

Breast and testicular self-examinations in cancer screening: a matter of quaternary prevention?

Autoexames mamário e testicular nos rastreamentos oncológicos: uma questão de prevenção quaternária?

Autoexámenes testicular e mamario en tamizaje de cáncer: ¿una cuestión de prevención cuaternaria?

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Abstract

Health care includes important preventive attitudes that are divided into four categories: primary, secondary, tertiary, and quaternary. Quaternary prevention refers to the avoidance of the implementation of procedures whose benefits are doubtful and damages are unknown or notorious. Counseling for self-examinations in breast and testicular cancer screenings can fall under the purview of quaternary prevention. However, there is a lack of randomized controlled trials that examine the effectiveness and safety of testicular self-examination. Meanwhile, in two large randomized controlled clinical trials, breast self-examination has been proven to cause harm (anxiety and biopsies to detect benign lesions) as a screening method, with no benefit in terms of mortality rates. Healthcare professionals should be aware that the absence of counseling in this context, paradoxically results in the protection of health, especially with reference to breast cancer screening. It is a simple example of how less is more.

Resumo

Os cuidados em saúde incluem atitudes preventivas importantes que se dividem nas categorias primária, secundária, terciária e quaternária. A prevenção quaternária consiste no abandono de procedimentos desenvolvidos pelos profissionais de saúde cujos benefícios são duvidosos e cujos danos são desconhecidos ou notórios. O aconselhamento para a realização dos autoexames como métodos de rastreamento dos cânceres mamário e testicular é uma temática de prevenção quaternária. Não existem ensaios clínicos aleatórios e controlados que testem a efetividade e segurança do autoexame testicular. Quanto ao autoexame mamário, foi provado em dois grandes ensaios clínicos que causa dano como método de rastreamento (ansiedade, biópsias que detetam lesões benignas), sem qualquer benefício em termos de taxa de mortalidade. Os profissionais de saúde deverão saber que a ausência deste tipo de aconselhamento resulta, paradoxalmente, em proteção da saúde, especialmente para o rastreamento do câncer mamário. Na realidade, é um exemplo de como menos transforma-se em mais.

Resumen

La atención a la salud incluye actitudes preventivas importantes que se dividen en primaria, secundaria, terciaria y cuaternaria. La prevención cuaternaria implica el abandono de algunos procedimientos realizados por profesionales, cuyos beneficios son dudosos y cuyos daños son desconocidos o notorios. La promoción de los autoexámenes de mamas y testicular en cribado de cáncer puede ser una cuestión de prevención cuaternaria. Hay una falta de ensayos controlados aleatorios que podría poner a prueba la eficacia y la seguridad del auto examen testicular. En cuanto al autoexamen de mamas, en dos grandes ensayos clínicos se ha demostrado que causa daño (ansiedad, biopsias para detectar lesiones benignas) como método de cribado, sin ningún beneficio en las tasas de mortalidad. Los profesionales de salud deben ser conscientes de que la ausencia de este tipo de consejo resulta, paradójicamente, en protección de la salud, especialmente para el cribado del cáncer de mama. En realidad, es un ejemplo de cómo con menos se hace más.

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From primary to quaternary prevention

General Practitioners' (GP) daily clinical activities are diverse and interconnect preventive attitudes with curative measures.¹

Good quality studies have documented that preventive attitudes bring better community health indicators than do therapeutic measures. Therefore, there is an incentive for practices that favor the avoidance or minimization of health problems, particularly in Primary Health Care (PHC) services.^{2,3}

Preventive attitudes are classically divided into three categories: primary, secondary, and tertiary.⁴

In the 80s, a fourth level of prevention, namely, quaternary prevention was proposed and described by Marc Jamoulle, a Belgian Family Doctor. Subsequently, it was accepted by the World Organization of National Colleges, Academies, and Academic Associations of General Practitioners (WONCA). According to the WONCA, quaternary prevention is the "action taken to identify the patient at risk of overmedicalization, to protect him from new medical invasion, and to suggest to him interventions which are ethically acceptable."⁵ This new concept was proposed at a time of collective enthusiasm around medical advances and exponential growth of profits within the healthcare market. It concretized all the anxieties felt by many healthcare professionals and moderated the enthusiasm regarding new curative techniques, by questioning the final risk/benefit of certain measures for patients' health.⁶

Quaternary prevention has its roots firmly anchored in evidence and a critical analysis of existing data, which is reflected in its strong scientific and objective nature.⁶ However, it is likely to have been crushed by heavy campaigns coordinated by the pharmaceutical industry and group opinions of leaders (with possible conflicts of interest). This tended to generate a wave of positivism in healthcare professionals regarding the therapeutic and counseling attitudes, despite their absence of robust scientific evidence. Indeed, this is a part of a much more complex phenomenon called disease mongering. These attitudes are presented as valuable strategies for primary and secondary prevention, leading physicians to use the doctor-patient relationship as a promoting platform for such measures.^{6,7} Although filled with hope and belief, these measures may not bring any interesting health gains for patients (such as increasing the life-span with quality of life) and may even harm them (inducing anxiety, generating excessive concern about non-specific signs or symptoms, or encouraging the use of invasive and uncomfortable complementary diagnostic exams).⁶⁻⁸

Thus, the main role of family doctors/GPs is to ensure patient well-being, protecting him/her from health damage. It is therefore essential that these professionals accept the concept of quaternary prevention, which, in a sense pertains to the prevention of non-prevention. This acceptance develops as a result of a self-critical analysis of daily practices. This will not only protect patients from biopsychological damage, but will also fulfill daily clinical activities with proven effective actions in terms of community health.

Surprisingly, counseling for self-examinations in breast cancer and testicular cancer screenings can actually be a matter of quaternary prevention.

Self-examination in testicular cancer screening: a castle in the sand

Testicular cancer is the most common type of cancer in men aged between 15 and 34 years. The American Cancer Society estimated that, in 2013, there were about 7,920 new cases of testicular cancer

in the United States of America (USA). Additionally, cryptorchidism and a family history of testicular cancer have been identified as the main risk factors.^{9,10}

The incidence of testicular cancer has been increasing in the past few years, but the specific-mortality rate has been decreasing due to the effective therapies developed recently.⁹ This may have also led to an increase in the awareness about testicular cancer screening. This increase is based on a simple and appealing premise that if there are successful therapeutic techniques, it would be worth screening to detect tumors in early stages, which in turn would lead to higher resolution rates. This assumption is logical but deeply theoretical since its translation into practical measures raises numerous issues that may highlight hidden harm.

Proposed screening methods include testicular self-examination by teenagers and men to help timely detection of a possible swelling and/or other suspicious signs.^{9,11} Since the emergence of this method, several nurses and doctors have been advising their patients to practice periodic and systematic self-examinations, assuming that this will bring clear benefits for the male community.¹¹ Some of these health professionals have also questioned why a large proportion of men still does not engage in the same, and majority of healthcare professionals do not teach and promote testicular self-examination. A study by Brenner et al. reported that only 50% of pediatric residents taught their teenage patients to perform this examination.¹² The underlying reason for this apparent lack of awareness among several healthcare professionals is the lack of solid scientific evidence to support the use of testicular self-examination as an effective cancer detection method and the absence of data proving that men who undergo such screenings have a greater chance of living longer than men who never performed it.⁹

Further, a giant gap in this context is the lack of randomized controlled trials to rigorously test hypotheses related to the effectiveness and safety of such screening measures. There are no published trials that compare mortality and morbidity outcomes in men who underwent an intervention (periodic testicular self-examination for cancer screening) and those who did not.⁹ However, the possible outcomes are worth considering.

Indeed, the group of men who underwent such an intervention could have had greater knowledge of their own anatomy. However, but this could not generate any results in terms of health outcomes. On the other hand, it is also possible that this group would experience moments of greater anxiety moments during such periodic self-examinations, often induced by a state of mental alertness that would ultimately lead to a disturbing fear of having cancer. This psychological collateral damage is an expected outcome of counseling for testicular cancer screening. Meanwhile, the intervention group could, in fact, self-detect testicular cancers in greater numbers and at earlier stages as compared to those who would seek medical services only on casually noticing a testicular lesion. However, more diagnoses in the former group (even at early stages) do not necessarily mean a higher survival rate as compared to those in the group that did not undergo the intervention. In reality, treatments for testicular cancer are highly effective even for tumors in advanced stages, and this fact could lead to equal mortality rates in both the study groups.⁹ If true, this would indicate that men in a self-testing routine would begin to experience a repetitive cycle of anxiogenic self-researching for months/years without any advantage over men who did not follow the same.

Thus, counseling for self-examination for testicular cancer screening is, actually, like a castle in the sand: easily built, but consumes time and has no solid pillars. Therefore, we may question the need for engaging in such everyday work and reconsider if it is worth spending a part of the counseling appointment on a measure without clear benefits. Instead, we could reduce this time, and perhaps, use it for counseling on other topics with better immediate effects on patient health.

Self-examination in breast cancer screening: the proven damage

If all the questions listed for testicular cancer screening had a line of assumptions that arise from the utilization of breast self-examination as a screening method, there is strong scientific evidence that clears uncertainties.

Statistical data involving breast cancer are also relevant. In 2013, an estimated 232,340 new cases of invasive breast cancer were expected to be diagnosed in women in the USA, along with 64,640 new cases of non-invasive breast cancer.¹³ A monthly structured breast self-examination was proposed as a screening method prior to the mammography phase. This was expected to detect cancers at an earlier stage and decrease the specific mortality rate.^{14,15} However, this assumption was never proven to be true. Further, some evidence suggests that mammography is the only effective method for screening as it detects small and still non-palpable tumors.^{15,16} However, breast self-examination is still considered as a screening method by many health professionals, who advise their patients to perform periodic breast palpation, believing that it is a beneficial addition to the information available from a mammographic image. However, in contrast, this counseling could lead to more harm than good.

Two good-quality randomized controlled trials compared two groups of women: a set of patients who were taught and encouraged to conduct regular breast self-examinations for nearly 10 years (intervention group) and another set of similar women who did not receive any such intervention (control group). These studies became international references and bases for the guidelines of several scientific societies.^{17,18}

The first study was published in 2002 and involved 266,064 Chinese women aged between 31 and 64 years, out of which 132,979 joined the intervention group who underwent counseling, training, and motivational reinforcement for performing the breast self-examination. Subsequently, it was found that there were 864 cases and 135 deaths due to breast cancer in the intervention group and 896 cases and 131 cancer deaths in the control group. Mortality rates after a 10-11-year follow-up were similar [RR=1.03 (95% CI 0.81 to 1.31)]. However, a greater number of benign lesions were diagnosed in the intervention group (2761) as compared to those in the control group (1505) [RR=1.84 (95% CI, 1.73 to 1.95)]. Similar trends were found in terms of the number of women referred for breast biopsies [RR=1.51 (95% CI, 1.44 to 1.59)].¹⁷

In 2003, Russian researchers published a clinical trial involving 122,471 women aged 40 to 64 years, who were followed-up for 10 years. A total of 57,712 women participated in the intervention group that received an educational program for self-examination, and 64,759 participated in the control group. Eventually, there were 493 cases and 157 cancer deaths in the intervention group as compared to 446 cases and 164 cancer deaths in the control group. There was no statistically significant difference between the two groups with reference to the specific mortality rate [RR=1.07 (95% CI 0.86 to 1.34)]. However, again there were more benign lesions (645) in the intervention group as compared to those in the control group (351) [RR=2.06

(95% CI 1.81 to 2.35)]. Consequently, the number of women referred for biopsy was significantly higher in the intervention group [RR=1.60 (95% CI 1.45 to 1.75)].¹⁸

These two studies were included in a Cochrane Collaboration meta-analysis published in 2003 and reviewed in 2007 without changes. The authors concluded that breast self-examination had no effect on reducing mortality from breast cancer [RR=1.05 (95% CI 0.90 to 1.24)]. Furthermore, based on the fact that the number of women who underwent biopsy with benign outcomes in the intervention group was double that in the control group [3406 *versus* 1856, respectively, RR=1.88 (95% CI 1.77 to 1.99)], they highlighted that these data suggest that self-examination may cause damage to the patient.¹⁹

The practice of breast self-examination as a screening method (and its counseling) has been proven to cause harm to patients. Specifically, active research on body changes during a focused self-examination may cause alarm around the findings, which may actually be normal or benign. As a result, these women undergo additional tests to examine benign lesions that would never compromise their life. The emotional and spiritual experiences of these new conditions called “illness” can decrease women’s quality of life once they enter a researching process that leads to the final result of a profoundly anxiogenic biopsy.¹⁵ In fact, other studies have documented acute anxiety associated with breast self-examination and complementary exams.^{20,21} This highlights the most disturbing part of a healthcare practice, that is, conducting procedures that have no positive effect on patients’ life. Moreover, all these diagnostic procedures are also accompanied by economic costs (adding to the biopsychological costs cited above) due to the use of medical and structural resources.

Conclusions

Counseling for testicular and breast self-examinations are clear targets of quaternary preventive actions. These advices constitute practices without any proven benefits in terms of evidence that matters to the patient (i.e., extending quality of life and/or reducing mortality). In reality, they may cause non-negligible damages. With no supporting evidence (for testicular cancer screening) or with strong opposing evidence (for breast cancer screening), these advices are obsolete. However, this does not suggest that we should promote the patients’ delinking from changes in their bodies. Body awareness allows the patient to differentiate new and suspicious changes that would lead him/her to seek medical care. However, this awareness needs to be limited to casually noticed changes that are not accompanied by intensive researching by the patient after noticing the changes.

We can therefore say that the absence of counseling for conducting regular self-examinations as cancer screening methods is an example of how less is more.

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