SP0150 FUNCTIONAL REHABILITATION FOR THE RELIEF OF COMPLEX PERSISTENT PAIN

C. McCabe. Royal National Hospital for Rheumatic Diseases, Royal United Hospitals Nhs Foundation Trust, Bath, UK

Persistent pain, by definition, is a long-term condition that cannot be resolved by available medical or other treatments. Historically, the focus for pain and rehabilitation specialities has been on management, to improve quality of life and function in the presence of pain. However, most patients seek pain relief.

Research by the Bath Pain group, and other published literature indicates that people make hypotheses about bodily feelings based on prior performance and the current environment. This is an active process. Pain related adaptations to the sensory and motor systems ensure we act to minimise potential threats. These adaptations impact on bodily feelings and modify autonomic and limbic systems. The degree of adaptation can be minor and brief, or significant and persistent. Where adaptive mechanisms continue to engage beyond what is deemed as useful, this can be considered hyper-adaptive.

I will present clinical evidence of pain related hyper-adaptations that people with persistent pain describe in clinic. For example, perceived changes in the painful limb, ownership, temperature, and size, as well as feelings of peculiarity, discomfort, pain, and altered movement trajectory when motor output does not match expected sensory feedback. People with Rheumatoid Arthritis, Fibromyalgia, Complex Regional Pain Syndrome, or after limb fracture all describe altered body perceptions. Individuals may, for example, perceive a painful hand (and an object held within it), as excessively heavy and enlarged (when in reality it is not), report clumsiness, and difficulty moving the hand due to a perceived inability to 'engage' with it. We have described visual neglect and emotional changes about the painful limb, and consequent impacts on motor and autonomic function.

The sensory system encodes the characteristics and location of stimuli and determines if these are harmful or innocuous. This process is impaired in a painful body part. The ability to determine the texture or temperature of materials applied to the painful skin is commonly lost; or non-painful stimuli, such as light touch, are perceived as painful (allodynia).

This session will describe work that has focused on aiming to increase our understanding of the pain-related adaptations in sensorimotor processing and associated behaviours, in order to design interventions that help to redefine this hyper-adaptive response, essentially broadening sensorimotor function, and relieving persistent pain.

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Osteoarthritis: a vascular disease

SP0151 DOES IMAGING SUPPORT THE VASCULAR NATURE OF OSTEOARTHRITIS?

P.G. Conaghan. Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds, Leeds, UK

There are a number of ways in which vascular disease may contribute to either the initiation or structural progression of osteoarthritis (OA). We should keep in mind that atherosclerotic vascular disease, like OA, occurs with increasing frequency as people age and consequently understanding their inter-relationship and any potential causal relationship is difficult. Of interest is the suggested epidemiological links between cardiovascular mortality and OA, though again this is difficult to discern the casual part of the relationship. Links between vascular disease and osteoarthritis may of course be mediated through a common disease association, obesity. One hypothesis is that osteoarthritis is a differentiation disorder involving altered lipid metabolism.

It should also be remembered that articular cartilage is avascular, and it receives much of its nutrition from the subchondral bone or synovial fluid. Vascular disease in the subchondral bone may accelerate structural progression through alterations in cartilage nutrition or through direct ischaemic effects on bone. Imaging plays a key role in hypotheses about vascular involvement in OA, since it is commonly used for diagnosis and assessing progression. It has been suggested that the MRI subchondral bone changes typical of OA (termed bone marrow lesions) are similar to those seen in avascular necrosis, especially in the hip.

How might vascular changes effect OA? Certainly OA structural changes have been proposed because of secondary vascular changes in the high-pressure subchondral bone environment. These have been described in terms such as 'venous outflow obstruction' and also 'localised hypercoagulabilities', and have been described in animal and human studies. Venous outlet syndrome in the subchondral region can result in ischaemia of bone and the adjacent cartilage. Dynamic contrast enhanced (DCE-)MRI and positron emission tomography (PET) have

demonstrated that venous outflow obstruction results in decreased perfusion and that venous stasis is associated with trabecular remodelling, in animal OA models. Another potential role for vascular perturbation is in the synovitis commonly seen in OA. Given the frequency of synovitis in (especially knee) OA, it is possible that a patchy distribution of reduced blood flow (local ischaemia) happens in areas of greater inflammation. Greater levels of synovial inflammation have been associated with OA progression.

Another hypothesis is that atheromatous disease might directly effect OA pathology progression. Computed tomography (CT) has been used in the spine to demonstrate an association between arterial calcification and the degree of disc degeneration, and there has also been shown to be a relationship between disc degeneration and adjacent bony end plate damage. These spinal changes are similar to OA joint pathologies. Another study demonstrated an association between hand osteoarthritis imaging findings and aortic calcification.

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SP0152 HYPERTENSION, BONE MARROW LESIONS AND OSTEOARTHRITIS (OA)

^{1,2}D. Felson. ¹Clinical Epidemiology Unit, Boston University School of Medicine, Boston, USA; ²Arthritis Research UK Centre for Epidemiology, University of Manchester, Manchester, UK

Elements of the metabolic syndrome except for hypertension such as dyslipidaemia and central adiposity are not consistently associated with knee osteoarthritis once obesity is adjusted for. However, after adjustment for obesity, hypertension is modestly associated with an increased risk of knee and even, in some studies, hand OA. A recent meta-analysis reported consistency across large cohort and case control studies; those with hypertension had a 1.49 fold increased odds of OA ($p < 0.001$).

There are several possible explanations for this association especially if hypertension compromises the supply of nutrients to the joint. First, as OA develops, subchondral bone remodelling is accompanied by angiogenesis which could be inhibited by vascular insufficiency. In findings that are probably related, bone marrow lesions seen on MRI in OA represent lesions of bone trauma and, in these lesions, the number of vessels increases and the vessels have especially thick walls for their size. Bone marrow lesions have been linked to intraosseous hypertension that is probably not a consequence of arterial but rather of venous hypertension within bone. Further, NSAID use in persons with OA could raise blood pressure and create a spurious association of OA with hypertension. Given this range of potential explanations and the potential for identification of causal factors that may offer clues to OA treatment, further exploration of the biology of this relationship is needed.

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Workshop: Is there a diet for people with RMDs?

SP0153 WHAT EVIDENCE IS THERE THAT DIETS HELP PEOPLE WITH RMDs?

^{1,2}A. Linauskas. ¹Department of Rheumatology, Aarhus University Hospital, Aarhus; ²Department of Rheumatology, North Denmark Regional Hospital, Hjoerring, Denmark

Throughout history patients with Rheumatic diseases (RMD) have used different diets trying to improve the symptoms and dietary manipulation is still widely used today. There are several potential mechanisms by which diet may be related to pathways involved in inflammation, such as decreasing the inflammatory process, increasing antioxidant levels, changing the lipid profile, influencing composition of the intestinal bacterial flora.

The common dietary programs used by people with RMD include vegetarian or vegan, Mediterranean, elimination diets or fasting periods. Moreover, many

dietary supplements are available both as combination formulas and as single-ingredient supplements.

The most studies, investigating diet influence on RMD symptoms in human, were conducted among Rheumatoid Arthritis (RA) patients as an adjunctive therapy. Further, there is a wide variation in evidence robustness probably due to the complexity of studying the relationship between diet and disease activity.

Diets: Several controlled studies among RA patients have been performed.

Mediterranean diet intervention studies have shown tendency to pain reduction and improvement of physical function after 3–6 months.

An intervention study, comparing 7–10 days fasting followed by 13 months vegetarian diet and the ordinary diet, showed significant pain reduction in the intervention group. Though, there was no significant difference in physical function or morning stiffness compared to RA patients adhered to an ordinary diet.

Vegan diet intervention studies did not report statistical significant difference in pain, physical activity or morning stiffness compared to an ordinary diet.

One study compared 6 weeks of elimination diet to an ordinary diet. Due to inadequate data reporting, no between-group analyses were possible, the authors of the study concluded: "When the dietary and placebo groups were compared the dietary group did better for all 13 variables for which differences between them were significant".

Cholesterol lowering diet study among 17 Systemic Lupus Erythematosus (SLE) patients showed increased quality of life (measured by questionnaire) after 12 weeks study period compared to the control group.

Ramadan fasting study among 40 SLE patients did not reveal any influence of fasting on disease activity or patients' quality of life during the fasting period or 3 months after fasting compared to non-fasting SLE patients.

Non-randomised controlled low-salt, uncooked vegan diet study among 53 fibromyalgia patients revealed improvements in pain, joint stiffness, quality of sleep, quality of life and general health after 3 months of study period.

Dietary supplements: Several studies of fish oil supplementation have been performed among RA patients and have generally shown positive results on pain reduction, morning stiffness, and improvement in physical activity and decreased use of pain relief medications. The potential benefit of eating whole foods with high omega-3 content has not been evaluated.

Studies, investigating Vitamin D supplementation in RA patients did not find any disease modifying effect.

Interventional studies of antioxidant supplementation in patients with RMD have been inconclusive.

Current data regarding potential therapeutic effects of probiotics suggest plausible benefits, though evidence grade is still low.

There is some evidence that herbal therapy containing Gama Linolenic Acid oils (evening primrose, borage, or blackcurrant seed oil) reduce some RA symptoms.

Alcohol: Studying effects of alcohol on RMD activity is complicated not least in relation to the treatment. Two observational studies among RA patients, showed tendency towards an inverse association between alcohol use and disease severity.

Conclusion: The effects of dietary manipulation in RMD patients are still uncertain due to small study samples and potential risk of bias. Higher drop-out rates and weight loss in the groups with manipulated diets indicate that potential adverse events should not be ignored.

However, there is some evidence that fasting followed by a vegetarian diet and Mediterranean diet improve pain, but not stiffness and physical function among RA patients, when compared to an ordinary diet.

Several controlled studies showed that dietary supplements of moderate-to-high doses of omega-3 fatty acids have a beneficial effect on several parameters of RA activity.

Evidence regarding diet influence on RMD's other than RA is very weak.

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SP0154 HOW TO OFFER SEMINARS ON NUTRITION

C. Elling-Audersch. *Deutsche Rheuma-Liga (German Rheumatism League), Berlin, Germany*

Deutsche Rheuma-Liga (German Rheumatism League)

Deutsche Rheuma-Liga (DRL) is a patient organisation that offers support to people with all rheumatic and musculoskeletal diseases (RMDs). We offer to our members information, various seminars, exercise classes and advice services. The main goal is to improve a patient's self-management.

Most patients have questions concerning medication, but would like to know as well what other measures can be taken to improve their health. Nutrition and the question of a rheumatism diet is one of the great patients' demands.

Based on a survey of our organisation (DRL) patients' information priorities are obvious and have led to offerings for patients.

Our seminars for patients about nutrition are based on our nutrition booklet, on evidence-based information and on avoiding an esoteric content.

All seminars deal with three key elements of self-management: nutrition, exercise and ergonomic kitchen aids.

Based on the key messages of nutrition, the important aspects are not only to educate, but also to exercise, to communicate, to exchange experiences, to cook, to taste, to smell and to enjoy. We show ergonomic kitchen aids and explain their daily usefulness.

My talk will consider organisational aspects as well, if an organisation wants to offer such seminars.

In our experience combining nutrition, exercise and ergonomic aids are essential aspects of a healthy life and contribute to a person's rheumatic and/or musculoskeletal treatment successfully.

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SP0155 NUTRITION – HOW TO TALK ABOUT IT

V. Krafft. *Rheumaliga Schweiz, Zurich, Switzerland*

When it comes to the subject of nutrition and rheumatism, particularly in relation to inflammatory rheumatism, opinions are sharply divided. Holistically oriented physicians and therapists believe that a change in diet can replace medication in the treatment of chronic inflammation and they thus pursue the goal of reducing the need for medication through an anti-inflammatory diet. Rheumatologists by contrast staunchly defend drug therapy and still approach the subject of nutrition with great reserve, disinterest, or even reject its effects out of hand. Some warn that patients who stray from a balanced diet with a mix of foods may risk nutritional deficiencies.

These opposing views leave many of those affected by rheumatism unsure of how to approach nutrition. Can a change in diet really help alleviate the symptoms of inflammatory rheumatism? Which diet rules can I trust? And what's more: How do I speak about it with my rheumatologist? Will he advocate a change in diet and view it as part of my arthritis therapy – or see it merely as a supporting measure, quite a nice idea but without any therapeutic value?

Anyone wanting to provide rheumatism patients with some guidance in this regard must ward against possible bias. The Swiss League against Rheumatism makes sure its communications on this controversial issue take into account the whole spectrum of existing medical pluralism. On the question of nutritional benefits, it thus provides information from the point of view of conventional medicine as well as that of complementary medicine and all the shades in between.

Objectives of the Swiss League against Rheumatism

The Swiss League against Rheumatism endeavours on the one hand to ensure that its communication about nutrition is not one-sided but rather presents the different viewpoints. On the other hand, those affected should be given access to knowledge that can help them to form their own opinion.

To achieve these goals, the Swiss League against Rheumatism continually invests human and financial resources into research on this topic, interviews and exchanges with experts, as well as ongoing updates of their contributions.

Communication channels: The Swiss League against Rheumatism informs people about the topic of nutrition through the following communication channels:

- Website
- Facebook
- Brochures
- Lectures

The main focus is on articles on the website.

Standpoint of the Swiss League against Rheumatism

The Swiss League against Rheumatism includes the subject of nutrition in its communications because there is a great need for information among those affected.

The Swiss League against Rheumatism itself takes no position for or against a described measure but rather only makes recommendations based on scientific criteria. On the basis of these scientific criteria, it can be assumed that nutrition, in particular a Mediterranean diet, can have a "positive influence" on various rheumatic diseases.

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