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- Abstract section –

Proton Magnetic Resonance Spectroscopy of the Brain in Patients with MS undergoing Treatment with Beta-interferon

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In vivo proton magnetic resonance spectroscopy (MRS) has been used to assess biochemical changes which occur in demyelating lesions in white matter of patients with MS. Typical changes has been shown in the plaques of the brain in MS patients, as well as in normal appearing white matter (NAWM) of patients. However, very few studies have been done, using proton-MRS as a tool for detecting treatment-effects in-patients undergoing betainterferon-treatment. Up to date, no further published study is known to us in this specific field, than a study by Sarchielli, showing a significant rise in choline (Cho) after treatment with beta-interferon, although many studies have been published using MRI/ or MTR as a tool for evaluating the effects of betainterferon-treatment.

The aim of this study was to assess if there is a significant difference in the metabolite concentrations in the white matter of the brain of MS patients undergoing treatment with beta-interferon, compared with controls, and to see if treatment effects can be seen by using proton-MRS.

Our study was performed on 13 patients with clinically definite MS (CDMS), before and after starting the treatment with beta-interferon. Comparison was performed with controls, age- and sex-matched. Proton-MRS was used and absolute metabolite concentrations were determined using LC model fitting software and statistically analysed, using Statview Student for Macintosh, and Minitab statistical program.

The study confirms predicted significant differences in metabolites, in patients vs. controls, as increases of Creatine (Cr), myo-Inositol (mIns) in patients compared with controls and decreases of N-acetyl-aspartate (NAA), N-acetyl-aspartyl-glutamate (NAAG) in patients compared with controls. Some findings of the study remains to elucidate, as found in the patients after their second proton-MRS examination, which supports the trend that was found in the unique report that exist in this field of research, that is, the trend of increased choline (Cho).

Some of our findings confirm previous described differences in the regional distribution of metabolites in the brain of MS patients, compared to controls. Some findings are new, and still remain to be explained in further follow-up studies, as well as some trends that were not significant.

Key words: proton magnetic resonance spectroscopy, normal-appearing white matter, multiple sclerosis, beta-interferon

Patients with Atrial Fibrillation - Description of a Patient Population Treated during 1997 at Linköping University Hospital

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Atrial fibrillation (AF) is a very common arrhythmia and mostly these patients need some form of treatment. It causes significant morbidity and to a certain extent also mortality. The aims of treatment are often unclear: Regulation of heart rate, preserved/regained sinus rhythm and/or prophylaxis against thrombembolic events. Our study focused on patients diagnosed with and treated for atrial fibrillation at Linköping University hospital during 1997.

The investigation was intended as a descriptive study of the present situation as to treatment and routines for patients with atrial fibrillation.

468 patients out of a total of 476 were included in the study, 196 women and 272 men. The mean age was 69 +/-13 years (15-94). The atrial fibrillation was classified according to the situation at the first visit in 1997, in case of repeated visits.

85 patients had not previously been diagnosed with atrial fibrillation, whereas in 383 patients AF had been previously diagnosed. In the whole population classification was as follows: 56 patients were diagnosed as having chronic permanent AF, 297 chronic persisting AF and 100 chronic permanent AF (15 patients were not classified). 297 patients were treated in hospital, the average time spent in hospital being 3,7 days (1-35), and 191 patients were treated as outpatients. At the time of discharge, 171 patients (37%) were treated with digitalis, 101 (22%) with beta-blockers, 90 (19%) with calcium channel blockers, 165 (35%) with Sotalol, 51 (11 %) with a class I antiarrhythmic drug, 15 patients (3%) with Amiodarone and 104 (22%) with ACE-inhibitors. Additionally, the relations between age, risk factors for stroke, and treatment with warfarin and salicylic acid (ASA) were evaluated.

Patients diagnosed with atrial fibrillation were investigated. The average age was high; 55% were older than 70 years. Chronic persisting AF was present in 64% of the patients who therefore had a potential to regain sinus rhythm. A high proportion of the patients was treated with digitalis (37% of the whole material), while drugs with well-documented antiarrhythmic effects were used in 49%. Warfarin was given to only 36% of the patients with at least one risk factor for stroke.

Key words: atrial fibrillation, drug therapy, inpatients

Outcome of Bilateral Groin Hernia Surgery - A Prospective Evaluation of 1487 Patients

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Groin hernia repair is among the most frequently performed operations in general surgery. However, the perfect surgical approach for the treatment of bilateral groin hernias has not yet been defined.

The aim of the study was to evaluate outcome of open versus laparoscopic techniques in bilateral groin hernia surgery.

1487 patients with bilateral groin hernias, i. e. 2974 hernias, were included in the Swedish Hernia Register between 1992 and 1999. 1774 of these were repaired laparoscopically and the remaining 1200 were repaired with an open technique. As a reference, 33 416 patients with unilateral groin hernias were also included in the study. In the latter group laparoscopic repair was carried out in 3 285 patients.

The reoperation rate for recurrence and the rate of complications did not differ between the bilateral and unilateral repair or between the open vs. laparoscopic group. In bilateral hernias, medial hernias were more frequent, and the rate of day surgery lower, than unilateral hernias. The median operating time for both open and laparoscopic surgery was 40 minutes per groin (15-225 minutes). The laparoscopic technique was the dominating surgical method of bilateral hernias.

Bilateral groin hernias may be repaired simultaneously, with either open or laparoscopic technique, without differences in rate of complications or reoperation for recurrence.

Key words: groin hernia repair, surgery, surgical techniques, open surgery, laparoscopic surgery

Inter-Rater and Test-Retest Reliability of SOLEC in Athletes Aged 15- 35

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Balance is a complex skill where the central nervous system and the musculo-skeletal system work together to maintain balance. If the lower extremity is injured, for example the anterior cruciate ligament of the knee or, if the ankle is sprained it will affect the proprioception and thus also the balance. This type of trauma is common among athletes and the decreased proprioception may lead to repeated injuries. To be able to prevent injuries in athletes and also evaluate the result of rehabilitation after trauma it is important to have reliable tests for measuring balance.

The aim of this study is to evaluate if SOLEC (Standing on One Leg with Eyes Closed) has satisfactory inter-rater and test- retest reliability.

The material consisted of 31 subjects aged 15- 31 who were active either in football, indoor bandy or handball. The reliability was calculated on the best attempt, the first attempt and the mean of three attempts.

The results showed that SOLEC, according to the ICC- value, had a very good inter-rater reliability. The values extend over 0,999 to 1,0. The test- retest reliability proved to be fair to very good according to the ICC- value, extending from 0,472 to 0,867. The highest reliability was found in the best attempt of three. The fact that the test-retest reliability proved to be lower than the inter-rater reliability could probably partly be explained by learning. SOLEC is suitable for evaluation of balance in physiotherapy and in above-mentioned sports as it is both easy to use and does not take much time in account.

Key words: reliability, equilibrium, proprioception, SOLEC, physical therapy, athletic injuries

The Perspective of Caregivers on Dementia Investigation, Education of Caregivers and Everyday Life

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Dementia diseases are severe chronic diseases leading to decreased independence in individuals. The most common types of dementia are Alzheimer's disease and vascular dementia. They are characterised by several symptoms. Memory impairments, reduced power of speech and other cognitive disorders are the most salient ones. The disease affects even the caregivers to a great extent. The occupational therapist has an important role in the care of persons with dementia and their caregivers.

The aim of this study was to describe how caregivers of persons with dementia experience the dementia investigation and education of caregivers, and how the disease affects their everyday life. The method used in this study is qualitative interviews with caregivers. The method of processing the data was inspired by the qualitative method phenomenography.

The results describe five categories that emerged on analysing the interviews: knowledge about dementia diseases before diagnosis, expectations of and contact with the dementia team experiences from the dementia investigation, the importance of the education of caregivers, and daily life for caregivers. The study showed that there was poor knowledge of dementia before diagnosis and medical personnel discovered the dementia symptoms when seeking for other medical problems. The experiences of the dementia investigation were mostly positive. The caregivers experienced their everyday life as hard. They felt tied down, stressed and filled with guilt, even though most of them had some kind of relief. More support is needed.

Key words: dementia, caregivers, investigation, occupational therapy, everyday life

Health-related Quality of Life in Women with Osteoporotic Fracture

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Tutor: Faresjö T, PhD, ass prof, Dept of Medicine and Care, Faculty of Health Sciences, Linköpings universitet, Sweden

Osteoporosis is a common condition characterised by decreased bone mass and increased fracture risk. The most common osteoporosis related fractures in women comprise vertebral compression fractures and fractures of the distal radius, proximal humerus and hip fractures.

The purpose of this study was to examine health-related quality of life (HRQOL) after fractures related to osteoporosis, and compared with age- and gender matched general normative population.

The study included N=303 women, 55-75 years, with new osteoporosis-related fracture of the radius, humerus, vertebral and hip, without present osteoporosis treatment. Quality of life was measured using the SF-36 questionnaire.

The fracture subjects were significantly worse in the HRQOL than the general normative population on all SF-36 domains: physical functioning, role physical and emotional, bodily pain, social functioning and vitality. General health and mental health was not different to norm data. Hip or vertebral fracture, short duration (<83d) after fracture or many previous fractures predicted more severely reduced HRQOL, but also after fractures of humerus and distal radius an in examination more than 83d after fracture HRQOL was significantly lower than norm data.

The results of his study confirm the decreased health-related quality of life in patients with vertebral and hip fractures. Furthermore we found impaired HRQOL after fractures in humerus and distal radius, also 3-6 months after fracture. HRQOL should be taken into account when evaluating the burden on health and the effect of treatment strategies.

Key words: osteoporosis, fracture, health-related quality of life, SF-36, nursing.

Needs and Demands for the School Health Nurse and Perceptions of Her Availability in Primary School

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The school nurse has an important role in the school environment. She works from the pupil's perspective and individual needs, with the aim of increasing the pupil's health and strengthening their possibility of self-care and prevention. The school nurse starts from the pupil's own resources and ability. The School Health Services follows a general health program, but the pupils have possibility also to put forward their own individual needs in the field of health.

In this study, altogether N=222 pupils from level six and eight in the primary school participated. They answered a questionnaire about needs and demands for the school health nurse and their perception of her availability in their primary school.

The results showed that the pupil's are fully aware of when the school nurse is attending and working at their school. They demanded here to be in the primary school every day, from Monday to Friday, which is never the case today. The pupil's wanted that the school nurse also might give lectures in the school, for example concerning sex instructions and human and social relations. The pupils reported that their confidence was higher for the school nurse than their ordinary teachers it come to this type of topics. The vast majority of the pupil thought that the school nurse was listening to them when they put forward problems and that they felt her support.

The conclusion in this study is that the school nurse is an important adult in the school environment and that she needs more time for her work with the pupil's than the present situation.

Key words: school health service, pupil, health, quality assurance, empowerment.

Tobacco Use, Attitudes and Tobacco Prevention Put into Practice among Registered Nurses in Sweden, 1998 - A Comparative Study between Nurses in Hospital Care and Primary Health Care

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Health professionals play an important role in tobacco prevention. They serve as role models, coaches and support their patients.

The aim of the present study was to describe tobacco use among registered nurses, their attitudes to tobacco use and preventive work. A further aim was to investigate the level of involvement in tobacco preventive work and to compare the results between registered nurses working in hospitals with those in primary health care.

This national survey which was carried out in 1998 is based on a random sample of 4 348 out of a total of 79 653 nurses in Sweden. Registered female nurses on active duty working more than half-time, in non-administrative service in 1998 were eligible for the study. The results were based on answers from 3 638 nurses (response rate 84%).

The prevalence of daily smoking among registered nurses was 12% in hospital care and 7% in primary health care. The prevalence of occasional smoking was 9% in both groups. Nurses in primary health care were most active in tobacco prevention; non-smoking nurses were particularly active. Large increases of prices for cigarettes and special tax on tobacco were actions nursing staff thought were very positive. Fifty-eight percent of hospitals nurses and 91% in primary health care have had the opportunity to talk to patients about tobacco. Thirty-one percent of the nurses in hospitals and 45% of nurses in primary health care believed they had enough knowledge to give patients advice about stopping smoking. Fewer nurses in hospital care (42%) compared to primary health care (68%) assigned tobacco prevention as high priority. Thirteen percent of nurses in hospital care informed their patients about the health consequences of smoking at least once a week compared to 41% of the primary health care nurses. Eighteen percent of hospital care nurses reported that they had initiated active smoking cessation at least once a month and corresponding proportion primary health care nurses was 46%. More than 20% of the nurses had received training in tobacco-issues during their education. After completion of this training, 13% in hospital care and 58% in primary health care have had education in tobacco-issues. Nurses' own smoking has been reduced by half during the 1990's.

In conclusion this first national survey strengthen the belief that nurses have great possibilities to carry out tobacco preventive work. The large difference between hospital and primary care is not justified and should be reduced.

Key words: attitudes, registered nurse, hospital care - primary health care, tobacco use

Salivary Gland Tumours in Östergötland, Jönköping, and Kalmar Counties, Sweden, between 1997 and 1999 - An Epidemiological Study

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Although salivary tumours are relatively uncommon, they are nevertheless interesting from the point of view of tumour biology. Epidemiological data on patients with salivary tumours in the south-east region of Sweden between 1997 and 1999 were compiled with the help of the databases in the Ear, Nose, and Throat clinic and the cancer register. We studied the number and type of salivary tumours, the location of the tumour, and the patients' gender. In addition, the 5-year survival rate for malignant salivary tumours registered between 1990 and 1995 in the south-east region was studied.

During these 3 years, 194 salivary tumours were registered. These originated in the parotid glands [148 patients (76.3%)], the submandibular gland [24 patients (12.4%)], the sublingual gland [2 patients (1%)], and the small salivary glands in the oral cavity [20 patients (10.3%)]. Of these tumours, 84.5% were benign and 15.5% malignant. The benign salivary tumours were usually pleomorphic adenomas (62.6%) and the most common location was in the parotid gland (72.5%).

Malignant salivary tumours were most common in men ($p < 0.05$). The most common malignant tumour was mucoepidermoid cancer (33.3%), which occurred in 60% of women, followed by adenocarcinoma (30%), which occurs only in men and solely in the parotid gland. Survival after 5 years was best in women with mucoepidermoid cancer (70%) and in men with adenoid cystic cancer (80%). This study found malignant salivary tumours to be most common in men. In women, mucoepidermoid cancer and in men, adenocarcinoma are the most common forms of tumours.

Key words: salivary gland neoplasms, epidemiology, gender

Association of Breast Cancer Progression with a Vitamin D Receptor Gene Polymorphism

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The vitamin D3 receptor gene (*VDR*) contains a *TaqI* restriction fragment length polymorphism (RFLP) that is associated with increased *VDR* mRNA stability, increased serum levels of 1 α ,25-dihydroxyvitamin D3 (1,25-D3), and decreased risk for prostate cancer.

Determination of the *TaqI* genotype, in a group of young women with breast cancer ($n = 111$; age, <37 years) and a control population ($n = 130$), revealed no overall association to risk for breast cancer. However, patients without *TaqI* site (*TT* genotype) showed a significantly increased risk for lymph node metastasis (relative risk, 1.8, 95% confidence interval, 1.3-2.6). Furthermore, a tendency toward an increased survival was found among estrogen receptor-positive, tamoxifen-treated patients who were homozygous for the *TaqI* site ($P = 0.075$).

We conclude that polymorphism in the *VDR* gene may influence tumour progression and tamoxifen treatment response in early-onset breast carcinomas.

Key words: breast cancer, polymorphism, vitamin D

Expression of TNF-alfa and Thioredoxin in Pigmentary Tumours of the Skin

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Malignant melanoma (MM) is one of the fastest rising malignancies in Caucasians all over the world. The ethiology of MM is not fully understood and today the only exogen factor known to cause MM is sun radiation. Cytokines are involved in the regulation of cell proliferation, and it has been proposed that they play a role in the complex development of MM. The role of the cytokine TNF-alfa in malignant transformation of nevi has not been clarified.

In this pilot study our intention was to investigate the expression of TNF-alfa and thioredoxin in pigmentary tumours of the skin.

Immunohistochemical staining was performed on 4 benign pigment nevi, 2 benign pigment nevi with lentiginous changes, 10 dysplastic nevi, 2 malignant melanomas, 2 benign nevi with regressive changes and 2 spindle cell nevi. We used monoclonal antibodies with high specificity and all slides were done at the same time. Evaluation was done by 3-4 observers and consensus was reached. The slides were evaluated as positive or negative. Tedious tests were made to find the optimal concentration of the TNF-alfa antibody.

Of totally 22 tumours 20 were positive for TNF-alfa and 2 were inconclusive. Among these we found 4 tumours which were strongly positive, three of them were dysplastic nevi. We found 4 weakly positive tumours, all benign lesions. Both melanomas tested were positive for TNF-alfa. A total of 22 tumours were stained for thioredoxin, 11 were positive, 8 negative and 3 were inconclusive. The two MM tested were both thioredoxin negative.

Key words: skin neoplasms, melanoma, tumor necrosis factor

Abnormal Expression of 17 β -hydroxysteroid dehydrogenases in Primary Breast Cancer Predicts Late Recurrence

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The 17 β -hydroxysteroid dehydrogenase (17 β -HSD) enzymes are involved in the interconversion of biologically active and inactive sex steroids and are considered to play a critical role in the in situ metabolism of estrogen, especially in estrogen dependent breast cancer. The gene encoding 17 β -HSD type 2 is located at 16q24.1-2 and earlier studies have shown that allelic loss in this region is an early and frequent event in breast cancer progression. Recurrence of hormone dependent breast cancer frequently occurs several years after the primary treatment.

The aim of this study was to investigate whether the expression of 17 β -HSD types 1 and 2 differ in tumors from patients with late relapses (>5 years) compared to controls without recurrence after long-term follow-up.

Using real-time RT-PCR we found that the normal mammary gland expressed both 17 β -HSD type 1 and type 2, whereas the tumors frequently lacked detectable levels of type 2. Only 10% of the ER-positive tumors expressed type 2 whereas 31% of the ER-negative tumors did so ($p=0.031$). In a case-control series of 84 patients, a high level of 17 β -HSD type 1 indicated increased risk to develop late relapse of breast cancer (odds ratio, 3.0; 95% CI, 1.0-12.6; $p=0.041$), whereas retained expression of type 2 indicated a lower risk (OR, 0.25; 95% CI, 0.05-1.2; $p=0.050$). In multivariate analysis comprising the ER-positive patients, the absence of 17 β -HSD type 2 combined with a high expression of type 1 showed prognostic significance ($p=0.016$) in addition to DNA aneuploidy ($p=0.0058$), whereas progesterone receptor status did not ($p=0.71$).

These findings suggest that abnormal expression of 17 β -HSD isoforms has prognostic significance in breast cancer and also that altered expression of these enzymes may have importance in breast cancer progression.

Key words: breast neoplasms, recurrence, enzymes

Effect Evaluation of an Anti-smoking Campaign Using a Provocative Message Targeting Adults

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In order to reduce tobacco use and increase the number of smoke-free environments in the municipality of Kinda in Sweden, an anti-smoking campaign was started in 1997. One of the methods was to deliver 1400 campaign-shirts with a provocative message to the inhabitants. Ten people were educated to help those smokers who wished to stop smoking.

The purpose of this investigation was to evaluate the effects of the campaign; that is changes in smoking habits and the use of smoke-free rooms in the three target groups is all those employed at the local government office, the nursing home and the paper-mill. Other variables evaluated were the attention paid to the campaign and the attitudes towards the intervention strategy by the participants.

413 questionnaires were delivered to the participants aged between 16-64 years of age. The percentage of replies was 79 before the start of the campaign, 57 four months later and 54 after a further seven months. Three people in each target group were interviewed before, after and about one year after the start of the campaign. The leader of the project and the persons helping smokers to stop, were also interviewed.

The evaluation showed that the number of smokers decreased from 35 percent to 27 percent four months after the start of the campaign. This percentage had still not altered after another seven months. In the paper-mill the number of smoke-free rooms had increased.

91 percent of the participants received a campaign-shirt. Half of the participants from the paper-mill and the local government office and one third of the participants from the nursing home wore the shirt during the campaign. The provocative message of the shirt created discussion and strong emotional reaction among the participants. Two of the persons helping smokers to stop started non-smoking groups. Using provocative anti-smoking messages in health communication campaigns needs more evaluation in the future.

Keywords: adults, attitudes, effect evaluation, health communication campaign, tobacco prevention

The Activity of Glutathioneperoxidase in Human Plasma Before and After Intake of Dietary Lycopene - An Intervention Study

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During recent years, a number of studies have investigated the biological effects of lycopene, a carotenoid. Besides from having an antioxidative effect, the carotenoid lycopene has also been found to be related to a decreased oxidations of lipids, inhibition of proliferation of human cancer cells, protection of DNA strand breaks and activation of antioxidative enzymes.

The purpose of this study was to find out whether an increased intake of dietary lycopene (tomatopuree), would correlate to an increased activity of the antioxidative enzyme glutathione peroxidase (GPx).

Eight subjects (5 women and 3 men) were included in the study. After six days of tomatofree diet, the normal diet was supplemented with 50 g tomatopuree and 10 ml virgin olive oil per day in eight days. This was ingested along with the evening meal. Before and during the period of ingestion, blood samples were drawn. Serum lycopene was extracted and measured by high performance liquid chromatography (HPLC) and the activity of glutathione peroxidase was analysed by a fluorescence-based technique.

Three days from start of ingestion, the plasma levels of lycopene was significantly raised, $p=0.03$. After five days of ingestion, the plasma levels of lycopene reached the highest level in this study ($0.29 \pm 0.2 \mu\text{M}$ before ingestion, $0.60 \pm 0.2 \mu\text{M}$ after five days of ingestion, $p=0.009$) and at that time the activity of glutathione peroxidase was measured. There was no significant difference in the GPx activity before and after five days of ingestion.

In conclusion, the plasma levels of lycopene significantly raised after 3 days of ingestion of tomatopuree. No correlation was found between an elevated plasma level of lycopene and an increased activity of GPx.

Key words: tomatoes, antioxidants, diet