principal results from the Women's Health Initiative randomized controlled trial." JAMA. 2002 Jul 17;288(3):321-33.
- Wen-Sen L, et al. "Progesterone inhibits arterial smooth muscle cell proliferation." Nature Medicine 1997 3(9):1005-8.
- www.cdc.gov (Referenced 4/5/2010)