

Thermography and Pelvic Floor in Urogynecology

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The study of body temperature and skin has been historically mentioned by Hippocrates in approximately 400 BC with observations regarding temperature variations in different parts of the human body (Brioschi, 2003).

In medicine, thermography in the 70s was used as a pioneering method for breast cancer detection, since it caused an increase in temperature (Christansen and Gerow, 2002; Arora, 2008). This method is based on the measurement using chambers capable of capturing radiation emitted by the body and transformed into a thermal map where temperature variations signal physiological changes related to blood circulation and evidence of inflammatory processes or diseases.

Currently, scientific studies have shown greater analysis of static or sequential images with newer software and because it is a valid functional and dynamic auxiliary method recognized by the F.D.A (Food and Drug Administration).

Its application has the advantages of being low-cost, non-invasive, painless and comparing heat symmetries on both sides of the human body [1].

The main indications in clinical practice are: The Complex Regional Pain Syndrome, which usually affects one extremity of the person: about 40% in the lower limbs and may have changes in urinary and fecal habits with vasomotor changes related to a dysfunction of the sympathetic nerves, the development of the disease divided into 3 phases. In phase 1, there is throbbing pain, allodynia (hypersensitivity to touch) and vasomotor changes. Phase 2 is characterized by worsening of the swelling and thickening of the skin. In phase 3, atrophic changes and dysfunction occur, such as limitation of movement, limb stiffness and atrophy [2-4], post-herpetic neuralgia [5], inflammatory arthritis [6,7] temporomandibular arteritis [8,9], headache [10,11] and painful myofascial syndrome [12,13].

In Urogynecology, there are several conditions with unknown causes such as vulvodyne; called chronic burning pain in the vulva, without objective physical findings to justify the symptoms [14,15], atrophic lichen sclerosus, painful bladder syndrome, atrophic menopausal vulvovaginitis due to estrogen deficit predispose the vagina and genitourinary tract to infections and [16] could be studied as a diagnostic method by thermography as well as a tool to visualize faecal and urinary functional abnormalities and their participation in the monitoring of therapies for vaginal flaccidity, urinary incontinence and aesthetic rejuvenation such as vaginal laser, thermofrequency and pelvic floor rehabilitation .

With technological advancement, it is possible to obtain accurate images with a thermal resolution of 0.08°C and resolution 1 × 1 mm or below and in 3 dimensions to show more detailed body warming compared to 2D [17] and although there is no standardization for deciphering the images over a long distance.

It is believed that an expansion of thermography indications will increase not only in painful conditions, but also contribute as a complementary method in diagnosis, evaluative resource of pelvic floor region and energy based treatments as laser, radiofrequency, HIFU energy pelvic floor could be in the future recommended as an important complementary tool and consequent improvement in the quality of life in women.

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