ful to harmful and "Encounters with health care" from empowering to humiliating.

Conclusions: The suffering of women when exposed to painful endometriosis can lead to missed opportunities in several important areas of life. Hormonal and symptomatic treatments, as well as positive encounters of health care are important for the women's possibility to develop working surviving strategies.

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Predictors of long-term opioid use among chronic nonmalignant pain patients: A register-based national open cohort study

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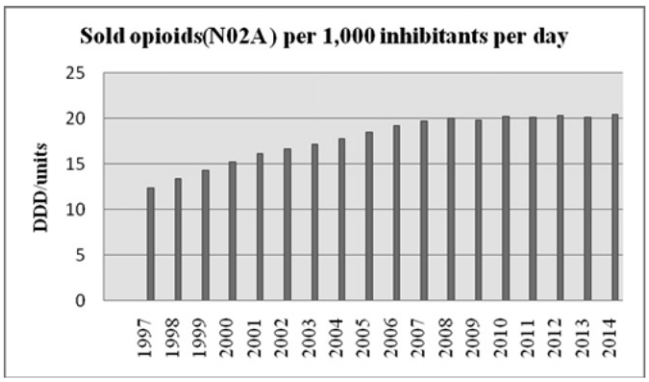
Aims: (1) To determine the distribution and determinants of opioid use among chronic nonmalignant pain (CNP) patients. (2) To identify the patient, treatment and socioeconomic characteristics as determinants for potential risk groups.

We hypothesized that CNP patient who use opioids for more than 1 year would differ in demographics and comorbidity from other patients who use opioids for less than 6 months.

Methods: National registers were used to include patients beginning opioid therapy in the period 01/01/2000–31/12/2014 (incl.). The cohort consists of adults aged 16 years or older who redeemed at least one prescription for an opioid product and residing in Denmark, analysing only patients who survived for at least two years. Follow-up minimum one year after the last redeemed opioid prescription or to 31/12/2015. Participants are included at first redeemed prescription for an opioid product using the ATC codes N02AA01–N02AX06. Patients were then classified as either opioid use for more than 1 year (group A), as opioid use for more than 6 months but less than 1 year (group B) and opioid use equal to or less than 6 months (group C).

Results: The quantity of sold opioids has been increasing during 1997–2008, with a fairly stable but high level since. It is expected that we will be able to determine patterns and the distribution of opioid use among CNP patients in Denmark. Consequently, describing potential risk groups of opioid use based on patient, treatment, comorbidity, socioeconomic and demographic characteristics. Data analysis is ongoing.

Conclusions: It is expected that this study will serve as a significant supplement of existing knowledge in the area of opioid consumption among CNP patients in Denmark. In a future perspective of prevention and health promotion initiatives of the growing public health problem CNP, it might be beneficial to include perspectives of risk assessment of long-term opioid use.



http://medstat.dk/ statistics for annual sales of medicines in Denmark 1996–2014.

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Coupled cell networks of astrocytes and chondrocytes are target cells of inflammation

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Aims: Systemic low-grade inflammation can be initiated *in vivo* after traumatic injury or in chronic diseases as neurodegenerative, metabolic and autoimmune diseases. Coupled cell networks are target cells leading to the spread of inflammation and changes in biochemical cellular parameters. Do astrocytes and chondrocytes behave in a similar way in an inflammatory reactive state with respect to Ca^{2+} signaling, actin filaments rearrangement, receptor properties, pro-inflammatory cytokine release etc?

Methods: Primary cultures of astrocytes and chondrocytes, respectively, were incubated with lipopolysaccharide (LPS) (10 ng/ml, 24 h) or interleukin-1β (IL-1β) (5 ng/ml, 24 h) to induce inflammatory reactivity. Ca^{2+} signaling, Na^+/K^+-ATPase-, connexin 43 (Cx43)-, and Toll-like receptor 4 (TLR4)- expressions, actin filament organization, and IL-1β release were analyzed.

Results: Stimulation with IL-1β or LPS altered the Ca^{2+} signaling from single peaks to oscillating waves and increased the expression of Cx43 and TLR4, and decreased expression of Na^+/K^+-ATPase. A disruption of the actin filaments with more pronounced ring-formed structures was found in inflammatory induced astrocytes and chondrocytes which in turn affects Ca^{2+} oscillations. Additionally a release of active matrix metallopeptidase-13 was found in media from IL-1β stimulated chondrocytes.

Conclusions: Our data show that cellular mechanisms of healthy chondrocytes as well as inflamed, resemble the coupled cell networks of astrocytes. Chronic, low-grade inflammation can influence coupled cell networks in one or several organs, leading to co-morbidity. It is crucial that inflammatory affected cells in various

organs are restored back to a physiological non-inflammatory homeostasis in order to prevent tissue degradation and pain.

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Changes in opioid prescribing behaviour in Denmark, Sweden and Norway – 2006–2014

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Aims: A country's use of opioids is frequently debated in the public, usually based on rough figures from prescription databases made for consumption registration purposes. However, these databases hold much more detailed information that can be processed to increase knowledge and insight into nationally opioid prescribing-behaviour. This study aims to provide a more detailed picture of opioid prescribing and its changes in Denmark, Sweden and Norway during 2006–2014.

Methods: Data on opioid-use (ATC; N02A) were downloaded from each country's publically assessable prescription-databases. Consumption-data were converted from defined daily doses (DDDs) to mg oral morphine equivalents (omeqs). Changes in choice of opioid-types, use and number of users were presented using descriptive statistics and compared.

Results: *Opioid users*: During the whole period, Norway had the highest, and Denmark the lowest, number of opioid users/1000 inhabitants. In 2006, Norway, Sweden and Denmark had 98, 79, 66 users/1000 inhabitants. In 2014 the numbers were 105, 78, 75 users/1000 inhabitants, respectively. *Opioid use/user*: During the whole period, Norway had the lowest, and Denmark the highest use/user. In 2006, the mean use/user was 1979, 3615, 6025 mg omeq/user in Norway, Sweden and Denmark respectively. In 2014 the corresponding use was 2426, 3473, 6361 mg omeq/user. The preferred choices of opioid-types changed during the period for all three countries. The balance between use of weak or strong opioids showed more prominent changes for Norway and Sweden compared to Denmark.

Conclusions: Three nations, closely related in culture and geographically, showed significant differences and changes in opioid prescribing behaviour. This knowledge can easily be overlooked using the traditional way of presenting opioid consumption statistics. More detailed and clinically relevant presentation can increase the knowledge of doctors' opioid prescribing behaviour, that can be related to changes in the society or health care system, like demography, legislation and guidelines from authorities.

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Opioid usage in Denmark, Norway and Sweden – 2006–2014 and regulatory factors in the society that might influence it

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Aims: To relate changes in the number of opioid users in Denmark, Norway and Sweden during 2006–2014 to changes in national regulatory and economic incentive factors.

Methods: The material consists of data drawn from the national prescription databases in Denmark, Norway and Sweden. Data on the number of opioid users per 1000 inhabitants were collected for all ages, both sexes and for the period 2006–2014. Concomitant changes in regulatory or economic incentives were identified and related to the drug statistics.

Results: For all opioids in the period 2006–2014 Denmark had the lowest number of users but the largest increase in users. Norway had the highest number of users but a lower increase. The number of users in Sweden was very stable showing no change in number of users.

The number of morphine users in Denmark increased from 2009 to 2014. The number of users of oxycodone decreased from 2010 to 2014. The Danish health authorities recommended using morphine as first drug of choice in 2010 and warned about potential drug dependency of oxycodone in 2011.

In Sweden the number of users of oxycodone increased over the period with the largest increase from 2012 to 2013. The number af tramadol users decreased from 2011. Prior to these changes tramadol was declared to be classified as an addictive drug 2011.

Conclusions: Changes in the countries' opioid use appeared in the public prescription-databases in a timely manner after introduction of national recommendations not to use oxycodone and prefer morphine as first choice, or classify tramadol as an addictive drug. National drug statistics show the end-result of the doctors' prescribing behavior and the population's use of opioids. Thorough investigation of prescription-data can help to detect and explain the interplay between culture, society and medical reasons for prescribing opioids.

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