Research Annual Report 2010

Musculoskeletal Science Center (MUSC)

Immunological mechanisms and clinical epidemiology of early inflammatory arthritis and osteoarthritis
Measurement (of the results of intervention) in rehabilitation medicine
Efficiency and efficacy of trauma care
EMC MUSC-01-31-01 - Immunological mechanisms and clinical epidemiology of early inflammatory arthritis and osteoarthritis

Programme in brief design
The programme investigates immunological mechanisms and the clinical epidemiology regarding onset, course and outcomes of early (rheumatoid) arthritis and inflammatory osteoarthritis (OA). It aims to find determinants for disease onset and severity and subsequently to develop predictive algorithms for diagnosis and prognosis. In the scope of the disease course the effect of various medical and non-medical interventions are studied.

The molecular immunopathobiological mechanisms of onset, severity and modulation of chronic inflammatory destructive arthritis are studied with focus on the role of the IL-23/Th17 immune pathway, aging, osteoimmunology and hormones

Key figures

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Artikel/Letter to the editor


Programme in brief design

Rehabilitation medicine is the medical specialism which concerns the diagnostic procedures and treatment of permanent, imminent and complex consequences of diseases, trauma and congenital deformities.

Research and development in rehabilitation medicine is to a large extend interdisciplinary and aims at research questions in the field of medicine, technology, psychology, physiotherapy, occupational therapy, sociology, etc. As a result the objective, reliable and valid measurement of impairment, disability and handicap has been developed insufficiently and existing methods are not appropriate for implementation in patient related research. The main points of the programme are:

1. The development, validation and application of new diagnostic instruments for the purpose of low back and pelvic complaints and for the purpose of pathology of the hand and wrist area.
2. The development, validation and application of long term ambulant registration of posture, movement, activity and cardiac stress for the purpose of patients with amputation, chronic pain, cardial failure and the elderly.
4. The study of physical, social and psychological impairment and disability in adolescents and adults with (congenital) disorders in childhood

Key figures

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Thesis


Molenaar, H.M. (2010, juni 10). Measuring hand strength in children. EUR. Prom./coprom.: Prof. Dr. S.E.R. Hovius & Prof. Dr. H.J. Stam.

Rath, S. (2010, juni 04). Early active mobilization of tendon transfers. EUR. Prom./coprom.: Prof. Dr. S.E.R. Hovius & Prof. Dr. H.J. Stam.


Artikel/Letter to the editor


**Part of book - abstract**

EMC MUSC-01-47-01 - Efficiency and efficacy of trauma care

Programme in brief design

Objectives:
The main objective of this programme is to investigate the efficiency and efficacy of management and treatment approaches for trauma patients.
The basic research projects aim at getting insight into fracture healing.
Fractures that do not heal uncomplicated often require bone grafting. Literature data of bone substitute materials available in the Netherlands will be collected. The biomechanical and biological characteristics in vivo will be determined to support a clinical guideline. New titanium MESH material will be evaluated in a biomechanical and in vivo setting.
Advanced trauma life support (ATLS) propagates the use of pelvic circumferential compression devices (PCCDs) for reducing and stabilizing pelvic fractures, however their clinical benefits and risks are largely unknown. The mechanical effects, the quality of pelvic reduction and the decubitus risk of PCCDs will be determined.
The aim of the clinical research projects is to compare management approaches for several fracture and injury types using prospective multi-centre randomized and cohort studies.
Multicenter cohort study: outcome of treatment of persistently unstable complex elbow dislocations using a hinged elbow fixator will be studied.
Three projects aim at identifying patients at risk for complications:
-Literature data indicate that patients with low Mannose Binding Lectin (MBL) levels due to single nucleotide polymorphisms in the MBL-2 gene are at risk of developing serious infectious complication after transplantation or ICU admission. This association will be investigated in polytraumatized patients.
-The second project deals with elderly patients reporting to the emergency department for medical assessment after they fell. As these patients may be at risk for falling again, the effects of withdrawal of fall-inducing drugs will be investigated.
-Topic of the third study is to evaluate biomarkers for timely indication of abdominal hypertension, which is a frequently missed syndrome that can lead to multorgan failure if left untreated.
In preclinical research projects the added value of assistance by Helicopter Emergency Medical Services (HEMS) on outcome and quality of life will be studied in polytraumatized patients. Effects, costs and benefits will be investigated.

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Artikel/Letter to the editor


