

predict lymph node metastasis, since a positive lymph node may not always be clinically or radiologically evident. Recent studies have shown that D2-40, a monoclonal antibody that reacts with an oncofetal antigen present in fetal germ cells, is a highly sensitive and specific lymphatic endothelial immunohistochemical marker. In this study, we investigated the value of lymphatic invasion detected by D2-40, to predict lymph node metastasis in the invasive breast carcinomas.

**Design:** A total of 40 cases of invasive ductal breast carcinoma (IBC) with axillary lymph node metastasis (22) and those without axillary lymph node metastasis (18) were retrieved from the hospital database. Immunostaining for D2-40 was performed on an automated immunostainer with appropriate positive and negative controls. The H and E and immunostained slides were examined blindly (without the knowledge of the status of lymph node metastasis) by two pathologists to identify lymphatic invasion. Statistical analysis was performed using Chi-Square test.

**Results:** D2-40 highlighted the lymphatic endothelial cells in all 40 cases. Lymphatic invasion was identified in 18/22 (82%) cases of IBC with axillary node metastasis. In contrast, the lymphatic invasion was present in only 2/18 cases (11%) of IBC without axillary node metastasis, which was statistically significant ( $P < 0.05$ ) between the two groups of breast cancer patients. With H and E examination, lymphatic invasion was observed in only 14/22 (63%), including 2/22 (9%) cases suspicious for lymphatic invasion in IBC with axillary node metastasis. 1/18 (6%) case was detected to have lymphatic invasion on the H and E slides in IBC without axillary node metastasis.

**Conclusion:** Our results indicate that the lymphatic invasion detected by D2-40 immunostain, is highly predictive of axillary lymph node metastasis. In addition, D2-40 staining increases the sensitivity of recognizing lymphatic invasion over routine H and E examination. We recommend that D2-40 immunostain may be helpful to determine if lymph node resection is of value in patients with invasive breast carcinoma.

#### 110 BPI EXPRESSION IS NOT INVOLVED IN THE EVOLUTION OF INVASIVE BREAST CARCINOMA ACQUIRING METASTATIC POTENTIAL

*Gang Yue; Gang Yue; Marino Leon; Reda Saad; Yulin Liu; Jan Silverman, Allegheny General Hospital, Pittsburgh, PA, United States*

**Background:** BPI is a novel member of the homeobox genes associated with early hematopoiesis and has been described in the evolution/carcinogenesis of some malignant neoplasms. Overexpression of BPI was recently reported in the progression of breast carcinoma (Breast Cancer Research and Treatment. 90:241-7, 2005). However, the involvement of BPI in the evolution of breast carcinoma acquiring metastatic potential has not been studied. In this study, we examine the expression of BPI in invasive breast carcinoma (IBC) with positive lymph node and compare the finding with invasive breast carcinoma without lymph node metastasis.

**Design:** A total of 40 cases of invasive breast carcinoma with axillary lymph node metastasis (22) and those without axillary lymph node metastasis (18) were retrieved from the hospital database. Immunostaining for BPI antibody were performed on an automated immunostainer with appropriate positive and negative controls. For the staining intensity, a score index of 0, 1, 2, and 3 corresponding to negative, weak, moderate, and strong staining was used. Statistical analysis was performed with Chi-Square test.

**Results:** The positive BPI staining is observed in all 40 (100%) cases of IBC with and without lymph node metastasis with a predominantly cytoplasmic pattern. There is no statistical difference in staining intensity between these two groups of IBC. Besides tumor cells, BPI also stains benign ductal epithelial cells in all 30 (100%) cases of IBC that contain benign breast tissue with a predominantly nuclear pattern.

**Conclusion:** Our results indicate that BPI expression is not correlated with axillary lymph node metastasis of invasive breast carcinoma. In addition, in contrast to the recent report, there is no statistically significant difference in BPI expression between nonneoplastic breast tissue and invasive breast carcinoma.

#### 111 CD44V6 IS A MARKER OF METASTATIC POTENTIAL IN BREAST CANCER

*Wenyong Zhang; Elizabeth Hyjek; Gabriel Sica; Syed Hoda, Weill Medical College of Cornell University, New York, NY, United States*

**Background:** CD44 glycoproteins are cell surface receptors involved in cell-cell and cell-extracellular matrix interaction and are involved in tumor invasion and metastasis. CD44 splice variant 6 (CD44v6) is implicated in metastasis of pancreatic and breast cancer cell lines. In humans, over-expression of CD44v6 has been associated with poor prognosis in some tumors. Thus far, the role of CD44v6 in the breast carcinogenesis and tumor progression is unclear.

**Design:** Seventeen patients with lymph-node-positive breast carcinoma were investigated. We are addressing the following questions: (1) whether the expression pattern of CD44v6 differs in normal breast tissue, ductal hyperplasia, in situ carcinoma and invasive carcinoma; (2) whether there is a difference in CD44v6 expression between the primary and the metastatic breast carcinoma to the regional lymph nodes; (3) whether CD44v6 expression is correlated with the expression of basic fibroblast growth factor (bFGF) and matrix metalloproteinase-9 (MMP-9), two CD44 binding proteins that are potentially associated with tumor growth and cancer metastasis. Immunohistochemical staining was done on paraffin tissue sections of the primary tumors and the lymph node metastases using anti-CD44v6, anti-bFGF and anti-MMP-9 antibodies. Immunostains were evaluated both for the strength of staining (negative, weak, strong) and the percentage of positively-stained cells.

**Results:** (1) In normal breast tissue, CD44v6 antibody stained myoepithelial cells, but not luminal cells (0/17). In 15/16 (94%) atypical hyperplasia/usual hyperplasia and 12/13 (92%) DCIS/LCIS, CD44v6 antibody stained both myoepithelial and luminal cells. 10/17 (59%) invasive carcinoma showed positive CD44v6 staining. (2) 12/17 (71%) metastatic breast carcinoma to the regional lymph nodes stained positive for CD44v6. Among the 12 CD44v6-positive metastatic carcinoma, 8/12 (67%) showed increased expression of

CD44v6 in comparison with that in primary carcinoma.

**Conclusion:** (1) CD44v6 is relatively more expressed in lymph node metastases than in primary breast carcinoma. (2) Ductal proliferative processes are associated with CD44v6 expression in the luminal cells. (3) CD44v6 may play a role in breast cancer lymph node metastasis. Studies into the role that CD44v6 plays in breast carcinogenesis and lymph node metastasis by correlating the expression of bFGF and MMP-9 with that of CD44v6 are currently in progress.

## Cancer Epidemiology

#### 112 EPIDEMIOLOGY OF CANCERS IN HASSAN II UNIVERSITY HOSPITAL IN FES 2003-2005

*Afaf Amarti; Laila Chbani; Hind Fatemi; Kawtar Znati, Medicine Faculty, Fès, Morocco*

**Background:** About 57% of all cancers occur in developing countries, however little is known about their epidemiology because of the lack of cancer registries in these countries. In our practice, no cancer registry is available in Morocco and published data is based on hospital series.

**Design:** To assess for the first time the epidemiology of cancers in our region based on the data of the pathology laboratory of Hassan II University of Fes.

**Results:** From October 2003 to December 2005 1019 cases of cancer were collected. 55% were men and 45% women and the mean age was 53 years. The most frequent tumors were of digestive and cutaneous origin (18,3% each) followed by breast and cervical carcinoma second (13,4%). Cervico-facial tumors came in the third place with 11% of all cancers (larynx and nasopharynx tumors having the same frequency).

**Conclusion:** Authors emphasize the need for cancer registries in developing countries as cancer is a prominent public health problem and epidemiologic data can better prepare the health system to take care of cancer patients.

## Cardiovascular

#### 113 POSTNATAL PROLIFERATION OF MYOCARDIAL CELLS IN TWO DIFFERENT REGIMENS OF PRESSURE OVERLOAD FOR PREPARATION OF THE SUB-PULMONARY VENTRICLE

*Maria Cristina Abduch; Renato Assad; Miguel Quintana; Acrisio Valente; Lea Demarchi; Vera Aiello, Heart Institute (InCor), University of Sao Paulo School of Medicine, São Paulo, Brazil*

**Background:** Pulmonary artery banding (PAB) is sometimes required in patients with transposition of the great arteries to prepare the sub-pulmonary ventricle, in order it undergoes an increase in mass and becomes suitable for the arterial switch operation. Controversy exists regarding the occurrence and extension of myocyte hyperplasia after the neonatal period in response to that pressure overload, as well as about the best regimen of ventricular preparation. This study is aimed at analyzing experimentally the cell proliferation rate in right ventricles submitted to different types of PAB: continuous and intermittent.

**Design:** Twenty one healthy, 30 to 60-days-old goats (beyond the neonatal period) were divided in three groups: control (n=7, no surgical procedure), continuous stimulation (n=7, submitted to PAB by surgical implantation of an external device, inflated continuously and progressively for five days- total 96 hours), and intermittent stimulation (n=7, PAB, stimulated intermittently- 12 hours/day, for five days- total 48 hours). Bidimensional echocardiography was performed every day in animals from both stimulated groups, in order to evaluate the thickness of the RV free wall and to calculate the RV mass. At the end of the experiment, the goats were sacrificed, the hearts excised and histological sections (5- $\mu$ m- thick) from the right ventricle (RV), left ventricle (LV) and ventricular septum were submitted to immunohistochemistry with the monoclonal antibody Ki-67 to identify cell proliferation. Labeled cardiomyocytes and interstitial/vessel cells were quantified microscopically (number/ high power field). Comparisons between groups regarding the number of labeled cells were performed using analysis of variance test.

**Results:** Both stimulated groups showed significant increase in the RV free wall thickness and mass at the last day of the experiment, compared to the basal values. The number of proliferating RV cardiomyocytes in the continuous stimulation group was significantly higher when compared to the respective LV and to both ventricles of the controls ( $p=0.023$ ). When comparing the intermittent stimulation group with the controls, no difference was detected in the rate of proliferating RV cardiomyocytes. Neither significant difference was found regarding the number of labeled septal myocytes in both stimulated groups compared to controls. On the other hand, numbers of proliferating RV interstitial/vessel cells were significantly higher in both stimulated groups when compared to the respective LVs and to the controls ( $p < 0.05$ ). The same cells from the right half of the ventricular septum also showed an increased proliferation rate when compared to the control animals ( $p=0.001$ ).

**Conclusion:** Under the conditions of the present study, the continuous pressure overload imposed to the RV increased significantly the proliferation of RV cardiomyocytes and interstitial/vessel cells, while intermittent stimulation was not capable of enhancing the proliferation of cardiomyocytes but elicited interstitial/vessel cells hyperplasia. At present, we cannot answer if a longer period of intermittent stimulation would have resulted in a similar rate of proliferating cardiomyocytes. Moreover, the ideal proportion of proliferated cells (cardiomyocytes related to interstitial/vessels cells) remains to be determined.

#### 114 MORPHOLOGIC ALTERATIONS IN DILATED TRICUSPID VALVES

*Peter Baker, Children's Hospital, Columbus, OH, United States*

**Background:** Tricuspid valve (TV) regurgitation (3+ to 4+) is present in up to 14% of patients at 1 week after TV annuloplasty and up to 32% at 5 years. Mortality associated with reoperation is up to 37%. The most common etiology for TV regurgitation is right ventricular and TV annular dilation. Anatomic alterations in dilated TV's relative to non-dilated valves have not been well characterized. Better understanding of these alterations