Participating centres

Denmark

- Copenhagen, Per Sjøgren

Finland

- Turku, Eeva Salminen

Germany

- Aachen, Lukas Radbruch
- Dresden, Rainer Sabatowski
- Essen, Marianne Kloke

Greece

- Athens, Eriphili Argyra

Iceland

- Reykjavik, Valgerdur Sigurdardottir and Sigridur Gunnarsdottir

Italy

- Forli, Marco Maltoni
- Milano, Augusto Caraceni and Alessandra Pigni
- Pavia, Danilo Miotti

Lithuania

- Vilnius, Irena Poviloniene

Norway

- Oslo, Jon Håvard Loge
- Oslo, Kristin Bjordal
- Trondheim, Stein Kaasa

Sweden

- Stockholm, Staffan Lundström

Switzerland

- St. Gallen, Florian Strasser

United Kingdom

- London, Andrew Davies

Map of participating centres

- **Genetic laboratory**
  Professor Frank Skorpen, NO
- **Pharmacological laboratory**
  Professor Ola Dale, NO
- **Statistician:**
  Professor Peter Fayers, UK

EPOS contact information

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European Pharmacogenetic Opioid Study

EPOS

A European Association for Palliative Care Research Network and European Palliative Care Research Centre study

Principal investigator
Professor Pål Klepstad

NTNU – Trondheim
Norwegian University of Science and Technology

EAPC

European Pharmacogenetic Opioid Study (EPOS)

The EPOS study examined symptoms, pharmacogenetics and pharmacology in patients treated for cancer pain.

Background

In palliative medicine it is well known that opioids have variable efficacy. This variability is observed clinically as a large variability in opioid doses and as changes in clinical outcomes after opioid rotation.

The aim of this translational research project was to investigate the mechanisms explaining opioid variability and to study a number of clinical and pharmacological aspects in patients treated with opioids for cancer pain.

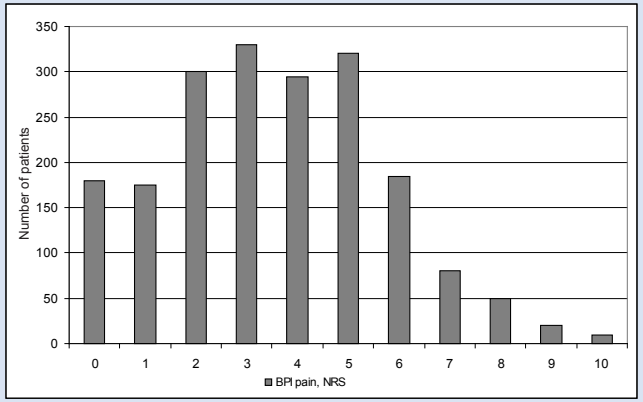
Patients

2294 cancer patients using an opioid for moderate or severe pain:

- Morphine 827
- Oxycodone 445
- Fentanyl 695
- Other WHO step III opioids 327

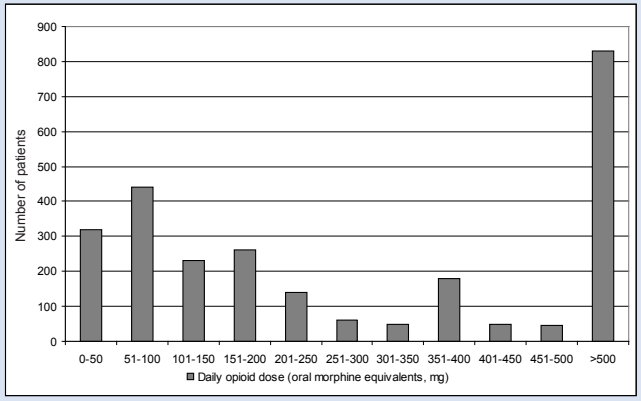
Age 62 ± 12, Karnofsky 59 ± 17, MMSE 27 ± 3,
82% hospitalized

Pain



The EPOS study shows that a large part of cancer patients have unacceptable high pain intesity.

Opioid doses



The high number of patients with pain was present despite that many patients received high opioid doses.

Dissemination at the EAPC Research Congress in Glasgow

The first results of the EPOS study were presented in two plenary lectures and seven presentations at the 6th Research Congress of the EAPC in Glasgow 2010:

Klepstad et al. **Influence from Genetic variability on opioid use in 2209 cancer pain patients.**
Kurita et al. **Prevalence and predictors of cognitive dysfunction in opioid treated cancer patients.**

Fayers et al. **The EPOS study: experiences in the statistical analysis of genetic association.**
Fayers et al. **Are studies in palliative care biased? Characteristics of patients recruited to the EPOS study.**
Gunnarsdottir et al. **Opioid prescription practices, patient education, educational needs, and satisfaction with pain management in Icelandic cancer patients on opioids.**
Helgadóttir et al. **Prognostic factors for survival in cancer patients in Iceland.**
Knudsen et al. **Content of a future classification system for cancer pain.**
Laugsand et al. **Health care providers underestimate symptoms intensities of cancer patients receving palliative care.**
Laugsand et al. **Pharmacogenetics of nausea and vomiting in palliative care patients treated with opioids.**

Selected publications

Klepstad et al. **The influence from genetic variability on opioid use for cancer pain. A European study of 2294 cancer pain patients.** *Pain 2011; 152: ,1139-1145.*
The largest study to date on the relationship between known gene candidates and opioid efficacy in cancer pain patients.

Kurita et al. **Prevalence and predictors of cognitive dysfunction in opioid treated cancer patients. A multi-national study.** *J Clin Oncol 2011; 29:1297-1303.*
A large survey of incidence and risk factors for cognitive failure in cancer pain patients.

Galvan et al. **Genome-wide association identifies multiple loci modulating opioid therapy response for cancer pain.** *Submitted.*
A genome wide analysis identifying new gene candidates influencing pain relief from opioids.

Knudsen et al. **Which variables are associated with pain intensity and treatment response in advanced cancer patients? – Implications for a future classification system for cancer pain.** *Eur J Pain. 2011; 15:320-317*
Part of the EPCRC development for classification of cancer pain.

Laugsand et al. **Clinical and genetic factors associated with nausea and vomiting in cancer patients receiving opioids.** *Accepted in Eur J Cancer.*
Comprehensive analysis of genetic predictors of nausea and vomiting in cancer pain patients.

Utne et al. **Differences in the Use of Pain Coping Strategies Between Oncology Inpatients With Mild versus Moderate to Severe Pain.** *J Pain Symptom Manage 2009; 38; 717-726.*
One of several papers on hope and coping strategies in cancer pain patients.

Andreassen et al. **Influences on pharmacokinetics of oxycodone – A multicentre cross-sectional study in 439 adult cancer patients.** *Eur J Clin Pharmacol 2011; 67: 493-506.*
One of several papers on oxycodone pharmacology and pharmacogenetics.

Laugsand et al. **Inadequate symptom control in advanced cancer patients across Europe.** *Supp Care Cancer 2011, Epub ahead of print*
About treatment of adverse symptoms in cancer pain patients.

For a complete EPOS publication list and information about planned analyses please contact us.