

**PROFILE OF WOMEN SURVIVORS OF DOMESTIC AND SEXUAL VIOLENCE IN A NATIONAL CENTER OF EXCELLENCE IN A WOMEN'S HEALTH CLINIC.**

L. Laras, V. Figueroa, D. Camacho, University of Puerto Rico Medical Sciences Campus, V. Edwards, Center for Disease Control and Prevention, San Juan, Puerto Rico.

**Purpose of the Study:** The identification of sexual and domestic violence, frequent among women, depends on the disposition of health professionals (1) to intervene with women referred by agencies that provide services to victims and (2) to screen for violent experiences during routine clinical services. PASOS de las Mujeres, within the Puerto Rico Women and Health Center, a DHHS-designated National Center of Excellence in Women's Health, provides forensic medical services by request of individuals, POLICE, family services, and others. The service promotes routine screening for violent experiences. The purpose of the study is to develop a profile of the clinic's patients as it relates to violence and its possible impact on health. From April 2002 to February 2005, 208 survivors were evaluated, which constitutes 39% of the total new patients seen. There is limited information about women survivors who access ambulatory health services. This information is important for service planning, professional education, prevention strategy development, funds allocation, and public health policy designs. **Methods Used:** A medical chart review of PASOS was done for service improvement and intervention strategy development. Different variables (age, region of origin, weight, menarche, history of asthma, constipation and sleeping difficulties, relationship with offender, place of assault, signs of trauma, and HPV-related findings) were analyzed for possible associations. **Summary of Results:** Of the 684 new clinic patients, from April 2002 to February 2005, 27% were survivors of violence. Educational levels were diverse. The assailant was a family member in 53% of the cases and 57% of the assaults occurred in the home. In our clinic, 24% of the minors are overweight while 3% are underweight. Most of the literature is consistent in that most cases of sexual abuse have no physical findings consistent with injury. In our clinic only 29% of the cases have some finding consistent with trauma. All survivors were examined for subclinical HPV. Other related health issues observed among the survivors were constipation, asthma, and sleeping difficulties. **Conclusions:** In order to provide the health services needed by survivors of sexual and domestic violence, it is important to identify the participant's profile. This review shows that in Puerto Rico data are consistent with national findings. Also in the case of HPV, it demonstrates the value of colposcopy in the examination. Results emphasize that it is time to do prospective research on survivors of violence for short- and long-term health consequences if we are really going to provide services that respond to the concept of violence as a public health issue.

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**MARKPAP® TEST, A POTENTIAL METHOD FOR MONITORING THE SUCCESS OF HUMAN PAPILLOMAVIRUS VACCINATION.**

N. Markovic, O. Markovic, BioSciCon, Inc., Rockville, MD.

**Introduction:** The MarkPap biomarker, the specific isoenzyme configuration of cervical acid phosphatase, was described in 1999 (<www.bioscon.com>). It labels abnormal cervical cells, such as dysplastic, HPV-infected, and malignant cells. Visualized with the MarkPap test as a red pigment on the Papanicolaou bluish background, the biomarker increases the visibility of abnormal cells and serves as their locator. Normal squamous epithelial cells are always negative. In case of HPV, the marker labels infected cells providing in the same time information about their morphological changes. **Methods:** The MarkPap test is suited for both conventional smears and for liquid-based Pap. Specimens can be processed in small laboratories with the MarkPap Test manual mode, in large laboratories with automatic mode, or MarkPap Digital telecytology can be applied if the processing of samples and their evaluation can not be done at one site (<www.bioscon.markpapproducts.html>). MarkPap Digital is expected to become a new low-cost mass cervical cancer screening tool. **Results and Conclusion:** In our studies, we found that MarkPap biomarker positivity and morphological changes (typically seen in HPV-infected patients with koilocytosis) are independent phenomena. The successful clinical trials with HPV vaccines will open another broad application for MarkPap technology. Since MarkPap could detect HPV-infected cells together with cytological signs of abnormality (the actual reaction of the cell, not only the presence of the virus), this simple and low-cost test may be applied for large-scale monitoring of the success of HPV vaccination around the world. It may help answer questions of duration of the protection under repeated new infections, the need for reimmunization, presence of other low-risk HPV strains that produce reaction of the cell, virus transformation, and many others.

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**MARKPAP® TEST MOVES INTO DOCTOR OFFICES.**

O. Markovic,\* N. Markovic,\* L. Townsend,<sup>1</sup> W. Smith Jr,<sup>2</sup> D. Hankins,<sup>3</sup> M. Cotic,<sup>4</sup> S. McJonathan,\*<sup>5</sup> BioSciCon, Inc. Rockville, MD; <sup>1</sup>Contemporary Women's Health Care Associates, Bethesda, MD; <sup>2</sup>Suburban Hospital, Bethesda, MD; <sup>3</sup>New Hope Pharmaceuticals, Gaithersburg, MD; <sup>4</sup>GT Vision, Hagerstown, MD and Parallel, Belgrade, SCG.

**Introduction:** MarkPap test is an emerging biomarker-based technology for the enhancement of the visibility of abnormal cells on Pap specimens. The biomarker, a specific isoenzyme configuration of cervical acid phosphatase, is present in abnormal cervical cells. Visualized with the MarkPap test, the biomarker appears as intracellular red granular deposit on modified bluish Papanicolaou background (counterstaining). The biomarker is flagging dysplastic, HPV-infected, and cancerous cells, so they could hardly be missed during screening, even by low-trained personnel. Normal epithelial cells are entirely negative. With the MarkPap Research Kit, the test can be performed in doctor's offices by a nurse. The microscopic images of suspicious "red-labeled" biomarker positive cells are then captured by a digital camera and transmitted into laboratories with qualified reviewers for evaluation (MarkPap Digital). Control slides are included in the kit. **Methods:** The MarkPap test is suited for both conventional Pap smears and liquid-based Pap. Details for the technical procedure are provided in the Kit Insert. MarkPap Research Kit, MarkPap Accessories (MarkPap Solution, Control Slides) and MarkPap Digital are described and illustrated at <http://bioscon.com/markpapproducts.html>. **Results:** In a pilot study, we assembled an image acquisition module consisting of low-cost microscope and digital camera (GT Vision, Hagerstown, MD), barcode reader and image acquisition software, an image and data transferring module, and an image evaluation module. Using already processed MarkPap slides, catalogued in BioSciCon Slide Library, we proved the feasibility of the method. The quality of the images transferred to the laboratory allows evaluation to be performed. The

entire time consisting of sample acquisition, slide processing, and evaluation may not exceed 3 hours. **Conclusion:** MarkPap test, performed with customer-friendly MarkPap Research Kit, can be done by a nurse in a doctor's office and images of suspicious red-labeled cells can be captured and transmitted in the cytopathology laboratory for evaluation. With MarkPap Digital, moving cervical cancer screening into doctor offices becomes reality with unprecedented benefit for all women in the world.

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**UNRAVELING PERINATAL MENTAL ILLNESS: A POTENTIAL ROLE FOR TESTOSTERONE AND DEHYDROEPIANDROSTERONE SULFATE AS BIOMARKERS.**

C.R. Marrs, D.P. Ferraro, University of Nevada, Las Vegas, Las Vegas, NV.

**Purpose:** Perinatal psychiatric disturbances are significant medical conditions that can have tragic sequelae, yet their genesis remains undetermined. While a causative role for estradiol and progesterone has been hypothesized, empirical support is inconclusive. This study was designed to measure adrenal hormone concentrations during and after pregnancy and to determine which, if any, were associated with development of significant perinatal mental illness. **Methods:** Twenty-eight healthy primigravid women aged 21–40 years consented to participate in this study. Salivary samples for progesterone (P), estrone (E1), estradiol (E2), estriol (E3), testosterone (T), and dehydroepiandrosterone sulfate (DHEAS) were collected at 37 weeks of pregnancy and within the first 10 days postpartum and quantified by enzyme-linked immunosorbent assay. Concurrently, nine psychiatric domains were assessed using the Symptom Checklist 90R. **Results:** No negative mood symptoms were associated with P, E1, or E3 either pre- or postpartum. Negative mood symptoms were associated with T and DHEAS in the full perinatal period but with E2 post-delivery only. Decreased pre-delivery T was associated with both pre- and post-delivery psychiatric symptoms, including pre-delivery increases in phobia ( $r = -.397, p < .05$ ), psychoticism ( $r = -.424, p < .05$ ), and global severity index ( $r = -.387, p < .05$ ) and post-delivery elevations in anxiety ( $r = -.469, p < .05$ ), hostility ( $r = -.609, p < .001$ ), psychoticism ( $r = .411, p < .05$ ), obsessive-compulsive behavior ( $r = -.589, p < .01$ ), depression ( $r = -.471, p < .05$ ) and with the overall severity of postpartum symptoms ( $r = -.628, p < .001$ ). Post-delivery, increased DHEAS was significantly correlated with increased anxiety ( $r = .461, p < .05$ ), phobia ( $r = .472, p < .05$ ), paranoia ( $r = .441, p < .05$ ), psychoticism ( $r = .541, p < .01$ ), depression ( $r = .387, p < .05$ ), and global severity index ( $r = .387, p < .05$ ). Increased postpartum E2 was associated with increased paranoia ( $r = .482, p < .01$ ). **Conclusion:** These findings suggest that adrenal androgen synthesis marked by diminished late pregnancy T and elevated puerperal DHEAS may underlie perinatal mental illness. While further investigation is merited, measurement of T and DHEAS in late-stage pregnancy may prove useful as predictors of postpartum psychiatric complications.

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**BASILAR ARTERY MIGRAINE: HIGH ADRENERGIC NEUROVASCULAR AND VAGAL TONE.**

N. Mina, R. Barndt, O. Abdelmelek, J. Huang, J. Iskrou, Bethel Public Service Clinic, Downey, CA.

Our pilot studies (PS) show that high adrenergic neurovascular tone (ANVT) with high vagal tone (VT) occurs with basilar artery migraine (BAM). PS show that systolic time intervals (STI = PEP/LVET × 100%) can be used to measure ANVT levels that correlate with the severity of symptom levels (SL) of BAM and its hemodynamic findings (HF). Gastroesophageal reflux (GERD) was also found in all of the BAM PS patients. Prospective studies (ProS) were done to test PS findings and treatment. A random sample of the general population, with the clinical complaints typical of BAM, were studied. These include occipital headaches, scotomata, visual disturbances, near-syncope, and paresthesias. Serial measurements were made of: systolic time intervals (STI), systolic blood pressure (SBP), cardiac output (CO) by 2D echo, systemic vascular resistance (SVR), and symptom levels (SL) and heart rate (HR at 12 noon, peak high VT) at Time (T) before therapy (Rx) (1 year) and at T2 during Rx (1 year). The patients were 18–70 years of age, 3/1 female/male, all Caucasian. Exclusions were fibromyalgia, diabetes, hypertension, and on other drugs. Controls (C) were normal age/sex/race matched. PS criteria of STI ranges were used to predict the degree of hemodynamic abnormalities and the severity of SL of BAM and GERD (both 1–100 scale). The Rx was diltiazem CD 240–360 mg/day, methylodopa 125–500 mg/day, and amitriptyline 10–100 mg/day. All data were placed into a blind matrix for later analysis. Data were grouped by PS STI criteria (mean ± range [R]) in a double blind crossover design. ProS results: Group (G) means shown:

G	#	STI T1(R)	STI T2	SBP T1/2	CO T1/2	SVR T1/2	HR T1/2	BSL T1/2	GSL T1/2
1	50	27* (± 3)	45	102/108	2.8*/4.4	1971*/1363	58/62	90*/10	88*/12
2	50	36* (± 5)	47	108/110	3.6*/4.6	1602*/1330	60/62	62*/8	58*/8
3	50	45* (± 4)	49	110/111	4.3*/4.9	1433*/1273	61/63	31*/9	26*/6
C	100	53 (± 3)	53	112/110	5.5/5.8	1139/1062	72/70	0/0	0/0

\*Significantly different from CG at  $p < .01$  by t-test. BSL = BAM SL, GSL = GERD SL.

The severity of BAM (mild, moderate, severe) was found to correlate with the severity of STI levels (G 3, 2, 1), with an underlying high VT as shown by the heart rate of  $60 \pm 5$ . The severity of GERD was found to parallel the severity of BAM at the same levels of STI. Characteristic HF were present in BAM and GERD, consisting of high ANVT, VT, and SVR with low CO. Low blood flow (CO) with high SVR was found to be associated with high SL. Thus, Rx changed HF to C levels with a significant reduction in SL.

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**LASER-INDUCED THERMAL THERAPY FOR RECURRENT HEAD AND NECK CANCER: A COMPREHENSIVE REVIEW.**

M. Paiva, D.J. Castro, M. Bublik, J. Sercarz, University of California, Los Angeles, CA. Squamous cell carcinoma of the head and neck occurs frequently worldwide, with more than 500,000 new cases projected annually. Once recurrent after primary treatment, survival rates for head and neck cancers are very poor. Management of recurrent head and neck cancer is a seldom reported but a common clinical dilemma. Only a small subset of patients are candidates for potentially curative surgery. Chemotherapy alone provides only