Gender differences in healthcare to be the focus of a new Institute for Women’s Health Research

In an effort to provide more research on gender differences in healthcare, Northwestern University’s Feinberg School of Medicine has launched the Institute for Women’s Health Research. At the institute, cancer, autoimmune disease, anesthesia, cardiovascular disease, depression, sleeping disorders, osteoporosis, osteoarthritis and menopause are to be amongst the diverse array of issues under investigation for gender differences.

Researchers at the institute will develop guidelines for physicians concerning gender differences in treatment. They hope to offer answers to questions regarding issues such as replacement surgery: do women require a differently designed knee joint to men? Do women need to be administered anesthesia differently? Previous research has often ignored these potential differences and findings from studies of male participants have been applied universally.

Vivian Pinn, director of the Office of Research on Women’s Health for the National Institutes of Health, commented, “It’s rare to see this kind of commitment to research in women’s health. I can count the institutions on my fingers.” She added, “The issues Northwestern is working on will hopefully unlock the answers for many of these health issues. The results will have implications for the health of women worldwide. To improve women’s healthcare, it’s important to generate new knowledge.”

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One researcher to have benefited from funding awarded by the institute is Melina Kibbe, who was asked by Teresa Woodruff, executive director of the new Institute for Women’s Health Research, to include a cohort of women in her research into extending the effectiveness of vascular procedures with nitric oxide. Preliminary findings have demonstrated differential results in male and female animals. “If we actually see gender differences in our therapy when the study is complete, it may mean that we have to tailor our therapy so that it could be equally effective in both genders,” Kibbe enthused. “This could lead me down a whole new research path.”

It is also hoped that the institute will create a large pool of potential study subjects, often problematic to recruit, through the creation of the Illinois Women’s Health Registry. This will source women both from the community and from the 12,000 women who use the Prentice Women’s Hospital each year. It is aimed at promoting gender-based studies by providing a resource for scientists who do not have the opportunity to recruit their own participants.

Woodruff hopes that these provisions will be fruitful for gender studies. “We are trying to instill the premise that biological sex matters in everybody’s thought processes”, she explains, adding, “we should look at every research study with a sex and gender lens and see what applies to women as opposed to men. What are the differences between women and men that need further exploration? What does gender mean in development of disease throughout the lifespan? What is the influence of hormones? We have many questions, but we don’t have concrete answers.”

Woodruff concluded, “Our goal is to deepen the medical and research community’s understanding of women’s health. The knowledge we gain through fundamental research will be translated into improved sex- and gender-specific clinical care.”

Source: Northwestern University Press Release. Available at: www.northwestern.edu
in brief…

Kisspeptin and GPR54 immunoreactivity in a cohort of 518 patients defines favourable prognosis and clear cell subtype in ovarian carcinoma.
Prentice LM, Klausen C, Kalloger S et al. BMC Med. 5(1), 33 (2007)
Model systems have previously shown kisspeptins and their G-protein-coupled receptor, GPR54, which are required for GnRH release, to be associated with antimetastatic tumor cell behavior. In this study, researchers suggest that this hormone and its receptor together act as independent prognostic biomarkers specific for ovarian clear cell carcinoma. Results were obtained from a tissue microarray of 518 cases of early-stage ovarian carcinoma that were analyzed using antibodies for kisspeptin and GPR54.

Patients who tested positive for both kisspeptin and GPR54 had a favorable prognosis, in terms of disease-specific survival and overall survival, compared with those who were negative for kisspeptin and GPR54. Kisspeptin and GPR54 were both shown to be strongly associated with the ovarian carcinoma clear cell subtype. Kisspeptin and GPR54 are listed amongst only a small number of predictive markers for ovarian cancer and, as such, may play an important role in the future approaches to diagnoses and management of the disease. The authors of the study suggest that serum kisspeptin levels may enable disease activity to be monitored, while kisspeptins may represent a therapeutic tool in future treatment of ovarian clear cell carcinoma.

Adenovirus carrying TIMP-3: a potential tool for cervical cancer treatment
Zhang Y, Qian H, Lin C et al.: Gynecol. Oncol. (2007) (Epub ahead of print)
Previous research has indicated that an important role is played by matrix metalloproteinases in cervical cancer progression. To investigate this role, the study authors used a replication-deficient adenoviral vector carrying tissue inhibitor of matrix metalloproteinases-3 (TIMP-3), an inhibitor of all matrix metalloproteinases. The adenovirus carrying TIMP-3 (Ad–TIMP-3) was transferred into human cell lines CaSKi and HeLa in vitro and injected into tumor xenografts of nude mice in vivo. Results of the study demonstrated that overexpression of TIMP-3 caused arrested growth of the cell lines in the G(2)/M phase as well as causing potent growth inhibition bystander effects. Furthermore, the tumor inhibition that resulted from Ad–TIMP-3 in vivo was enhanced by combination with cisplatin. The researchers conclude that Ad–TIMP may have a potential role in the therapeutics of cervical cancer.

Study suggests gender bias in heart-failure treatment in UK hospitals

As the population ages and treatment of coronary heart disease improves, heart failure is likely to become an increasingly common problem. However, a recent study of UK hospitals has revealed a discrepancy in the treatment of men and women. In 2005, researchers surveyed 9387 records of patients with heart failure from 176 of 177 acute-care hospitals in England, Wales and Northern Ireland. Some elements of the survey showed positive results: the average hospital stay for these patients has shortened and management has improved. However, deaths resulting from heart failure are still high in number, with 15% of heart-failure patients dying while still in hospital.

Medical director at the British Heart Foundation, Professor Peter Weissberg, commented that urgent attention should be directed to the treatment of heart-failure patients, stating: “Many people living with heart failure are not receiving adequate assessment and optimum care. Women tend to develop heart failure later than men, which may explain why their passage through the health service is different. However, medical decisions based primarily on gender or age and not on clinical effectiveness have no place in a twentyfirst century NHS.”

In the study, women represented 50% of hospital admissions (on average, approximately 5 years older than their male counterparts), but despite this were less likely to have had echocardiography and those previously diagnosed with heart failure were less likely to be treated with ACE inhibitors, β-blockers or aldosterone antagonists. Furthermore, with the exception of diuretics, women were less likely to be prescribed antifailure medication following admission. In addition, specialist heart failure follow-up was planned for only 20% of patients, whilst less than 1% were given a referral for rehabilitation or specialist palliative care.

Professor Cowie, from Imperial College London, warns: “Symptoms in a woman need to be taken just as seriously, and treated just as aggressively as they would be in a man.”

Commenting on the state of heart-failure treatment in the UK, the authors conclude, “Whereas [heart attack], angina and arrhythmia services have clearly defined targets and have been the focus for sustained investment, heart failure still appears to be regarded as a Cinderella subspecialty, despite its ubiquitous nature.”

Source: Nicol ED, Fittal B, Roughton M, Cleland JGF, Dargie HJ, Cowie MR: NHS Heart Failure Survey – a survey of acute heart failure admissions in England, Wales and Northern Ireland. Heart (2007) (Epub ahead of print)

About the Bulletin Board
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Streamlined model may improve breast cancer risk-reduction strategies for postmenopausal women

Estrogen receptor-positive breast cancer risk-reduction strategies require screening of large numbers of postmenopausal women. The current protocol for breast cancer risk assessment, the ‘Gail model’, has proven unpopular in the clinical environment, a fact attributed by the study authors, Chlebowski et al., to its perceived complexity. A recent survey adds weight to this claim with the finding that only 11% of primary-care providers had used the Gail model in the previous year.

A total of 25% of primary-care providers had prescribed antiestrogen therapy for risk reduction, although researchers believe many more women could benefit from this treatment and that the number may be increased by the use of a simpler assessment model. In order to instigate the efficacy of a simpler model, study investigators used data from 147,916 postmenopausal women enrolled in the Women’s Health Initiative. The Gail model, as well as a more streamlined version of the model, was used to predict those most at risk from breast cancer. The variables included in the streamlined model were age, breast cancer in first-degree relatives and previous breast biopsy examination.

The cohort was observed for 5 years and the accuracy of the models was assessed by observation of predicted and actual incident breast cancer. Results of the study demonstrated that the Gail model and the streamlined model were able to predict those at risk of developing estrogen receptor-positive breast cancer at a similar level, with area under the curve values of 0.58 and 6.0, respectively.

“For the first time, a postmenopausal woman can use a simple model and determine by herself if she is at increased risk of getting breast cancer. She could then raise this issue with her healthcare provider because interventions to reduce her risk of breast cancer are now available,” concludes Chlebowski.

Source: Chlebowski RT, Anderson GL, Lane DS et al.: Predicting risk of breast cancer in postmenopausal women by hormone receptor status. J. Natl Canc. Inst. 99(22), 1695–1705 (2007).

Research suggests breast cancer risk is not related to use of statins

Previous findings have demonstrated that statins are able to inhibit the proliferation of breast cancer cells both in vitro and in vivo in rodents, suggesting that they may be effective as a preventative approach to breast cancer. However, results from some trials contradict these findings, providing evidence that statins may, in fact, increase the risk of breast cancer.

Study investigators conducted structured telephone interviews to examine cases of incident breast cancer, diagnosed between 1995 and 2001, in 4179 women aged 50 years or older, as well as 4983 age-matched controls with no history of breast cancer.

In the 6 months prior to the trial, 7% of women had been prescribed a statin, comprising 271 women who had recovered from breast cancer and 336 women from the control group. Researchers found that statin use was not associated with risk of breast cancer, including amongst those women who had used statins for 10 years or more.

Use of hydrophilic statins was linked to a nonsignificant increase of breast cancer risk, whilst treatment with lipophilic statins had no effect on the risk of breast cancer. Breast cancer risk was not affected by duration of use of either hydrophilic or lipophilic statins.

This study provides promising results concerning the risks of statins; however, researchers warn that further studies are required for confirmation of their findings.

Source: Pocobelli G, Newcomb PA, Trentham-Dietz A, Titus-Ernstoff L, Hampton JM, Egan KM: Statin use and risk of breast cancer. Cancer (2007) (Epub ahead of print).

New research indicates markers for breast cancer survival

A recent study has investigated two proteins and their role within breast cancer: ErbB4, which affects growth and differentiation of several types of body cell; and Wwox, a tumor suppressor. It is thought that these proteins may be important markers for long-term survival in some breast cancer patients.

The researchers analyzed breast cancer tissue from 556 patients for the Wwox protein, in samples that had already been assayed for the presence of ErbB4 protein by a Finnish research group, who were also involved in the study. In 36% of cancers, Wwox expression was absent, and loss of expression was associated with an unfavorable outcome. The expression of Wwox was shown to be strongly associated with both membranous location of ErbB4 and overall ErbBR expression. Compared with cases of membranous ErbB4 expression alone, coexpression of membranous ErbB4 and Wwox was associated with a more favorable outcome.

“Our findings suggest that the interaction of these two proteins is clinically important in breast cancer,” commented one of the study’s authors, Rami I Aqeilan, Research Assistant Professor of Molecular Virology, Immunology and Medical Genetics at Ohio State’s Comprehensive Cancer Center, USA. “The findings must be verified, but they suggest that we can use these proteins as clinical markers that predict better survival. Therapeutically, perhaps we can design drugs or inhibitors that interact with ErbB4 to help control the growth of these tumors.”

Source: Aqeilan RI, Donati V, Gaudio E et al.: Association of Wwox with ErbB4 in breast cancer. Cancer Res. 67(19), 9330–9336 (2007).