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DETECTION NOW, PREVENTION FOR LATER?

by Tania Elaine Schramek

Many of us have heard that a healthy diet and exercise go a long way in keeping our cholesterol levels down and cardiovascular disease at bay and that a strong association exists between stress and heart disease. What of the link between stress and cholesterol?

Our species has survived because of an evolved ability to store lipids (i.e. fats) as energy or fuel. When the body needs energy, such as in times of stress, it can break down and burn the lipids, much like the reserve gas tank in a car. A very important player in this response is the lipid cholesterol.

A recent study has shown that stressful tasks not only resulted in increased cholesterol levels at the time of testing but also predicted how high cholesterol levels would be three years later. British researchers tested a group of 199 middle-aged men and women after asking them to perform two difficult

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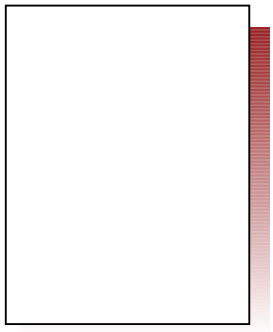

Dr. Marc Pell is passionate about communication. Appropriately, he is a member of the School of Communication Sciences and Disorders of McGill University. While most of his colleagues concern themselves with words, sentences and phrases, Dr. Pell is more interested in how things are said as opposed to what is said. In particular, he is fascinated by the important contributions that facial

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POLICY AND POLITICS
HORMONE REPLACEMENT THERAPY: WHO WILL HAVE THE FINAL WORD?

by Tania Elaine Schramek

The dos and don'ts of Hormone Replacement Therapy (HRT) are once again a hot topic in the news. HRT is typically used to replace the ovarian hormones estrogen and progesterone in women going through menopause and can contain estrogen alone (ET) or an estrogen-progestin combination (EPT), depending on the woman's situation and needs.

Many will remember the media tempest three years ago when a study conducted by the Women's Health Initiative (WHI) was terminated because EPT use was associated with increased risk for cardiovascular incidents and invasive breast cancer. Geronto-McGill published two articles on the topic; the first (March-April 2003) described the initial WHI findings, and the second (March-April 2004) pointed out some important evidence overlooked by the media in its rendering of the WHI findings.

Women and doctors alike have been struggling to find some definitive answers as recommendations have gone in both directions, some stating that HRT is too risky while others pointing out flaws in the

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An interview with Marc Pell, Ph.D., School of Communication Sciences and Disorders, McGill University

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expressions and the tone of speech make to our interpretation of what is said. These aspects of speech can influence the meaning of words and phrases. For instance, are words said angrily, happily or sadly? These cues are integral parts of language communication.

Dr. Pell is studying what happens to this form of emotional communication following stroke and during Parkinson's disease, two conditions that involve significant motor dysfunction. In the case of Parkinson's disease, patients lose their ability to control facial expression and their faces are often described as being mask-like. As we use our expressions to help convey meaning in our speech, this aspect of communication is lost or impaired in Parkinson's disease. Additionally, as a result of the motor decline associated with disease progression, these individuals cannot control voice tone in a normal fashion. The result is a monotone style of speech that is typically perceived by others as being unemotional. Accordingly, even if Parkinson's sufferers have retained their ability to speak, the meaning of what they say can be distorted or misinterpreted because their ability to apply emotional meaning to the words using facial expression and changes in tone is impaired.

This can be a source of considerable distress for both patients and their loved ones. It is very discouraging for patients to see that they are either misunderstood or simply not understood. This often results in the Parkinson's disease sufferers no longer wanting to communicate and essentially withdrawing. Since language is so incredibly important for our social interactions – indeed, society is based on communication – these individuals often feel socially isolated and disengaged from both loved ones and society. This can contribute to the development of depression. On the other hand, because communication is inexorably linked to who we are, caregivers are often distressed by the fact that their loved one's personality has seemingly changed. Rather than representing a fundamental change of personality, in many instances, it may be that patients suffering from Parkinson's disease or stroke are simply no longer able to use their voices or face to produce the familiar emotional tone that is so important for appreciation of their personality by other people.

Dr. Pell is also looking into the possibility that Parkinson's patients have a genuine cognitive impairment that results in impaired communication. Indeed, it may be that in addition to the motor deficits that produce the mask-like face and monotone speech, cognitive impairments associated with the disease impair their capacity to impart emotional meaning to their speech. Concurrent with this may be difficulties in the comprehension of such emotional meaning in the speech of others. Specifically, Dr. Pell believes that dysfunction of a brain area called the basal ganglia might be responsible for this. His lab is actively conducting research in this area with a grant from the Canadian Institutes of Health Research.

Dr. Pell hopes that recognition of the fact that these communication deficits are a genuine part of the disease will lead patients and their loved ones to adopt new communication strategies that help to circumvent the patients' difficulties in social and emotional aspects of communication. Ultimately, this should improve communication and help Parkinson's sufferers maintain their health status and quality of life.

For more information on Dr. Pell's research, visit his website at http://www.mcgill.ca/pell_lab/.

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cognitive tasks. The participants were then asked to rate the tasks in terms of how stressful they perceived them to be. Three years later, the same individuals provided the researchers with blood samples for cholesterol level comparisons.

Overall, participants rated the tasks as difficult, involving, and relatively uncontrollable and all participants showed elevated cholesterol levels immediately after the cognitive tests but some had higher levels than others. Interestingly, the high-responders also had significantly higher cholesterol levels at the three-year follow-up. Although cholesterol levels are known to increase with age, body mass index, smoking, alcohol consumption, and age, when the researchers controlled for the effects of these variables on cholesterol levels, their results held true such that the high-responders still had significantly higher levels.

Even though the increase in cholesterol levels was rather small, this stress-related mechanism may nonetheless be clinically significant. The authors point out that showing these individual differences in the acute lipid response may be highly relevant because lipid levels (cholesterol in particular) are consistently associated with future coronary heart disease. This potential to predict future cholesterol levels may encourage at-risk individuals to pay special attention to their diet and get active.

Source: *Steptoe A, Brydon L. Associations between acute lipid stress responses and fasting lipid levels 3 years later. Health Psychol. 2005 Nov;24(6):601-7.*

MONEY AND MOOD: REALITIES OF FINANCIAL STRAIN

by Tania Elaine Schramek

Trying to make ends meet is of growing concern for many. This is particularly true for older adults, many of whom are living on a fixed income. In fact, there is a considerable portion of the older population getting by on less than $25,000 a year. Undeniably, with the cost of living on the rise these days having to do so is likely rather challenging.

Also of cause to worry are the high rates of depression (1 in 18 in the US and 1 in 12 in Canada)[1], especially in individuals over the age of 50. One variable that has consistently been shown to influence the prevalence of depression is Socioeconomic Status (SES), which reflects one's income, education, and occupation. Individuals of lower SES are at increased risk for developing depression and severe depression at that.

One group of Harvard University researchers wished to see if older adults of various SES (low less than $25,000, middle $25,000-50,000, high $50,000 and up) would differ in terms of their response to combined antidepressant medication and psychotherapy, the most effective kind of treatment for depression[2].

The study revealed that individuals of modest means have a harder time recovering from depression when compared to their counterparts with a more comfortable living. The Harvard scientists further showed that individuals with lower SES scored highest in terms of symptom severity and had more thoughts of suicide than did participants from the middle and high SES groups.

Alarming results such as these bring to light the importance of furthering our understanding of the factors that render individuals of low SES less likely to respond to the best kinds of treatment out there. The authors mention that a good place to start would be to look at the impact of life stress, social support, type of neighborhood, and race/ethnic income inequalities on the clinical outcomes of individuals of lower SES. Ultimately, pinpointing key factors will help in the development of more effective treatments for depression.

Source : *1. http://www.nimh.nih.gov/*
2. Cohen A, Houck PR, Szanto K, Dew MA, Gilman SE, Reynolds CF 3rd. (2006) Social inequalities in response to antidepressant treatment in older adults.
Arch Gen Psychiatry. Jan;63(1):50-6.

BONES AND BLOOD HELP HEADS: HOW BONE MARROW DERIVED CELLS CLEAN UP THE DEBRIS IN AN ANIMAL MODEL OF ALZHEIMER'S DISEASE

by Daniel Auld

In Alzheimer's disease (AD), the brain fills with senile plaques, which are deposits of an abnormal protein called beta-amyloid peptide. These islands of beta-amyloid correlate with the progression of AD, such that more deposits represent a more advanced disease. One interesting feature of senile plaques is that they are invariably surrounded by the immune cells of the brain, namely microglial cells. There has been controversy among scientists as to whether these cells are doing something desirable (e.g., 'eating' the plaques or helping nearby nerve cells to survive) or whether they are cause for concern (e.g., releasing toxic substances). New research from Alain Simard, Serge Rivest and their colleagues at the Université Laval, in Québec, shows that the microglia are doing something desirable and those that are most important seem to originally come from the bone marrow. The researchers used mice that have two mutated genes that are found in cases of early-onset human AD, thus ensuring that their brains look remarkably like they have AD, including the presence of beta-amyloid -containing senile plaques. Next, they showed that most microglia associated with senile plaques were once monocytes – a type of white blood cell – that came from the bone marrow. Amazingly, when the mice were manipulated so that they did not have this kind of cell, there was an increase in the number of senile plaques in the brain. Thus, these microglial cells are important for eliminating or preventing formation of senile plaques and are helpful for maintaining brain health in the face of AD. The scientists hope that their findings will stimulate research into potential therapies for AD designed to give this kind of microglial cell a boost.

Source : *AR Simard, D. Soulet, G. Gowing, JP Julien and S Rivest (2006) Bone Marrow-Derived Microglia Play a Critical Role in Restricting Senile Plaque Formation in Alzheimer's Disease Neuron 49, 489–502.*

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WHI study thus leaving the question open for debate.

In Canada, the average age of menopause is 51 and estimates suggest that by the year 2026, 22% of the Canadian population will be made up of women in their menopausal years. As it stands now, 5.5 million women in Canada are over the age of 50. Given that menopause is a universal phenomenon that no woman can avoid, and that improved diets, lifestyles, and medical care means that most women will live well into their postmenopausal years, determining the safety of treatments aimed at managing symptoms associated with menopause is timely and according to some, imperative.

Fittingly, in February 2006, the Society of Obstetricians and Gynaecologists of Canada (SOGC) released a Consensus Report on the prescription of HRT. A panel of experts including endocrinologists, gynaecologists, public health and family physicians, a cardiologist and a psychiatrist, reviewed all the pertinent evidence related to HRT published in peer-reviewed scientific journals and developed a list of guidelines for physicians.

So, what do the latest findings suggest? The SOGC states that physicians can safely prescribe the lowest effective therapeutic dose of HRT to manage moderate to severe menopausal symptoms.

Back to Basics

What is menopause? Menopause in reality is not the absence of menstruation but rather the loss of ovarian function. Thus, a woman who has had hysterectomy is not considered menopausal as long as she continues to have ovarian activity.

Leading up to menopause, during what is known as Perimenopause, a woman's body begins to produce smaller amounts of the hormones estrogen and progesterone. With these fluctuating hormone levels women typically first notice changes in bleeding patterns (lighter or heavier) and changes in menstrual cycle duration (closer or farther or even missed periods). The onset of perimenopause can begin anywhere between the ages of 39 and 51 with the average age being 45.1 years and women can be perimenopausal for two to eight years.

The perimenopausal period is characterized by a range of symptoms, each experienced to varying degrees in different women. Approximately 75% of women experience hot flashes because estrogen affects the amount of blood that flows to brain areas that control temperature; lower estrogen means a smaller temperature range where women feel comfortable. Lower estrogen levels can also cause a thinning of the tissues that line the bladder and urinary tract, resulting in loss of bladder control and increased susceptibility for urinary tract infections. Other symptoms of declining estrogen levels include decreased vaginal lubrication and blood flow to the sexual organs, sleep disturbances, mood swings, irritability, and in some, decreased concentration and memory. Estrogen also helps maintain the collagen supporting structure of skin, thus lower estrogen levels can also result in increased wrinkling.

Menopause is "reached" when a woman has not had a menstrual period for 12 consecutive months. After this, the Postmenopausal period begins in which additional long-term age-related health considerations (e.g. osteoporosis and cardiovascular disease) become of importance and is, according to the SOGC, generally a good time for a woman to evaluate her overall health and lifestyle choices.

The SOGC Consensus Report

After a brief introduction describing the impetus for the 2006 document, the report is divided into five pillars, 1) Lifestyle and Wellness, 2) Symptomatic Treatment, 3) Urogenital/Sexual Health, 4) Cancer, and 5) Osteoporosis Treatment. Within each of the pillars, the reader is provided clear and simple definitions of the important terms and is informed of the latest research and medical findings with respect to these terms. At the end of each pillar the reader can find the Society's recommendations. One particularly refreshing aspect of the Consensus Report is the attention paid to the importance of emotional and psychological well-being throughout the menopause experience. This is aptly mingled in with the medical concerns

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surrounding the effects of decreased estrogen and progesterone levels.

The lifestyle and wellness pillar addresses issues surrounding diet, exercise, weight gain, stress, smoking, alcohol, and caffeine consumption and their respective impacts on quality of life, and on physical and emotional health. For instance, the Society recommends diets that are rich in plant-based foods, low in saturated fat and trans-fatty acids, high in dietary fiber, accompanied by six to eight glasses of water per day.

What will surely be of great interest to many women and their doctors are the Cancer and Osteoporosis Treatment pillars. The two cancers of primary concern to women wishing to take HRT are endometrial and breast cancer. Some evidence indicates that estrogen replacement therapy (ERT) increases the risk of endometrial cancer, thus progestins or progesterone should be added to an ERT regimen to reduce this risk. The SOGC recommends that women with a past history of early stage (stage I), low grade (grade 1 or 2) endometrial cancer may take HRT to control distressing symptoms.

Even though the WHI study found an increased risk of breast cancer after five years of HRT treatment, the Society wished to point out that HRT does not significantly increase the usual risk of getting breast cancer. Recall that the average age of the women in the WHI study was 63.2 years, which is significant given that the incidence of breast cancer increases with age, typically after the age of 60.

The Report explains that if a woman lives to be 85, then she will have a one in nine chance of developing breast cancer. "The greatest single risk factor for breast cancer, after gender and advancing age, is the presence of two or more affected first order relatives. There are a number of commonly experienced risks, including being 20 per cent overweight, delaying childbirth until 30 or older, consuming two glasses of alcohol daily and lack of regular exercise. Long-term use of HRT is of comparable magnitude to this group of risk factors".

With respect to osteoporosis, the SOCG stated that HRT is a reasonable choice for the prevention of bone loss and fracture. Peak bone mass is typically reached at the age of 20. After 35, bone density starts to decline. Women can lose three to five per cent of their bone mass each year and some may lose up to 30 per cent of their total bone mass during the years following menopause, leading to postmenopausal osteoporosis (weak, thin bones). "Weaker bones are more susceptible to fracture, primarily in the hips, wrists and vertebrae, which can lead to disability, pain, deformity and even death".

Dr. Barbara Sherwin, who has spent much of her career studying the mechanisms by which hormones influence memory and mood in humans at McGill University's department of Psychology, told Geronto-McGill that she supported the views and recommendations put forth by the SOCG with the exception of HRT being used as an effective treatment for depression.

A recurring theme in the 2006 Consensus Report was that of women and their doctors openly discussing risk/benefit profiles and clearly defining their motivations for HRT use and the quality of life they wish to achieve throughout their treatment regimens. Most importantly, the Society recommends that women undergo yearly reassessments and reviews to ensure that their benefits continue to outweigh any possible risks associated with extended HRT use. Finally, the Society urged doctors not to prescribe HRT for the prevention of heart disease or dementia but rather as a way to medically manage the symptoms of menopause. In doing so, the Society feels that doctors would be safely helping women through the ups and downs of menopause.

For more information and a detailed resume of the Consensus Report see www.sogc.org and/or http://www.sogc.org/health/menopause_e.asp

Source:

http://www.sogc.org/health/menopause_e.asp
The Journalist's Menopause Handbook: A companion guide to the Society of Obstetricians and Gynaecologists of Canada Menopause Consensus Report.

SCIENCE HERE AND NOW

CHANGING YOUR EATING HABITS COULD REDUCE YOUR RISK FOR CANCER: DR. RICHARD BÉLIVEAU

by Daniel Auld

Dr. Richard Béliveau, who is a professor at the Université du Québec à Montréal and Director of the Laboratory of Molecular Medicine at Hôpital Sainte-Justine, has a keen interest in what we eat. But rather than concerning himself with *haute cuisine*, Dr. Béliveau's passion is one of a nutriceutical nature. In a nutshell, the term nutriceutical refers to a compound found within food that has a beneficial effect on health or can counter a disease. More specifically, Dr. Béliveau is interested in the beneficial effects of nutriceuticals that may be useful in the prevention or treatment of cancers.

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One of his most famous studies was published in 2002 with two colleagues, Sylvie Lamy and Denis Gingras. There, they demonstrated that a certain class of chemical found in green tea, termed catechins, inhibits the action of a protein that is essential for the development of a tumour's blood supply. Indeed, catechins inhibit the so-called vasculature epidermal growth factor (VEGF) receptor, which is critically important for the growth of blood vessels that supply tumours. Catechins prevented the growth of new blood vessels into tumour tissue. Without this blood supply, tumour growth is prevented. These experimental findings support the large epidemiological literature showing that the frequency of many cancers is lower in China and Japan, where people consume large quantities of green tea.

His team has since gone on to show that nutriceuticals found in many fruits and nuts may be similarly beneficial. For instance, ellagic acid, which is found in strawberries, inhibits the VEGF receptor and a similar protein termed the PDGF receptor, which is also important for the vascularization of tumours. In addition, a chemical found in blueberries, called anthocyanin, can also inhibit the growth of tumour blood supply. Other beneficial compounds are found in a variety of other fruits, nuts, vegetables and spices. Notably, Dr. Béliveau's work team has found garlic, red grapes, broccoli, soya and the spice turmeric to contain beneficial nutriceuticals.

Dr. Béliveau's research tells us that by choosing to eat a variety of fruits and vegetables, and maybe enjoying a cup or two of green tea and a meal spiced with turmeric, we will increase our consumption of anticancer nutriceuticals and hopefully lower the risk of certain types of cancer.

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