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MAMMOGRAPHY FOR BREAST CANCER SCREENING IN BRAZIL: A CURRENT PROFILE

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Objectives: To quantify the number of bilateral screening mammographys performed for the first time in women over 40 years of age in Brazil, based on the variables educational status, previous clinical examination and age group. Methods: Ecological study, population-based and cross-sectional design. Considered the total number of bilateral screening mammographys performed in women over 40 years of age for the first time between 2009 and 2015. The data were collected from the Breast Cancer Information System (SISMAMA/SUS). Initially, descriptive statistics were performed and then the data were analyzed by ratio scale and relative frequency. **Results:** A total of 1,157,533 screening mammographys were performed during the quoted period, and in the years 2013 and 2014, there was a consecutive decrease of 37.7% and 51.6%, respectively, in the total number of examinations. Regarding the educational status of the women who took the exam for the first time, 54.6% had incomplete elementary education, and 9.44% were illiterate. Of these, 43.6% and 53.7%, respectively, had not had previous clinical examination of the breasts. Moreover, the analysis by age group shows that 26.5% of those who did not complete elementary school were between 40 and 44 years of age, and 16% of those with no schooling were 50 to 54 years old. **Conclusion:** This study verified that the decrease in the number of bilateral screening mammographys in the years 2013 and 2014 may be linked to the approval of Administrative Rule number 1.253/2013, which restricts the examination to women between 50 and 69 years of age. The low level of educational status, in turn, influenced in less demand of both the clinical examination and the screening test for cancer. The age group, however, differed from the Ministry of Health standard, which shows that women newly inserted into the risk group for screening tend to carry out preventive measures more frequently. Therefore, less restricted access to mammography is necessary, as well as health promotion measures that encourage lower- educated middle-aged women to take preventive measures with their health. In this way, it will be possible to identify breast lesions in the initial stages, to treat them and, consequently, to reduce the sequels generated by breast cancer.

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HIGH RISK FOR CARDIOVASCULAR DISEASE IN POSTMENOPAUSAL BREAST CANCER SURVIVORS

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Objective: To evaluate cardiovascular risk factors in postmenopausal women treated for breast cancer compared to postmenopausal women without breast cancer. **Methods:** A cross-sectional clinical study was performed with 96 postmenopausal women treated for breast cancer compared to 192 postmenopausal women without breast cancer (control) aged 45 to 75 years. Women with amenorrhea >12 months, age ≥45 years, and histological diagnosis of breast cancer without distant metastatic disease nor established cardiovascular disease (CVD) were included in the main group. The control group comprised women with amenorrhea >12 months, age ≥45 years, without breast cancer nor CVD. The groups were matched by age, time since menopause and body mass index (BMI) in the proportion of 1 case for 2 controls. Clinical and anthropometric data (BMI and waist circumference) were collected. Total cholesterol, HLD, LDL, triglycerides, glucose and insulin levels were measured. Women who presented three or more of the following criteria were diagnosed as having metabolic syndrome (SM): waist circumference (WC)>88 cm; TG≥150 mg/dL; HDL cholesterol <50 mg/dL; blood pressure ≥130/85 mmHg; glucose ≥ 100 mg/dL. For measuring plasma concentrations of HSP 60 and 70, immunoassays by ELISA technique were used. Carotid artery ultrasonography was performed to evaluate the intima-media thickness. For statistical analysis, Student's t-test, Gamma Distribution, Chi-Square Test, and Logistic Regression (odds ratio-OR) were used. **Results:** Patients with breast cancer had higher levels of HSP 60 and lower HSP 70 when compared to control ($p<0.05$). There was a greater prevalence of atheromatous plaque among women treated for breast cancer when compared to the control group (19.8% vs. 9.4% respectively) ($p<0.05$). In the risk analysis adjusted for age, time since menopause and BMI, women treated for breast cancer had a significantly increased risk for MS (OR=4.21, 95%CI 2.28–7.76), presence of atheromatous plaque (OR=2.61, 95%CI 1.19–5.72), hypertriglyceridemia (OR=2.32, 95%CI 1.33–4.0) and large waist circumference (OR=11.22, 95%CI 4.0–31.65) when compared to women without breast cancer ($p<0.05$). **Conclusion:** Women treated for breast cancer had a higher risk for metabolic syndrome, diabetes, atherosclerotic disease, hypertriglyceridemia and abdominal obesity, important risk factors for cardiovascular disease when compared to postmenopausal women without breast cancer.

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EPIDEMIOLOGICAL PROFILE OF BREAST CANCER IN MEN IN BRAZIL BETWEEN 2008 AND 2018

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Objectives: To outline the epidemiological profile of breast cancer in men based on variables as mortality rate, age, race, hospitalization and total cost. **Methods:** Ecological study, population-based and cross-sectional design. The total number of cases and deaths occurred in Brazil for male breast cancer between january 2008 and 2018. The data were collected from the Hospital Information System of SUS (SIH/SUS). Initially, descriptive statistics were performed and then the data were analyzed by ratio scale and relative frequency. **Results:** The total number of cases of malignancy reported in Brazil, between the mentioned period, was 4,090. The mortality rate presented progressive increase, with an average percentage of 7.5%. In relation to age, the group of 35 to 70 years old had the highest number of patients, especially the young people aged 60 to 70 years, who represented 23% of the total. The third age also presented more than 25% of the deaths due to neoplasia. Whites and browns were the most affected, accounting for 53% and 40% of the total, respectively. Most of the patients were treated in private institutions, which, in turn, had a 3.5 times higher expenditure when compared to the public system. **Conclusions:** This study verified an increase in the number of breast cancer cases in men in Brazil, as well as a rise in the death rate due to this disease. The finding by age group shows a peak in young adults, which coincides with the world literature, which shows a predominance between 60 and 70 years. In contrast, ethnicity analysis in this study shows that whites and browns account for the majority of those afflicted, while the world standard shows blacks as the most affected. The higher expenditures by private health agencies may be hypothetically justified by the fact that they have better conditions of medical and hospital care for these patients. Nonetheless, it should be taken into account that SUS often directs patients to private institutions because they do not have adequate and adequate infrastructure. Given the above, it is evident the need for studies aimed at a better understanding of this disease, since late diagnosis, as reported, leads to higher death rates, as well as increasing expenditures of government and private institutions with the treatment of patients.

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PERI-LYMPH NODAL PATHOLOGICAL FIBROSIS AND AXILLARY SURGICAL IMPAIRMENT AFTER 14G PERCUTANEOUS FRAGMENT BIOPSY OF SENTINEL LYMPH NODE DETECTED WITH CONTRAST-ENHANCED ULTRASONOGRAPHY (CEUS) IN EARLY BREAST CANCER PATIENTS

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Objectives: To evaluate peri-lymph nodal pathological fibrosis in axillar surgical specimens of breast cancer patients submitted to 14G percutaneous fragment biopsy (PFB) of axillary sentinel lymph node identified with contrast-enhanced ultrasonography (CEUS). **Methods:** This study was originally designed to assess the performance of CEUS+PFB on the axillary staging of early-stage breast cancer. The selection of participants was interrupted, and the design was reformulated to this descriptive cross-sectional study after unexpected peri-lymph nodal pathological fibrosis reported in axillary surgery specimens. The frequency or means of the main clinical, ultrasonographic, surgical and pathological characteristics were calculated. T-test or Pearson Chi-Square test compared the groups of patients with and without peri-lymph nodal pathological fibrosis. **Results:** Forty-eight patients submitted to CEUS+PFB and axillary surgery were eligible for this study. Axillary surgical specimens showed peri-lymph nodal fibrosis in 9/48 (18.7%) patients. The majority of peri-lymph nodal fibrosis were described as moderate (4/9(44.4%)) or severe (4/9 (44.4%)). There was no significant difference between groups regarding patient age (p=0.99), breast tumor size (p=0.60), rate of lymph-node metastasis (p=0.83), use of aromatase inhibitor (p=0.43), number of intradermal contrast injection (p=0.68), CEUS sentinel lymph identification (p=0.10), and CEUS sentinel lymph node mean maximum diameter (p=0.24). Axillary surgical impairment or hematoma were only reported in patients with axillary peri-lymph nodal fibrosis (p<0.001 and p=0.003, respectively). Mean time between CEUS+PFB and axillary surgery was shorter (p=0.04) in patients with peri-lymph nodal fibrosis. **Conclusion** Peri-lymph nodal pathological fibrosis may impair the axillary surgical procedure of early breast cancer patients staged with CEUS+PFB.

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CLINICAL QUALITY CONTROL OF MAMMOGRAMS EVALUATED IN A BRAZILIAN TERTIARY HOSPITAL

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Objective: To evaluate the clinical quality of mammograms performed in users of the Unified Health System (SUS), referred to a tertiary hospital. **Methods:** A prospective study whose unit of observation was the mammograms of women referred for consultation in a Breast Cancer Resource Center, located in the city of Goiânia, Brazil, from May to October 2017. Mammograms for screening or for diagnosis were included, performed within six months prior to study inclusion. The clinical quality of the mammograms was evaluated using 40 variables per exam, related to the identification, the technique of the exam, the executing equipment, the radiological findings, the exam report and the mammary positioning. For these last variables, a comparison was made according to the origin of the exam (public vs. private network). **Results:** A total of 4560 items of clinical image quality were evaluated in 114 women whose mean age was 50.6 years. Of the total items analysed, there were 660 failures (14.47%), and 443 (67.12%) failures were related to breast positioning. Among the positioning failures, the absence of visualization of the pectoralis major muscle (86.8%) and the inframammary sulcus (79.8%) in the CC and MLO incidences, respectively, were the most frequent. Considering the positioning criteria evaluated in the MLO incidence, the examinations performed in the private network presented a higher risk of failures related to the nipple centered (RR 4.66, 95%CI 1.05–20.62, p=0.02) and the visualization of the retro-mammary fat (RR 4.14; 95%CI 0.92–18.66, p=0.04), in relation to the exams performed in the public network. **Conclusion:** The mammograms analysed presented an inadequate quality pattern, with predominance of non-compliance related to breast positioning.

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LATE RESULTS OF REGIONAL BREAST CANCER SCREENING PROGRAM PERFORMED IN THE INTERIOR OF SÃO PAULO STATE, BRAZIL

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Objectives: Evaluation of the Barretos Regional Health Department (DRS V), São Paulo State results, after 15 years of its implantation. Methodology: The local Research Ethics Committee approved a retrospective study, of patients with breast cancer diagnosed at DRS-V/SP during a regional breast cancer-screening program. We evaluated the impact of mammographic screening in relation of clinical stages in three different periods: (1) Phase 1- 1999 to 2001, prior the beginning of the project; (2) Phase 2- 2003 to 2004, during the project implantation; (3) Phase 3- 2011 to 2016, in phase of consolidation. In Phase 3, the rate of conservative mammary surgery, conservative axillary and maintenance of the mammary cosmese, was evaluated by biennium. Mammary cosmesis was considered the sum of the rate of conservative surgery and mastectomy with immediate reconstruction with prosthesis. The difference between the groups was analyzed by the chi-square test. **Results:** In the period prior to the introduction of the screening program, the rate of patients with early stage (0 + I) was 13%. In, the first biennium (2003–2004) of implementation phase, at estimated population of 55,238 women, 17,964 women were screened (32.5% coverage) and 76 breast cancer patients were diagnosed. 45.4% of the women had never taken the exam in their lives. The rate of diagnosis of early tumors (EC 0 + I) was 43.3%. In Phase 3, 55.6% of the patients were asymptomatic; and when the presence of breast symptoms was evaluated, it was observed that the early stage rate was 83.4% and 31.9%, respectively, in the absence and presence of symptoms ($p < 0.001$). In the last biennium of Phase 3 (2015–2016) with an estimated 66,818 women, 593 cases were diagnosed (coverage of 47%). In the different phases, the rate of early detection (EC 0 + I) rose from 13.0% to 43.3% to 60.0%, phase 1, 2 and 3, respectively ($p < 0.001$). The number of cases diagnosed per biennium in phase 3 was 165, 217 and 211, respectively. In this same phase the overall rate of conservative surgery was 68.1% in the breast, 74.5% in the armpit and 89.0% in the cosmese. Evaluating the first, second and third biennia of Phase 3, respectively: (1) Conservative surgery of 62.2%, 70.5% and 70.4%; (2) Immediate reconstruction of 71.2%, 54.8% and 66.0%; (3) Sentinel lymph node of 70.9, 76.8% and 75.2%; (4) Cosmese of 89.1%, 88.1% and 89.9%. **Conclusion:** The implementation of organized screening determines an increase in the number of early stage case and it is associated with an increase in the rate of conservative treatment and breast cosmesis.

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ONCOPLASTIC SURGERY IN THE CONSERVATIVE TREATMENT OF THE LOCALLY ADVANCED BREAST CANCER: A SISTEMATIC REVIEW

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Introduction: Breast cancer conservative surgical treatment has become the standard procedure to reduce mutilation and preserve the body's self-image. Advances in adjuvancy have widened indications for larger tumors and new trials are demonstrating safety in locally advanced cases. The goal of this systematic review is to evaluate the role of oncoplastic surgery in the treatment of locally advanced breast cancer. **Methods:** 523 papers were analised from pubmed electronic data base from 2012 to 2017 and 12 papers were selected to analysis with respect to design and outcomes. **Results:** No randomized trial was found. Most of them were retrospective. The average tumor size varied from 40 to 62mm. The rate of conversion of mastectomy to conservative treatment oscilated 34–72,3%. Wise pattern was the most used technique. A greater amount of excised tissue was found when oncoplastic surgery was performed. No diference was observed concerning positive margins comparing the oncoplastic technique versus standard conservative treatment. Oncoplastic tecniques showed higher rates of surgical complications but that did not delay adjuvancy. Local regional recurrence and overall survivel varied from 9 – 14,6% and 76,7–86,6%, respectively. Cosmetic results were considered acceptable by the patients in 84-92,3% of the cases. **Conclusions:** Oncoplastic tecniques allows greater rates of breast conservation in locally advanced cancer cases without apparently putting at risk oncologic safety.

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ANALYSIS OF BOOST VOLUME DEFINITION IN RADIATION THERAPY FOR CONSERVATIVE BREAST SURGERY

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Purpose/Objective(s): The surgical bed clipping in breast conserving surgery is not a worldwide systematic practice, leading to a major difficulty in the definition of the boost volume. In practice, when the surgical bed is not marked, to compensate for uncertainties, the boost dose is given to the whole quadrant (tumor pre-surgical clinical location). The purpose of this study was to evaluate the role of surgical clips placement in the definition of boost treatment volume. **Materials/Methods:** Clinical Target Volumes (CTV) were defined as: CTV Breast, CTV Quadrant (based on physical exam and pre-surgical images), CTV Boost, defined by clip plus margin (1 cm for 2 or more clips and 2 cm for 1 clip only) plus radiological changes, CTV NT (normal tissue), defined by CTV Quadrant minus CTV Boost and CTV MISS (CTV that would be outside the treatment volume), defined by CTV Boost minus CTV Quadrant. **Results:** A total of 247 patients were included. Upper lateral quadrant was the most common clinical location (47.3%). The median number of clips used was three. The mean volumes were: CTV Breast: 982.52cc, CTV Boost: 36.59cc, CTV Quadrant: 285.07cc, CTV NT: 210.1cc and CTV MISS: 13.57cc. Only 50.6% (125) of the patients presented the CTV Boost completely inside the CTV Quadrant and in 47.3% (117), partially inside. Among patients with any CTV MISS, 80.3% (98) had 10% or more of CTV Boost outside the treatment volume. Regarding CTV MISS, there were no statistically significant differences between the groups with 1 clip versus 2 or more clips, nor between patients with or without reconstructive surgery. In average, the CTV Boost was 87% smaller than the CTV Quadrant. The whole quadrant irradiation would lead to unnecessary irradiation of 26% of normal breast tissue. **Conclusion:** Surgical bed clipping is up most important in the definition of the boost volume irradiation to ensure precision minimizing geographical miss and optimizing surrounding normal tissue sparing.

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EXPRESSION OF β-CATENIN AND E-CADHERIN IN BREAST DUCTAL CARCINOMA IN SITU AND THEIR ASSOCIATION WITH SURVIVAL: FOLLOW UP OF 9.0 YEARS

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Introduction: Tumor invasion and metastatic status still lead the poor prognostic in breast cancer. β-catenin and e-cadherin are components of cadherin-based cell-to-cell adhesion and also an important intermediate in several signal transduction pathways, including the Wnt pathway. Both are related to invasion, progression, and recurrence of cancer, but there are only few studies regarding in ductal carcinoma in situ (DCIS). The aim of study is to evaluate β-catenin and e-cadherin expression in pure DCIS and correlate these expressions with immunohistochemistry pattern, disease free survival and local recurrence. **Methods:** A retrospective cohort study was performed using the records from 1999 to 2009 in our Institution. The medical files of all patients with pure DCIS were reviewed and clinical, treatment and local of recurrence data were obtained. A tissue microarray paraffin block (TMA) was constructed from all biopsies. The TMA was submitted to immunohistochemical staining for β-catenin, e-cadherin, claudin-4, estrogen receptor, progesterone receptor, HER-2 and Ki-67. β-catenin and e-cadherin were categorized on low or high expression depending on score intensity and quantity. **Results:** It was included 137 patients with pure DCIS and 68 could have TMA analyzed for β-catenin and e-cadherin. The mean diagnostic age was 52.31±11.12 years. Total local recurrence rate was 11.76% (50.0% were invasive carcinoma) after median follow up of 9.06 years. High expression of β-catenin and e-cadherin were 71.93%, and 87.5%, respectively. High expression of β-catenin was related to high expression of claudin-4 (p=0.017), e-cadherin (p=0.041), positive estrogen receptor (p=000.8), and positive progesterone receptor (p=0.048), but not to HER-2 and Ki-67. High expression of e-cadherin was associated with high expression of claudin-4 (p=0.005) and β-catenin (p=0.017), but not others variables. There was no difference in local disease free survival between high and low expression of β-catenin (p=0.955) and e-cadherin (p=0.890). **Conclusion:** High expression of β-catenin and e-cadherin was more frequent than low expression in DCIS. Although, β-catenin was related to others adhesion components (as claudin and E-cadherin), and hormonal receptors (that are known prognostic factors), there was no association of local recurrence or disease free survival. E-cadherin expression was also not correlated with disease free survival.

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PHASE II CLINICAL TRIAL, TESTING THE EFFICACY OF A HUMANIZED MONOCLONAL ANTIBODY AGAINST THE LEWIS-Y ANTIGEN (LE Y)

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Background: The Lewis-Y (Le y) antigen is a blood group-related antigen expressed in over 70% of epithelial cancers. It is expressed in 44% of breast cancers. **Objectives:** The primary endpoint was to evaluate the clinical efficacy of hu3S193, a humanized monoclonal antibody against the Lewis-Y antigen, in advanced hormone positive breast cancer after failure of at least one line of endocrine therapy. **Methods:** This multicenter, single arm, phase II trial enrolled eligible patients to receive hu3S193 weekly at a dose of 20 mg/m2, intravenously. Efficacy was measured as clinical benefit rate (objective response or stable disease for at least 24 weeks). **Results:** Of 49 patients screened, 27 (55%) were Le y positive. Of these 27, only 20 were eligible for efficacy analysis. No complete or partial responses were observed. Four patients had stable disease for 24+ weeks (clinical benefit rate 20%). One patient remains on study drug maintaining stable disease for over 2 years. This patient had high expression of Le y. The most common treatment-related adverse events were headache (50%), cough (45,5%) and nausea/vomiting (31,8%). Hu3S193 lacked sufficient activity in is trial and the investigators stopped accrual at the first interim analysis. High expression of Le y might play a role in selecting patients to this strategy.

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TRANSCRIPTION EXPRESSION OF IL-6 AND IL-1β GENES AND ITS RELATION WITH THE EFFICACY OF CHEMOTHERAPY IN WOMEN WITH BREAST CANCER

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Objective: Investigate differences in transcriptional levels of inflammatory markers in women with breast cancer (BC) submitted to chemotherapy (CT) or not, in order to identify possible biomarkers related to treatment efficacy. **Methodology:** This study was carried out in a university hospital with women who presented a positive biopsy result for BC. Women with BC were divided in two groups: patients not submitted to any antineoplastic treatment referred for elective breast surgery (n=21) and patients submitted to CT (n=24). Peripheral blood was collected at the surgical center prior to surgery, or during CT, before infusion of chemotherapy agents, and stored at -4oC until transcriptional processing and analysis. After extracting total RNA from blood samples and obtaining cDNA, the relative transcriptional quantifications of the target genes interleukin-1β (IL-1β), interleukin-6 (IL-6), interleukin-10 (IL-10) and tumor necrosis factor (TNFα) in relation to the endogenous gene β-2- microglobulin (B2M), were analyzed by real-time PCR (qPCR). Clinical and therapeutic data, such as histological tumor type and tumor receptors immunohistochemistry, were obtained from the analysis of the reports of anatomopathological exams. The model of generalized estimation equations (GEE) was used to verify the variation of IL-1β transcriptional levels regarding to tumor molecular phenotypes. **Results:** A significantly higher transcriptional expression of IL-6 in the BC group without CT was identified (p=0.05), suggesting the possible removal of tumor cells in the BC group with CT, since these cells have the ability to produce and release IL-6, by reducing the number of these cells, because CT reduces the levels of circulating IL-6. Significantly higher expression of IL-1β in BC group with CT (p=0.003) was also evidenced, indicating a possible association of this marker with the cytotoxicity promoted by chemotherapeutic agents. In addition, by analyzing the association graph of mean IL-1β transcriptional levels with the corresponding tumor molecular subtype, a change in IL-1β expression was identified according to the molecular phenotype variation and for BC group without CT was observed higher transcriptional means with the most aggressive molecular phenotype. **Conclusion:** We suggest a possible association between IL-6 and IL-1β expression level with CT efficacy, indicating the potential of these interleukins as therapeutic biomarkers.

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ASSOCIATION OF ONCOGENE RAC 1 WITH HER-2 TUMORS AND WITH AGGRESSIVITY OF TRIPLE NEGATIVE TUMORS

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Objective: To evaluate the expression of RAC 1 in patients with breast cancer and its molecular subtypes. **Method:** Samples were collected from 41 patients who underwent mastectomy at the Barao Lucena Hospital, 10 luminal A, 15 luminal B, 1 luminal (undifferentiated), 6 HER-2, 9 Triple- negative. RNA was purified by RNAeasy KIT (Qiagen) and quantified by Nano Drop 2000 (Thermo). The cDNA was synthesized with the QuantINova ReverseTranscripition kit (Qiagen) and real-time PCR was performed in StepOnePlus (Applied Biosystems) with the Go Taq Qpcr Master Mix kit (Promega). The expression of b-actin was used as endogenous control and the ACT was calculated to analyze the reactive quantification of RAC 1 in each sample. Statistical analyzes were performed with R. **Results:** The relative expression of RAC 1 presented a metric behavior. The HER2 subtype had the highest RAC 1 expression compared to luminal (p=0.0006899), even when stratified in Luminal A (p=0.003592) and in Luminal B (p=0.00762) and with larger tumor size (p=0.01441). No association was observed between RAC 1 expression and KI-67 LOW (KI-67 lower 20%), with p values ranging from 0.2186 to 0.9472. **Conclusion:** The absence of the estrogen receptor seems to amplify the expression of RAC 1 in response to the metabolic pathway DE her 2. Patients who underwent hysterectomy showed a reduction in the expression of RAC 1. RAC 1 presents a great potential for new progression studies tumor in triple-negative tumors.

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TWIST1 KNOCKDOWN ELUCIDATES THE REGULATION OF TH17-LIKE RESPONSE IN HER2 BREAST CANCER SUBTYPE

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Introduction and objectives: Breast cancer (BC) is a heterogeneous disease, composed by multiple subtypes with different molecular characteristics and clinical outcomes. In Brazil, this neoplasia is the first cause of cancer death in women, mainly due to late diagnosis, when the possibility of developing metastasis is improved. The metastatic process depends on the expression of transcription factors (TFs) related to epithelial-mesenchymal transition (EMT). Among these factors, Twist1 is described to be the master regulator of EMT in BC, although its role in BC subtypes remains unclear. The aim of our study is to investigate the role of Twist1 in intrinsic molecular subtypes of breast cancer. Material and methods: We evaluated the mRNA levels for NF-κB, Twist, Slug, and Sip1 on 46 breast tumor samples. We also performed Kaplan-Meier curves to associate gene expression to survival. Then, we silenced Twist1 expression in HCC-1954 (HER2) cells using shRNA-approach, confirmed the knockdown by RT-qPCR and immunoblotting, and subsequently performed a microarray analysis by GeneChip human exon array, whose findings were analyzed on Metacore software. We confirmed some altered genes expression using RT-qPCR. Finally, we examined IL-17 signaling members and its downstream targets by flow cytometry, immunoblotting and ELISA. Results and conclusion: In BC samples, we observed that Triple-negative group expressed more Slug and Sip1 and, interestingly, Twist1 was overexpressed in HER2 group. Kaplan Meier showed higher probability of death for those patients who expressed high levels of NF-κB and Twist. The TWIST1 knockdown in HER2 cells provoked profound molecular alterations, since 141 genes were up-regulated and 190 down-regulated. In silico analysis revealed numerous correlations between Twist1 with important biological processes and signaling pathways, such as EMT via TGF-β/SMADs, extracellular matrix remodeling, Th17 signaling, among others. Interleukin (IL) -17 signaling was examined through the expression of IL-17RA and Act1 proteins, which act to trigger this signaling together with IL-6 and IL-8 levels, which are targets of this signaling. Both results reported, consistently, that Twist1 plays an important role in activating a Th17 profile in HER2 BC context. Finally, our findings may contribute for a better understanding of Twist1 role in Her2 breast cancer subtype and point out Twist1 as potential target for the development of new therapies.

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ANALYSIS OF PEAK TORQUE OF WOMEN TREATMENT CHEMOTHERAPY WITH APPARENTLY HEALTHY WOMEN

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Objective: To evaluate and compare the muscular performance of women with breast cancer during chemotherapy with healthy women. **Methods**: Participated the study 37 women divided into a control group (age: 52,2±13,11) composed of healthy women and group treatment (age: 55,8±8,37) composed of women who were between the third and fourth cycle of chemotherapy. The muscular performance was evaluated through the isokinetic dynamometer biodex system III, to which the peak torque was analyzed by performing 2 sets of 4 repetitions of knee extension at $60^{o}.s^{-1}$ in the concentric action, with 2-minute interval between the set. The normality of the data was evaluated by the Shapiro-Wilk test. Data were analyzed by Student's t test. The significance level was defined a priori at $p<0.05$. The size of the effect d of Cohen was calculated from the difference between the groups to examine the magnitude of the effect of breast cancer treatment on the variables investigated. The present study was approved by the Research Ethics Committee of the Federal University of Goiás (CAAE: 50717115.4.0000.5083), and by the Research Ethics Committee of the Hospital of Clinics (HC / UFG) (CAAE: 50717115.4.3001.5078). Resolution 466/12 of the National Health Council. **Results:** There was no significant difference in peak torque between groups ($p=0.95$, $d=0.02$). **Conclusion:** Women in breast cancer treatment during the third and fourth cycles of chemotherapy did not present differences in measures of muscular performance when compared to healthy women.

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ANALYSIS OF A SYNONYMOUS SINGLE NUCLEOTIDE VARIANT IN PLATELET-DERIVED GROWTH FACTOR RECEPTOR ALPHA GENE IN TRIPLE NEGATIVE BREAST CANCER

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Objective: This research had the purpose of ascertain if mutations in PDGFRA gene (platelet-derived growth factor receptor alpha) are associated with triple negative breast cancer, and compare this group with luminal subtype. Clinical, and staging data were considered. **Methods:** Genomic DNA was extracted of 12 tissue samples in which 9 from luminal subtype and 3 TNBC by *DNeasy® Blood & Tissue Kit* (Qiagen). PDGFRA gene were amplified by PCR (polymerase chain reaction) with specific primers and *GoTaq® Green* Master Mix (Promega), in the thermal cycler *Veriti* (Applied Biosystems). The PCR products were purified by *ExoSAP- IT PCR Product Cleanup* (Thermo Fisher Scientific). PCR fragments were then sequenced using *BigDye Terminator* (Applied Biosystems) on a *MegaBACE 1000 Sequencing System* (GE Healthcare). **Results:** The results were used to performance sequence alignment in *CLC Genomics Workbench* according to PDGFRA gene sequence (NG_009250).The age of women were from 32 to 70 years. All TNBCs patients in this study were recidivant in breast cancer. Upon analysis of the PDGFRA genome, a mutation was found in all TNBC samples, and in none of the luminal subtype. The mutation consists of an A> G exchange at position 50792 of the DNA strand. The amino acid encoded by this region, proline, remains preserved. Thus it is considered a sSNV (Synonymous Single Nucleotide Variant), classified how a type of silent mutation. Despite being classified as silente, is now known that sSNVs may have multiple consequences for RNA maturation and stability as as well as protein translation. In addition, tissue-specific and tumor-specific changes in tRNA (transfer ribonucleic acid) expression combined with symmetric tRNA abundance may play a role. Like many receptor tyrosine kinases (RTKs), PDGFRA is involved in the progression of a variety of cancers either by overexpression or by increased activity. **Conclusion:** Systematic reporting of sSNVs will be essential to achieve positive progress in our understanding of the full spectrum of functional effects associated with genomic variants in the population as well as in each patient. Knowing this genetic information is essential for precision medicine. In the future it will provide diagnosis and treatment specific to each individual.