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Knowledge, barriers and attitudes towards breast cancer mammography screening in Jordan

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Introduction: Breast cancer is the most common type of cancer in Jordan. Current efforts are focused on annual campaigns aimed at increasing awareness about breast cancer and encouraging women to conduct mammogram screening. In the absence of regular systematic screening for breast cancer in Jordan, there is a need to evaluate current mammography screening uptake and its predictors, assess women's knowledge and attitudes towards breast cancer and screening mammograms and to identify barriers to this preventive service.

Methods: This cross-sectional study was conducted in six governorates in Jordan through face-to-face interviews on a random sample of women aged 40 to 69 years.Study questionnaire: A structured questionnaire was designed to cover the study objectives using the Health Belief Model. It was tested and piloted in study areas.

Results: A total of 507 participants with mean age of 46.8±7.8 years were interviewed.There was low participation rate in early detection of breast cancer practices. Breast self-examination, doctor examination and periodic mammography screening were reported by 34.9%, 16.8% and 8.6% of study participants respectively. Additionally 3.8% underwent breast cancer screening at least once but not periodically while 87.6% had never undergone mammography screening. Reported reasons for conducting the screening were: Perceived benefit (50%); family history of breast cancer (23.1%); perceived severity (21.2%) and advice from friend or family member (5.8%).City residents have shown higher probability of undergoing mammogram than those who live in towns or villages.Results revealed negative perceptions and limited knowledge of study participants on breast cancer and breast cancer screening.The most commonly reported barriers for women who never underwent screening were: Fear of results (63.8%); no support from surrounding environment (59.7); cost of the test (53.4%) and religious belief, i.e. QadaaWaQadar (51.1%).

Conclusions & Recommendations: In the absence of regular systematic screening for breast cancer in Jordan, the uptake of this preventive service is very low. It is essential for the country of Jordan to work on applying regular systematic mammography screening for breast cancer. Additionally, there is a need for improvement in the current health promotion programmes targeting breast cancer screening. Other areas that could be targeted in future initiatives in this field include access to screening in rural areas and removal of current barriers.

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Development of humanized CD176 antibody for anti-tumor immunotherapy

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Thomsen-Friedenreich antigen (TF) is a carbohydrate epitope (glycotope) sequence Galβ1-3GalNAcα1-R. TF was assigned as CD176 using our monoclonal antibody during the 7th Conference on Human Leucocyte Differentiation Antigens. Through systematic and comparative studies, we found that CD176 is masked by terminal sialylation in adult human normal and benign tissues but it is exposed during tumorigenesis as a tumor-associated antigen. Approximately, 60-80% of carcinomas, leukemia and lymphoma carry CD176 on their cell surface. CD176 is also expressed on some cancer stem cells. In addition, CD176 is functionally involved in the liver metastasis process of tumors and the adhesion of cancer cells to the endothelium. Interestingly, we observed that anti-CD176 antibody induces the apoptosis of leukemic cells. The mechanisms of apoptosis of leukemic cells induced by CD176 antibody may be that CD176 antibody binds CD176 carbohydrate structure on apoptosis-associated glycoproteins such as CD95 and DR4 and then activates apoptotic pathways and results in apoptosis of CD176-positive cells. Normal human sera contain the antibody towards CD176. The presence of naturally occurring anti-CD176 antibodies may represent a mechanism of immunosurveillance against CD176-positive tumor cells. In the animal study, the passive transfer of CD176 anti-serum which reacted only with the tumor-associated CD176 in cancer cells could effectively prolong the survival time of CD176+ leukemia mice and inhibit the growth and spreading of CD176+ leukemic cells in bone marrow, spleen, liver and lung. CD176 antibody treatment could be involved in the following process: (1) CD176 antibody could inhibit CD176+ cancer cells metastasis to bone marrow, spleen, lung and liver through blocking the adhesion of cancer cells to the endothelium and hepatocytes; (2) CD176 antibody could mediate the elimination of CD176+ cancer cells through complement-dependent cytotoxicity (CDC) and/or antibody-dependent cellular cytotoxicity (ADCC) performed by natural killer cells, neutrophils and macrophages; and finally (3) CD176 antibody could induce apoptosis of CD176+ leukemia cells. These data provided strong evidence that CD176 antibody-based passive immunotherapy lead to a therapeutic response. Therefore, we developed humanized antibodies specific for CD176 towards therapeutic application.

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