

Direct pathway to early specialized rehabilitation after TBI: a five-year trend and the impact of Covid-19

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Background

Early initiation of rehabilitation and direct care pathways have shown to improve outcomes for patients with traumatic brain injury (TBI). However, there is a concern that a significant number of patients are still not included in the direct care pathway. Moreover, hospitals and patient populations may alter over time; thus, we need to evaluate clinical practice. The study aimed to provide an updated overview of discharge from acute care units at Oslo University Hospital (OUH) (Level 1 trauma center) to specialized rehabilitation, and to identify factors associated with a direct pathway.

Material and Methods

We analyzed data from the Oslo TBI Registry—Neurosurgery over a five-year period (2015–2019) and included adults with intracranial injuries, resident in the Southeast region of Norway. We described the patient population, with group comparison (direct vs indirect pathway), and applied multivariable logistic regression to investigate factors associated with the probability of entering the direct pathway. The same procedure was used for patients admitted to OUH during the Covid-19 pandemic (from March 2020 to August 2021).

Results

From January 2015 to December 2019, a total of 1724 patients were included, of which 289 followed direct pathway. In patients with moderate–severe TBI, the proportion increased from 22% to 35% during the study period. In patients aged 18–29 years, 53% followed the direct pathway, in contrast to 10% of patients aged 65–79 years (moderate–severe TBI). Significant predictors were younger age, low preinjury comorbidities, moderate–severe TBI and disability due to TBI at the time of discharge. The same pattern was found for patients admitted during the pandemic period, which included a total of 552 patients. The proportion of patients with moderate-severe TBI following direct pathway remained at 35%. Thus, access to early specialized rehabilitation after TBI maintained when OUH was in a preparedness response mode.

Conclusion

The results highlight the need for continued efforts to secure access to the direct pathway to rehabilitation, furthermore, there is a particular need for increased focus on patients aged >64 years. Despite a fragile situation during the pandemic, the direct pathway was maintained in 2020 and 2021.

Empowerment Support Model for Traumatic Brain Injury Patient's Family Members

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Background

The Traumatic Brain Injury (TBI) always comes as a surprise to the patient and their family members (FMs), and there is no way to prepare for it in advance. The length of hospitalization following TBI is constantly decreasing, and patients may return home with several problems. FMs care for the patients at home, although they may not be prepared for the patient's medical needs or financial burden of the illness. TBI patients FMs have experienced psychological anxiety, stress and depression, difficulties accepting their new role and impaired quality of life. The burden which some FMs experience can impair patient care and rehabilitation outcomes. Therefore, FMs require support beginning of acute phases of TBI treatment in hospital.

Family oriented approach in nursing care should be developed, standardized, and clarified, so that the FMs of a TBI patient would be equally supported and informed, regardless of where the patient is being treated.

The model is linked to Finnish Brain Injury Association's three-year project (2019–2021).

Material and Methods

The Empowerment support Model was developed in cooperation with several organizations and TBI patients' FMs in Finland as follows:

First phase was to examine in a cross-sectional survey how TBI patients' FMs (n=216) evaluated the social support they received from healthcare professionals in the acute care in hospitals. This research served as a basis for the project.

In second phase TBI patients' FMs and healthcare professionals (neurological and neurosurgery nurses and physicians) (n=18) participated in four workshops and explored their views of the empowerment support.

In third phase the Empowerment Support Model suitability for supporting FMs in nursing care in five Finnish University Hospitals was evaluated and simulated by healthcare professionals and FMs (n=630).

Results

Empowerment support model and its three components were identified. The model includes support material for healthcare professionals (Checklist, Induction material), for FMs (Traumatic brain injury – a guide for family members, The path for family member of a brain injured person – picture and video) and information of peer support services.

Conclusion

Empowerment support model (inc. materials) is implemented in five Finnish University Hospitals to neurological and neurosurgical wards. Healthcare professionals' knowledge and competence in supporting TBI patients' FMs has increased through Empowerment Support Model.

Returning to work in the first year after stroke – experiences from five stakeholder groups

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Background

Many people of working age receive disability benefits after a stroke in Norway. Currently, we know too little about whether the return to work (RTW) process is satisfactorily for people who have experienced a stroke. The purpose of this study was to explore the experiences of stroke survivors and professionals involved in the RTW process.

Material and Methods

Five focus group interviews with stroke survivors of working age, employers, and professionals from the health and from labour and welfare sector were analysed using Systematic Text Condensation.

Results

Health challenges led to uncertainty about what working day was realistic to return to for people after their stroke. The professionals lacked knowledge of each other's activities and needed better dialogue. A lack of knowledge about invisible difficulties after a stroke by the employers and stroke survivors was highlighted. The current sick pay scheme was not adapted to the specific challenges faced by people who had suffered a stroke and their employers.

Conclusion

Our findings make it clear that work-oriented follow-up after stroke should be better coordinated and tailored individually. It is important to talk about returning to work early in the rehabilitation process and to be aware of cognitive and emotional difficulties related to stroke.

Key words: Focus group, Rehabilitation, Return to work, Stroke.

References:

Lin BL, Mei YX, Wang WN, Wang SS, Li YS, Xu MY, Zhang ZX, Tong Y. The Unmet Needs of Community-Dwelling Stroke Survivors. *BMJ Open*, 20 Apr 2021, 11(4): e045560.

Hofstad H, Gjelsvik BE, Næss H, Eide GE, Skouen JS. Early supported discharge after stroke in Bergen (ESD Stroke Bergen); *BMC Neurol*. 2014 Dec 21; 14:239.

Management of post-stroke fatigue with the FatigueACT application

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Background

Fatigue is a common symptom after stroke, with prevalence ranging 25-85%. As there is no treatment for fatigue, guidelines recommend different coping strategies for managing it. These strategies often involve monitoring one's daily fatigue and energy levels in order to understand how they fluctuate – positively or negatively - based on one's daily activities or behaviors. Based on this monitoring and personal knowledge, individuals are advised to prioritize activities, plan for periods of rest and use energy-saving strategies.

Moen's experience as a stroke survivor with post- stroke fatigue, and the coping strategies she learned from occupational therapists at Sunnaas Hospital, gave her the idea for an app that facilitates use of these strategies.

The app Fatigue & ACTivity energy conservation strategies (FatigueACT) will have 3 components: 1) A calendar for planning activities and rest and for registering energy levels before and after activities and rest; 2) Prediction of one's future fatigue levels based on data registered in the calendar; 3) Information on updated research-based knowledge about fatigue, energy-saving strategies, and the importance of daily planning of activities and rest.

Material and Methods

FatigueACT is being developed at Lovisenberg Diaconal Hospital by Moen and researchers in the Norwegian Study of Fatigue after Stroke Research Group (NORFAST), and programmed at the University Center of Information Technology, University of Oslo. Stroke survivors with fatigue have met with interaction designers and researchers to ensure relevance and user-friendliness. We expect to test FatigueACTv1 in Fall 2022. Feedback from users with stroke and health professionals will be used for revision of FatigueACTv2 in 2023.

Results

This app will increase stroke survivors' awareness of their personal fatigue fluctuations in daily life. The app will also give them a framework for planning future activities that is more balanced with regards to spending energy on activities in relation to restoration of energy through rest or energizing activities. The app will also make the person's fatigue more predictable through its predictive component. Users' documentation of variations in their fatigue may also be clinically useful in consultations with health professionals, e.g., allowing them to better adjust to the strain of rehabilitation.

Improving interdisciplinary vision care after stroke. Experiences from the KROSS project and the NorVIS network

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Background

Visual impairments (VIs) affect 60% of all stroke survivors, and includes reduced visual acuity, visual field defects, eye movement disorders and perceptual deficits. Consequences of post-stroke VIs include reduced activity and quality of life. Symptoms can be difficult to identify as visual problems, and there is a need for a structured visual assessment to identify and provide vision care. In this project we have implemented structured vision assessment in interdisciplinary stroke care, using the Competence, Rehabilitation of Sight after Stroke (KROSS) tool.

Methods

The Knowledge to action model was used to guide the implementation and include three qualitative studies that describe the planning, preparation (including barriers and facilitators) and evaluation of the implementation.

Results

Stroke survivors experienced a lack of attention to, and follow up of, VIs in stroke care. Interdisciplinary health care (HC) professionals in stroke services lacked knowledge of normal visual function, post-stroke VIs and visual assessment. The HC professionals acknowledged the need for identifying VIs due to their negative consequences for post-stroke life. An important motivator for performing vision assessment was the realisation of the impact visual problems have on other rehabilitation efforts. In the evaluation, the participants found including the KROSS tool in stroke care both feasible and acceptable with the training and supervision provided in the KROSS project.

Conclusion

This project showed that it is possible to implement structured vision assessment in interdisciplinary stroke care, but there is a need for integration of vision competence in stroke services to provide sustainable vision care. In order to improve post-stroke vision care the Norwegian Vision in Stroke Network (NorVIS), an interdisciplinary network, was established with an aim to implement best vision care after stroke. The NorVIS network (www.synogslagnett.no) comprise of 36 partners and 70 individuals. NorVIS have several ongoing projects, such as identifying current practise of vision care in stroke services, identifying the research agenda trough a priority setting partnership, and review the research of post-stroke VIS.

“Innsatsteam” – Rehabilitation in the home setting.

Background information

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“Innsatsteam” was established in conjunction with the Norwegian government’s reform of national health and care services. The purpose of the reform was to improve prevention of illness/disease, early treatment and better cooperation between the different institutions.

As a result of these changes most rehabilitation became the responsibility of the community. Consequently, one of the aims of the community was to improve the rehabilitation of people with neurological disorders.

“Innsatsteam” provides follow up for people who have recently, or within the last year, had a stroke or traumatic brain injury and those who have been newly diagnosed with Multiple Sclerosis (MS) or have had an MS attack.

The goals for “Innsatsteam” is to ensure good quality follow up from one institution to the next, early intervention and a multidisciplinary approach. The service is anchored in the national guidelines for stroke patients.

Patient experience after stroke.

Hemnes, J.M., patient.

Johanne Marie Hemnes was an active high school student who suffered a stroke at the age of 18. She was rushed to the hospital, where she spent the next 8 weeks.

After the weeks in the acute phase, she was able to start rehabilitation. Now, five years later, Johanne is still training every day and keeps getting better. She is now an occupational therapy student, and she will share her experience on how life as a stroke patient can be in terms of challenges and accomplishments.



Practical aspects of performing Glasgow Coma Scale observations

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Aims:

- To discuss the changes and updates to the Glasgow Coma Scale
- To provide an overview of the work of the National Neuroscience Benchmarking Group and discuss the impact of benchmarking on affecting change in Neuroscience nursing.
- Share best practice in relation to the performance of GCS observations.
- Introduce the Glasgow Coma Scale-Pupils score (GCS-P)

The Glasgow Coma Scale (GCS) is a tool developed to identify and document changes or deterioration in a patient's level of consciousness and their neurological status. In 2014, the GCS celebrated its 40th birthday and one of the original authors, Graham Teasdale, used this opportunity to provide further guidance to standardize the approach used to perform GCS observations, to ensure consistency and remove what he referred to as 'pseudo' marking.

For over 30 years, the neuroscience benchmarking group (NNBG), has been benchmarking a range of neuroscience nursing practice areas, including GCS and the frequency of performing observations. Currently there is a repository of over 17 completed benchmarks, each one containing a set of evidence based statements that identify the 'gold standard' for that particular intervention. It enables practitioners to recognize what is best practice in their area of work, through a process of sharing, comparing and learning from each other, promotes change and delivers improvements in quality patient care and patient satisfaction. This workshop discusses essential aspects of this guidance to enable healthcare practitioners to optimize GCS observations and their interpretation.

Restraint use in neurosurgical settings.

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Background

Despite reports of negative consequences, and conflicts with key values in healthcare, restraint (the term restraint encompass both physical and chemical restraint) are still practiced in somatic healthcare worldwide. Patients in neurosurgical care are at high risk of being subjected to restraint, but research on restraint use in neurosurgical care are lacking. Aim: To explore the use of restraint in neurosurgical care

Material and Methods

To examine the use of restraint in neurosurgical care several methods were used.

(1) A cross-sectional study with a mixed-methods approach was used to explore the extent to which restraint is used in neurosurgical care, and under what circumstances. Survey data and data from electronic medical records were collected at one neurosurgical department in Sweden. Numerical data were analysed with descriptive and analytic statistical methods, and textual data were analysed using qualitative content analysis.

(2) A qualitative, descriptive design was used to examine nurses' experience and justification of restraint. Semi-structured interviews with 15 nurses working in three neurosurgical departments in Sweden were conducted and analysed with inductive qualitative content analysis.

Results

Restraints were used when patients were considered a danger to themselves or others. Of the 517 patients admitted to the studied department during the study period, 58 (11%) were reported to have been subjected to restraint. Most of the restraining events occurred in the neurointensive care unit. The identified patients were predominantly diagnosed with traumatic brain injury or subarachnoid hemorrhage.

The use of restraint deeply affected nurses in their professional role, and was described as a multi-layered struggle, ranging from inner doubts to practical issues. Restraint was considered legitimate if the benefit exceeded the suffering, but decisions of which restraint measure to use and when depended on the values of the individual nurse.

Conclusion

There is a need for policies and guidelines regarding the use of restraint, as well as structured discussions and reflections for nurses engaged in the practice. When developing policies and guidelines concerning restraint in neurosurgical care, both practical issues such as the decision-making process, and the emotional effect on nurses should be considered.

Approaches to use experience data from next of kin and bereaved for quality improvements in healthcare settings

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Background

People with long-term chronic disease often have a lifelong adaptation process to manage their life and self-care. Families and friends supporting patients' self-care and conducting informal care often also need to adapt to manage various situations in their own life and the patient's life. The time they spend on handling life in presence of a long-term chronic disease is huge and the experience people build up is tremendous. This project aim to develop a complex intervention that strengthens roles and relationship by learning from how others in similar situations adapt and manage life in presence of long-term chronic diseases.

Material and Methods

A systematic review is under working process to investigate the existing evidence on how to capture lived experience and use it for quality improvement initiatives in healthcare settings.

On parallel, a multidisciplinary team has since 2020 been working on a digital storytelling project for patients and their next of kin. Each digital story is based on a personal script and contains personal images, videos, and sounds, filmed by the author using a mobile phone or tablet. Stories reflect on the central questions "With the experience you have today, what advice would you have liked to give to yourself and others? What did you do well, and what would you do differently?"

Results

Preliminary findings will be presented on the evidence on interventions that focuses on the lived experiences of informal caregiver and bereaved, that strengthens roles and relationships and are used in quality improvement systems. In addition, experiences from the work on producing the digital stories will be presented.

Conclusion

Approaches to use experience data from next of kin and bereaved for quality improvements in healthcare settings are under development.

Using PROMS to measure parental health literacy in pediatric epilepsy

- Results and reflections from a cross sectional study

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Background

Recent research indicate that the majority of children with epilepsy experience comorbidities. Complex condition involves interdisciplinary- and cross-sectional follow-up and increased contact with the health service. Parents play a key role regarding the follow-up. Their level of health literacy (HL); their ability to seek, understand, assess, remember, and utilize health information, is essential for handling the child's condition optimally. Low parental HL has been associated with reduced child health outcomes in the form of increased hospitalization and poor adherence to treatment for the child. Studies on HL in pediatric settings are limited. We investigated characteristics associated with higher and lower levels of HL in parents of children with epilepsy.

Material/methods

We assessed HL using the Health Literacy Questionnaire – parents' version (HLQ-p) and the electronic Health Literacy Scale (eHEALS), in a cohort of 254 parents of children <12 years with epilepsy. The associations between HL and sociodemographic variables, children's clinical variables, parental self-reported self-efficacy, and level of mental distress were assessed with HL Bivariate correlation and multiple hierarchal linear regressions. Ward's Hierarchal Cluster analyses were used to identify subgroups of parents' with similar health literacy profiles, and to identify associations to independent variables such as demographics, clinical variables (child), parental self-reported self-efficacy (GSE) and level of experienced stress (HSCL-10).

Results

Self-efficacy (St. $\beta = 0.14$ to 0.34) was the only variable that predicted higher scores on every HL scale. Being older than 35 years (St. $\beta = 0.18$ to 0.21), level of education (St. $\beta = 0.16$ to 0.27), and the child having a coordinator of services (St. $\beta = 0.16$ to 0.28) were associated with higher scores, while sick leave due to the child's epilepsy (St. $\beta = -0.13$ to -0.16), child comorbidities (St. $\beta = -0.15$ to -0.19), and higher levels of mental distress (St. $\beta = -0.13$ to -0.19) were associated with lower scores in several of the different HL dimensions. A total of 44.8 % of the parents scored over the cut-off (≥ 1.85) predicting a mental disorder on the Hopkins symptom checklist. This is the first study to investigate multidimensional parental HL in a childhood epilepsy context.

Conclusion

This research provides a deeper understanding of characteristics that may predict lower and higher parental HL. The study highlights the need to investigate multiple variables, and especially mental distress, to determining characteristics that may predict lower parental HL, and a potential need for extended support regarding health education.

Development and validation of Patients' own Surgical Safety Checklist (A new tool to involve patients in safety)

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Background

The WHO's global patient safety action plan for 2021-2030 emphasises the importance of involving patients in safety and calls for strategies to reduce preventable patient harm. It is established that patients are willing to participate in own safety, but there is a need for initiatives to empower them in doing so. Few studies exist on patient-completed checklists. The aim for this research project was to develop and validate patients' own surgical safety checklist (PASC), to increase patients' involvement in safety and to investigate the checklist feasibility in preparation for a planned Stepped Wedged Cluster RCT.

Material and Methods

This study is a part of a complex intervention project at two Norwegian hospitals; referrals for 1.1 million and 110,000 inhabitants, respectively, utilising qualitative and quantitative methods. Eleven focus group interviews of surgical patients and healthcare workers were performed to identify risk areas related to surgery. To develop and validate PASC a consensus process, item content validation index (I-CVI) scores and face-validity was applied. Internal consistency was assessed with intraclass correlation. PASCs feasibility was assessed using descriptive statistical analyses and focus group interviews. Content analyses were applied to the qualitative data.

Results

A total of n=25 patients and n=27 healthcare professionals identified patient surgical risk areas. Results were used to develop the checklist-items of PASC. Validation was performed by elective surgical patients (n=215). Following revision a high PASC item agreement was achieved; S-CVI Ave >0.85, PASC items reliability scores were 0.97 and post-surgical patients indicated a strong face-validity. Feasibility was investigated on the same patient population and a high percent PASC item usage was achieved; 86,8% patients used 80-100% of the items. Patients were positive and would re-use PASC. However, some inhibitors were identified; timing of receiving and completing the checklist, the need for healthcare professionals involvement, and the need for simplification of some checklist items.

Conclusion

PASC development and validation has gone through a rigorous process. The feasibility of PASC indicates that surgical patients' are willing to use the checklist. Patient's reports that it increases their feeling of safety, systemise information, increase communication and gives support through the surgical pathway. It is feasible to implement PASC in a stepped wedged cluster RCT.

Individualized Follow-Up for Patients with Epilepsy using Self-Reported Data in Norway

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Background

Patients with epilepsy are today offered a variety of follow-up programs both in public and private healthcare, but often with little opportunity to individualize the need and type of follow-up. Our aim was to develop and implement an individualized follow-up program for patients with epilepsy by using secure web-based software, which enables patients to deliver self-reported data, which in turn help healthcare providers to prioritize and individualize outpatient follow-up.

Methods

A pilot to the project was conducted at Haukeland University Hospital with a patient population localized in Western Norway. By using secure web-based reports provided by the hospital's own subcontractor, "CheckWare", the patients were able to fill in reports containing questionnaires about epileptic seizures (type, seizure frequency, etc.), epilepsy-related quality of life, side effects of medication, mental health, and challenges at work, school or during education.

Results

A total of 200 patients have so far been recruited in this ongoing project.

Our specialist epilepsy nurse evaluated all reports and gave them a score shortly after receiving them digitally. This score defines the need for follow-up, by either a neurologist or a specialized nurse, and also the priority.

Feedback from the patients are positive. They feel well taken care of and that their needs are met by the healthcare professionals. Follow up and outpatient clinic is now scheduled out of the patients self-reported needs, with blood samples and/or EEG prior to the consultation.

Conclusion

An individualized follow-up that implements self-reported data from the patients prior to appointments with healthcare professionals provides better treatment and follow-up for patients with epilepsy. We are able to document precise and up-to-date data that aid nurses and doctors in deciding which patients are in need of follow-up, and at what level what kind of follow-up which is required, using information provided from patients themselves.

Associations between language function, psychological distress and quality of life in glioma patients awaiting surgery

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Background

Systematic and standardized assessment of language skills is not routinely performed in patients with suspected glioma before surgery. While reduction in language performance is acknowledged, the association with psychological distress, i.e. symptoms of anxiety and depression, and the impact of quality of life (QOL) is less well known. The purpose of the present study was to explore subjective and objective language function in patients awaiting surgery and to investigate potential associations with self-reported psychological distress and QOL.

Material and Methods

Thirty-seven patients awaiting glioma surgery were assessed with language tasks (naming, vocabulary, verbal short-term and working memory, and fonemic and semantic fluency). Additionally, they were asked to answer questionnaires on psychological distress (Hospital Anxiety and Depression Scale, HADS) and on QOL (FACT-BR). From the latter, items addressing concerns about language and language associated cognitive functioning were also separately analysed. Due to a small sample size, Spearman rho correlations and regression analyses were used to analyse the data.

Results

Performance scores showed normal or near to normal language skills at group level. Impairment, i.e. performance at least one standard deviation below average was found in 32% during confrontation naming and in 25% on tasks for verbal short term and working memory. Eighty percent of the patients reported at least one concern about language or language associated skills. Decreased emotional well-being was detected, and about half of the sample demonstrated symptoms of anxiety. Regression analyses indicated that symptoms of depression were negatively associated with all aspects of QOL while language skills were associated with overall and functional well-being while controlling for depression.

Conclusion

Glioma patients awaiting treatment are confronted with serious illness and uncertainty about the future. Psychological distress and subjective concerns are highly prevalent and are associated with reduced QOL. Even subtle difficulties with language function can raise concerns and may indicate functional changes. Our findings underline the importance of base-line assessment to prepare clinical follow-up during the course of disease.

Patient-reported cognitive function before and after glioma surgery

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Background

Little is known about the extent to which glioma patients experience subjective changes in cognitive function following surgery. We sought to assess patient-reported cognitive function before and after glioma surgery and explore potential factors associated with cognitive change.

Material and Methods

In a prospective population-based study, patient-reported cognitive function was measured in 182 patients undergoing primary surgery for diffuse glioma (141 high-grade gliomas (HGG) and 41 low-grade gliomas (LGG)) by using the European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30 cognitive function subscale preoperatively and at 1 and 6 months postoperatively. Binomial logistic regression models were used to assess factors possibly associated with patient-reported cognitive changes.

Results

In the HGG group, the mean cognitive function score increased from 70.9 preoperatively to 85.1 and 83.3 at 1 and 6 months postoperatively, respectively. In the LGG group, the mean score was 80.9 preoperatively and remained stable at postoperative follow-ups. Females reported lower scores than males. At an individual level, both improvement and deterioration in cognitive scores were frequently seen in LGG and HGG patients after surgery. Preoperative use of corticosteroids and large tumor volume were predictors for cognitive improvement at 1 month postoperatively. No predictors were identified for cognitive improvement at 6 months and worsening.

Conclusion

Many glioma patients experience perioperative subjective changes in cognitive function after surgery. At group level, HGG patients reported improved cognitive function after surgery, while LGG patients reported stable cognitive function. Preoperative use of corticosteroids and large tumor volume were independently associated with postoperative improvement.

Evaluation of a multimodal rehabilitative palliative care programme for patients with high-grade glioma and their family caregivers

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Background

Patients diagnosed with high-grade glioma and their family caregivers often experience intense disease and treatment trajectories. Fluctuations in patients' symptoms may lead to enormous burdens for the caregivers.

Material and Methods

This study aimed to explore patient and caregiver experiences and evaluate the relevance of and satisfaction with a multimodal rehabilitative palliative care programme for patients diagnosed with high-grade glioma and their family caregivers. This is a longitudinal multi-methods study applying qualitative interview data and quantitative survey data to explore and evaluate the programme. The programme was designed by a multidisciplinary cross-sectoral team of clinical specialists and researchers to provide patients and family caregivers with information and facilitate discussions among peers about daily life and family interactions. Additionally, to provide patients and caregivers with strategies to manage their changed life situations.

Results

Adult patients with high-grade glioma (n = 17) and their family caregivers (n = 16) completed a 4-day residential programme and a 2-day follow-up programme 3 months later. Qualitative data were collected during four focus group interviews with patients and caregivers. Participants completed questionnaires after each programme, scoring all sessions included in the programme for relevance and satisfaction on a 5-point Likert scale (0, not relevant/satisfied; 5, very relevant/highly satisfied). Three themes emerged in the focus group interviews: 1) meeting peers strengthens social well-being, 2) the value of information and focusing on individual needs, and 3) accepting life as an unpredictable passage. The mean overall satisfaction score was 4.80 (standard deviation [SD], 0.55) for the initial 4-day programme and 4.28 (SD, 0.83) for the follow-up programme.

Conclusion

The multimodal rehabilitative palliative care programme addressed unmet patient and caregiver needs and may have the potential to enhance family function or coping mastery. The programme was feasible, and all sessions received high scores for satisfaction and relevance, as well as positive evaluations. Qualitative findings confirmed the value of individualised information and peer interactions. In particular, peer-to-peer interventions for family caregivers may address individual support needs, including sharing experiences and strengthening social well-being.

Gamma knife for patients with cerebral metastasis - The nurses' role

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Background

Gamma Knife® radiosurgery is a well-established treatment method used to treat selected targets in the brain. Gamma knife® is not a knife in the ordinary sense of the word. It is very precisely focused beams of radiation directed to the treatment area in the brain. The treatment procedure is simple, painless, and straightforward.

The treatment was developed by a Swedish neurosurgeon, Lars Leksell, in the '60s. He aimed to gently treat lesions in the brain, which could not be achieved with regular surgery.

In Norway, the Gamma Knife® is located in Bergen. The neurosurgical department at Haukeland University Hospital has had a national function since 1988. In 2021, **The National treatment Center for Gamma knife®** treated 509 patients. In recent years, there has been an increase in the number of treatments of about 9% per year. Half of the treatments are malignant tumors and metastases. About 40% are benign and slow-growing tumors. Approximately 5-10% are other conditions, including pituitary tumors, trigeminal neuralgia, and AVM.

Nurses have a prominent role before, during, and after the treatment of the gamma knife patient. The nursing team provides preparation and compassionate care for the patients. Nurses take part in clinics, administrative tasks, and studies. We are primarily independent in the practice of our role as nurses. Our main objective is that all patients should have a safe experience of the treatment and the course.

Our experience

It is common for many patients to have a high level of anxiety when they are admitted for treatment. Mapping the level of anxiety and information needs is essential to give the patient the best possible treatment experience. We are a small team of regular nurses, doctors, and office workers. We have close cooperation, permanent tasks, and division of work. Over the years, our section has become an independent, well-oiled "machinery" for the benefit of the patient and staff. For us, this has been the recipe for success in the form of satisfied patients.

Close-to-bedside MRI scanning in the Neurointensive care unit: a safe and effective method

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Background

CT scanning in NICU is safe, minimizes risk of physiological deterioration and time away from the controlled environment in the NICU. The risk of secondary brain injury decrease if the patient's physiology is maintained stable and monitored by NICU nurse. In addition to CT, MRI is often needed during the time in NICU but has been limited in access and availability. In January 2020 a new MRI scanner was installed in NICU, Linköping Sweden. This opened up the opportunity to perform close-to-bedside MRI scanning of NICU patients.

Material and Methods

A team of NICU nurses and assistant nurses cooperated with the department of radiology and IMRIS. We developed a method where patients are transported from the NICU room into the MRI scanner. Protocols established to ensure a safe and effective execution of the procedure. We had clinical simulations, found a method suitable for the settings in our environment. Patients are prepared in the NICU room. ECG, POX and ABP are switched to MRI safe equipment. Before transporting the patient to the scanner we go through the checklist to ensure that no metal or unsafe equipment follows the patients or staff. Patient is then moved to the MRI table, transported and handventilated into the scanner. Time from ventilator to ventilator is about 4 minutes. MRI scan is then performed overviewed by NICU staff. Back at the NICU room monitoring that cannot be measured during MRI scan such as ICP, EEG, microdialysis can immediately start again, since all equipment used is MRI compatible.

Results

Since startup we have performed 381 scans. 130 intubated and 48 non intubated NICU patients, 26 ICU patients with covid-19 and rest is pre- and postoperative patients from the neurosurgical ward. Overall there has been no breach of protocol during the scans. Two serious incidents have occurred with covid-19 patients. These incidents have been analysed and probably happened because of a slightly different setup that did not follow the protocol developed for the NICU patients. No patients or staff were harmed and measures have been taken.

Conclusion

We implemented a close-to-bedside MRI scanning on NICU patients that is safe and effective. The availability for MRI scans have significantly increased both for NICU and the ward. Patients remain in the NICU environment and are monitored by NICU staff during the whole procedure. This contributes to patient safety, which we currently measure in a safety study. In this study we look at physiology parameters before, during and after the MRI scan.

Phase I/ First-in-human (FIH) trial seen from a clinical research nurse (CRN) perspective.

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Background

Malignant glioma (WHO grade III and IV) is the most common malignant brain tumor, with an incidence of <10 in 100.000 people. The prognosis is poor with a median survival of approximately 15 months with optimal treatment. Surgery is a standard treatment to remove tumor cells. It is a complex procedure in the brain and radical surgery is a challenge for the surgeon. Since the introduction of the fluorescent 5-ALA (Gliolan®) in 2006 it has obtained acceptance worldwide as an adjunct to obtain radicality, but it has limitations. FG001 is a new fluorescent under investigation for the surgery of malignant glioma in Denmark.

Aim: To describe a FIH-study in the clinic from the perspective of a CRN.

Material and Methods

Typical a FIH trial is done in healthy volunteers. As malignant glioma is an oncology indication, it allows a FIH to start directly in a hospital setting. To evaluate safety, tolerability of single i.v. doses of FG001 investigational medicinal product (IMP), several protocol related tests are needed, when the patient are including in the trial. The FIH is as a dose escalation trial with 8 steps from 1 mg to 48 mg. Every step is evaluated before moving on, which are typical for FIH. Trial specific procedures such as mix the IMP specific, ensure blood samples, electrocardiogram, vital signs and adverse events are monitored.

Results

An important factor in FIH trial is building up a close relation to the trial patient, the first meeting is an important step. The connection from “*a good clinical science surface*” and “*a good practical care*” summarizes the unique combination that a CRN -represents. Being able to follow the patient from “*Inclusion*” – to- “*Dose Administration*”, “*Surgery*” and finally “*End of Trial*” is a journey. The trial period is monitored closely related to safety, also is it approved by the competent authorities, e.g.: Danish Medicine Health Authorities (DMHA) together with the ethical committee (EC).

Conclusion

To be a successful CRN and handling last minute changes are mandatory as well as being prepared for unexpected events. Working with a FIH trial is about navigating the setup with a high level of structure to ensure safety and enable well-structured monitoring. Preparation, flexibility and passion is key elements and essential in a trial like FIH. The CRN has the ability to give hope and better treatment. Phase I / FIH with FG001 is a way to get closer to that hope, more specific surgery and less side effects for the patients.

Developing a Competency Development Program for Neuro Nurses

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Background

There is no formalized or specialized continuing education for experienced neuro nurses in Denmark. The lacking education represents a challenge to the highly specialized neurological and neurosurgical departments, as research shows that experienced nurses who do not experience adequate professional challenges lose their commitment and consider leaving their position. Thus, there is a need to ensure continuous competency development for experienced nurses in highly specialized neuroscience nursing.

Our objective was to create a locally-based competency development program for nurses with more than one year of experience in a neurological and neurosurgical department.

Material and Methods

The Danish national recommendations for competency development and career paths in neuro nursing, published in 2020, were discussed in a working group across the highly specialized neurological and neurosurgical department at Aarhus University Hospital. Based on a decision to uncover the nurses' interests and needs for competency development, a focus group interview with seven participants was conducted, showing a need for establishing a competency development program. After suggesting several topics, experienced nurses rated the most vital to include. The ratings formed the basis for creating a local competency development program throughout six working meetings.

Results

Ten modules were developed and described; 1. Neuroanatomy and -Pathology, 2. Acute Nursing, 3. Neurorehabilitation, 4. Conflict Management, 5. Patient and Relative Perspective, 6. Pain, Nausea and Palliation, 7. Dysphagia, 8. Diploma Module in Neurorehabilitation, 9. The Patient's Pathway, 10. Continuing Education in Palliation.

Conclusion

It is possible to create a competency development program for experienced neuro nurses, where the individual modules can be selected based on the nurse's interests and needs.

Structured reflection for new employees at a neurosurgical unit- a way to evolve in the profession

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Background

As a new employee in a workplace, there is a lot that is new and that can feel insecure. Through reflection of situations, a deeper understanding and insights are created that leads to a learning process and deeper knowledge. In the spring of 2021, the current neurosurgical units had 18 newly hired nurses and assistant nurses. Most of the new employees were also completely new to their profession. A need for reflection was identified and a structure for it was created.

Material and Methods

The participants were divided into two groups with nine people in each group. The reflection sessions were initially scheduled two weeks between but was then changed to once a month. In total, each group had seven reflection sessions in half of year.

Clear rules were set to create consensus in the groups. Each occasion started with a check-in. If a participant had a special case to address, focus was put on that case. During these occasions, Gibbs' reflection cycle was used. If no one had a specific situation to address we used other methods, such as "I'm good at this" or "This is difficult".

Results

The participants saw the reflections as positive. They felt they were developing in their professional role and had easier to move on after difficult situations. They also described that they during the sessions got stronger unity to each other.

Conclusion

Structured reflection for new employees at a neurosurgical unit is a tool to evolve nurses and assistens nurses in their profession

How can we use exit interview as a strategic tool to boost the work satisfaction for nurses and reduce turnover?

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Background: Turnover among nurses at wards is a well-known phenomenon, and there is a national and international concern for near future difficulties in recruiting and to keep skilled nurses. The attitude is that turnover among nurses is inevitable, and usually because of shiftwork and family-life. We asked our self if this were the (only) reasons at our ward, but more importantly – are there other reasons and can we do something about it? We decided to conduct an exit interview survey, and our aim was to reveal trends, thus enabling us to develop a strategic plan to keep skilled nurses.

Method and material: We designed a 10-item questionnaire. Online survey was sent by e-mail to former employees who had resigned and left for another job during the past three years (this also included employees leaving prior to the pandemic). To get the most honest feedback possible the responses was anonymous, and none of the investigators has had any leadership role for the respondents.

Results: The response rate was 80% (N=16). In average, nurses had worked at the ward for 6 years. The mean general satisfaction was 7.4 on a scale from 1 to 10 (1=worst, 10=best), in subset questions on satisfaction; work schedule, payment, staffing, colleagues, work assignments, the mean satisfaction score was higher than 5. The two factors with mean satisfaction score under 5 was professional and personal development. Those two factors were also the most frequent contributing factors for quitting in a multiple-choice question. However, when asked what the decisive reason was, 60% answered an alternative related to shiftwork or family-life.

Conclusion: Reasons for nurses leaving is multifaceted, and shiftwork and family-life was important reasons. However, lack of professional and personal development were clear contributing factors. Building on these results, we plan to investigate the factors professional and personal development further and is designing a survey where we invite the current nursing staff to elaborate what expectations they have, and simultaneously develop a strategic plan for the next 10 years to increase the nurse expertise at our ward.

Postgraduate Courses in Neuroscience Nursing – The Trondheim Experience

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Whereas many post-bachelor nursing educations in Norway have national curricula and funding, specialisations in Neuroscience nursing have been developed without a specific framework regulating their form and content. In Trondheim, the Norwegian University of Technology and Science (NTNU) and St. Olavs University Hospital in collaboration, have developed two postgraduate courses in Neuroscience Nursing, each with 7,5 ECTS credit points, and both on master's degree-level.

The first course, *Neuroscience nursing 1 - Acute Neurology and Neurosurgery* focuses on anatomy and neurophysiology, neurological assessment, the most important acute neurological and neurosurgical diseases, injuries and procedures, and relevant aspects of nursing care. This course is applicable to all clinical neuroscience nursing contexts, but in particular neurological and neurosurgical hospital wards, neuro intensive care and stroke units as well as operating theatres.

The second course, *Neuroscience nursing 2 - Chronic diseases, rehabilitation and palliation*, additionally covers health promotion and disease prevention, as well as legal, ethical and cultural perspectives. This course also is relevant in all neuroscience nursing settings, but is considered particularly useful in neurological hospital wards, outpatient clinics, rehabilitation units, and in the community health care sector.

In February 2022, 33 nurses completed *Neuroscience nursing 1*. In total 24 students were recruited from St Olavs hospital, mostly from The Neuro Clinic, and the rest from different parts of Norway and from various health care settings, including local hospitals and pre-hospital services. Learning activities included lectures, skills-training and other student-active methods, and were held during 3 x 3 day sessions over a 3 month period. The students completed two written assignments and an extensive multiple choice exam.

Neuroscience nursing 2 has a similar structure and will start in November 2022.

From the employer's perspective, the courses allow nurses to achieve specialised, targeted neuroscience competence, without necessarily completing a full specialisation or degree. This comes across as manageable within a hospital setting, and will benefit a greater number of nurses than more comprehensive educational activities. From the university perspective the courses provide a way of responding directly to the need for clinical specialisation within the nursing profession, and at the same time providing building blocks in the development of master degree educations for nurses.

Development and Content of the Curriculum in Master of Nursing - Clinical Specialization in Neuroscience Nursing

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Background and development

Neuroscience nurses meet an increasing requirement for professional patient education, counselling and constantly quality improvement both at neurology wards, neurosurgical wards, and at rehabilitation institutions. Disease patterns and treatment methods change rapidly, and we see a need for specialized neuroscience nurses at a level that the bachelor in Nursing do not fulfill. Since 2005, Western Norway University of Applied Sciences in Bergen has been running a post-graduate program (60 ECTS) for Clinical Nursing - with specialization in Neuroscience nursing. It is a part time course, with weekly-based seminars over 4 semester. The students also conducts 4 weeks of clinical studies. In 2021, Western Norway University of Applied Sciences extended the curriculum to a 120 ECTS master's program with additional 4 semester for conducting the Master's thesis. However, there is still an opportunity to apply for the post-graduate program (60 ECTS).

Content

The curriculum contains different subjects: General neuroscience nursing topics, anatomy/pathology and clinical medicine. Furthermore, health and social topics, quality improvement, patient education and counselling skills, and research methods and evidence based practice. Students can specialize in different areas, such as Neuro Intensive care, neurosurgery, neurology, Neuro Oncology, Nurse led Out Patients Clinics, Living with chronic Neurology disease, Management and Quality Improvement.

The past and the future

Approximately 150 students have graduated as specialized clinical nurses in Neuroscience Nursing (60 ECTS) since 2005. The 7th batch at the post-graduate program is now halfway.

We find it very interesting to discuss what should be the future-oriented learning outcomes in neuroscience nursing curriculum, and Western Norway University of Applied Sciences is more than ready to be a dynamic part of the international collaboration on curriculum for master- and post-graduate programs in neuroscience nursing, as well as the research collaboration across countries and institutions.

Global Neurosurgical Nursing Care

Camilla G. Aukrust c.g.aukrust@medisin.uio.no

Liten presentasjon

The staggering inequalities in access to neurosurgical care worldwide is the foundation and core of global neurosurgery, which is defined as *“the clinical and public health practice of neurosurgery with the primary purpose of ensuring timely, safe, and affordable neurosurgical care to all who need it”*. The Global Neurosurgery Committee (GNC) was established with the mission to *“bring together the neurosurgeons around the world to collectively address the unmet need for neurosurgical care”*. GNC is one of several committees within the World Federation of Neurosurgical Societies (WFNS). The endeavors of the inaugural GNC (2019-2021) rose to a crescendo with the accomplishment of the Global Action Plan which objectives are to amplify, align, advance, assimilate and advocate for core neurosurgical activities such as the implementation and strengthening of neurosurgical capacity building into existing health systems.

For the very first time in the GNC, neurosurgical nursing is introduced as a distinct division. Yee Yit Cheng (Malaysia) and Camilla G. Aukrust (Norway) was invited to lead this important work in the period 2021-2023 (the title of Nurse co-leads). They have created a strategic plan, with specific and time bound goals within the following areas; policy/advocacy, clinical training/education and research. The main goal is to build relationships and to reinforce the neurosurgical nursing workforce, specifically focusing on Low-and Middle-Income countries (LMIC). A diverse and global team of professionals has been assembled. The efforts of this team will be instrumental in reaching the goals of the strategic plan, as well as the Global Action Plan, within this 2-year period. The team receives support, guidance and input from the other members of the GNC.

Although LMICs carry the highest neurosurgical burden of disease, they experience an enormous unmet need of neurosurgical services. For example, the African population has access to less than 1% of the global neurosurgical workforce. Nursing care for neurosurgical patients require specific skills and competencies. Thus, two main ambitions of the nursing division are to advocate for robust educational training systems in LMICs, and to map the experienced (knowledge) gap on the ground through research. To combat the many challenges in the field, there is a dire need for more data that may inform health policy makers and educational leaders.

We applaud the inclusion of neurosurgical nursing into the GNC, and we look forward to join forces with our neurosurgeon colleagues, for the betterment of the neurosurgical patient worldwide.

Posters:

Subarachnoid hemorrhage - A Nationwide Swedish study

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Background A Subarachnoid hemorrhage (SAH) is associated with high mortality and morbidity and often require intensive care. All patients with a SAH, even those who are quickly transported to a hospital, are at high risk for complications. Out of the patients surviving a SAH, around 30% have significant disabilities.

SAH is the most common diagnosis at Neuro Intensive Care Units in Sweden. There are 83 ICU's in Sweden and six of these are specialized for care of patients who need neurosurgical intensive care.

Swedish SAH care isn't standardized which could impact the result of health care and the outcomes for the patients. More knowledge based on national data can contribute to standardization and systematic care for patients with a SAH.

The object of this study is to describe the prevalence, hospital stay and outcome for patients with a SAH cared for in Swedish Intensive Care 2017-2019.

Material and Methods A retrospective, descriptive study based on national data from The Swedish Intensive Care Registry (SIR).

Patients included were cared for at an ICU and diagnosed with a SAH, ICD-10 codes I60.0-I60.7 and I60.9. Patients ≥ 18 years and reported to SIR 2017-2019 were included. Patients with a traumatic SAH and ICD-10 code I60.8 were excluded.

Results This is an ongoing study with preliminary results. The study includes 1520 patients, with a mean age of 61 years (± 13.6), and 42% are men. Totally 1125 patients were cared for in an ICU of a hospital with neurosurgical intensive care, and 395 patients were cared for in regular ICU's. For the surviving patients, 83% survived discharge from ICU ($n=1262$), 74% 30 days ($n=1082$), and 69% 180 days ($n=1012$).

At admission to ICU, the whole cohort ($n=1520$) had a mean GCS of 10.2 (± 4.7). The patients admitted to ICU in hospitals with neuro ICU had a mean GCS of 11.0 (± 4.4) and patients treated in ICU without neuro competence at the hospital had a mean GCS of 7.9 (± 4.7).

The ICU length of stay median was 109.7h (IQR 249.5). In total 61% of the patients ($n=933$) needed a ventilator during the ICU-stay and the median time in ventilator was 52 h (IQR 209.3).

Conclusion

Out of the patients with a SAH, treated at hospitals with Neuro Intensive Care, 76% survived 180 days. Out of the patients treated in hospitals without neuro intensive care, 41% survived 180 days.

It is of great importance to analyse the level of perceived health-related quality of life for the surviving patients treated for SAH. This will be the upcoming study.

Neuro-SysMed; A centre for clinical treatment research on neurological diseases

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Background

Background:

Neuro-SysMed is a center for clinical treatment research on the neurological diseases Multiple Sclerosis (MS), Amyotrophic Lateral Sclerosis (ALS), Parkinson's disease (PD) and Alzheimer's disease. Neuro-SysMed is the first excellence center for research on clinical treatment in Norway, and was established in 2019 and have a timeframe of 8 years. Neuro-SysMed is administrated by Haukeland University Hospital and the University of Bergen, and Haraldsplass Diakonale Hospital and the Canadian research institute Lawson Health are collaborative partners. Neuro-SysMed are collaborating physicians nation-wide and also with the pharmaceutical industry to conduct scientific sound clinical trials.

No current treatment with disease-modulating effect on Dementia, Parkinson's and ALS are available today. Many clinical treatment studies have been performed without significant breakthroughs.

Material and Methods

Objective:

The objective is to organize and conduct randomized clinical treatment trials to evaluate the efficacy and safety of therapies, novel or established drugs with new indications, that may delay or even arrest disease progression, ameliorate symptoms or optimize care for affected individuals.

The center focuses on the importance of including participation of users of health care services and their visions of and own experience of disease and health care. The centre also aim to improve patient health by systems medicine for tailor therapies for patients suffering from MS, ALS, PD, Alzheimer's Disease.

The center has several nurse specialists in different vacancy rate as study nurses to perform reliable clinical proceedings and monitoring the scientific conduct. We believe that having dedicated nurses with expertise in neurology helps with patient recruitment, patient satisfaction and in securing an efficient study logistic.

Results

No result available

Conclusion

Vision:

All new patient at Norwegian neurological departments with MS, ALS, Parkinson's disease and Alzheimer's disease are eligible for participation in the current clinical trials RAM-MS, OVERLORD, NO-PARK, NO-ALS, STRAT-PARK, SMART-PARK, and in future scientific endeavors at Neuro-SysMed.

"My life reversed completely" A qualitative interview study on significant others' experiences of own support needs, and their provision of support for persons after aneurysmal subarachnoid hemorrhage

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Background

An aneurysmal subarachnoid hemorrhage (aSAH) is life-threatening hemorrhagic stroke. aSAH is more common among women, and often strikes in the middle of life. For their significant others, it can result in a great strain and changes in life. Significant others are an important group for persons recovering from an aSAH.

Material and Methods

A qualitative interview study with cross-sectional design. Inductive manifest qualitative content analysis was used. Eight transcribed interviews were analyzed.

The aim of this study was to investigate experiences of own support needs, and their provision of support in significant others to persons suffering from from aneurysmal subarachnoid hemorrhage.

Results

The participants were six women and two men, and different relationships to the person who have had aSAH were represented. The content analysis resulted in two categories and eight subcategories. The category '*The burden of being a close relative*' includes descriptions of anxiety, the need for information from healthcare, to constitute support in everyday life and an affected relationship with the person who has had aSAH. The category '*Impact on their own lives*' contains descriptions of the support they themselves have received or needed, that their own social life and housing have been affected, and that their own attitude to life has changed.

Conclusion

Being significant other to a person recovering from an aSAH can be a great strain that lasts for a long time. The results show that the significant others experienced different forms of stress, and for some of them that it had a great impact on their own lives.

Nursing interventions to manage delirium in a neurosurgical context

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Background

The incidence of delirium after neurosurgical interventions is 32% with hydrocephalus, dementia, epilepsy and stroke as predisposing factors. Neurovascular surgery has the highest risk with up to 42% at developing delirium postoperative. It is also known that intensive care and mechanical ventilation is predisposing factors and up to 82% of all patients leaving intensive care have an active delirium. There is none validate screening scale or bundle of care reported in a neurosurgical context and due to the cognition impairment that the patients often suffer from it can be hard to distinguish it from delirium. With the complexity of the neurosurgical patient we must consideration that not all the accepted interventions in regular somatic inpatient care can be applied.

Material and Methods

Aim: (1) To identify nursing interventions to prevent or treat delirium in somatic inpatient care, and (2) to evaluate which nursing interventions are applicable in the neurosurgical context.

Method: The author made an integrative review, and the articles were included based on P – adult patients in somatic care, I – nursing interventions preventing or treating delirium, C – intervention group and control group, O – occurrence of delirium and T – controlled randomized trials and quasi-experimental design.

Results

Nine articles were included in the result. The nursing interventions described and found were quite similar in all the articles and the majority with inspirations from *Modified Hospital Elder Life Program (m-HELP)*. The interventions preventing and treating delirium were divided in the categories re-orientation, mobilization, cognitive training, sensory impression, circadian and factors that frequent triggers delirium. All the intervention groups had significant lower incidence of delirium and are assumed to work in a neurosurgical context after being modified after taking brain fatigue, limitations and restrictions, monitoring and intracranial pressure into account.

Conclusion

Nursing interventions to prevent and treat delirium in somatic inpatient care can be applied in a neurosurgical context. The interventions need modification to be optimized for the neurosurgical context.

Development and content of the Master's Program in Nursing - Clinical Specialization in Neuroscience Nursing – “the Bergen model”.

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Background and development

Neuroscience nurses meet an increasing requirement for professional patient education, counselling and constantly quality improvement both at neurology wards, neurosurgical wards, and at rehabilitation institutions. Disease patterns and treatment methods change rapidly, and we see a need for specialized neuroscience nurses at a level that the bachelor in Nursing do not fulfill. Since 2005 Western Norway University of Applied Sciences in Bergen has been running a Post-Graduate Program (60 ECTS) for Clinical Nursing - with specialization in Neuroscience nursing. It is a part time course, with weekly-based seminars over 4 semester. The students also conducts 4 weeks of clinical studies. From 2021 finally the program developed into a Masters program (120 ECTS), with additional 4 semester for conducting the Master's thesis. However, the students can stop after the first 4 semester (60 ECTS) when they have finished the Post-Graduate Program.

Content

The curriculum contains different subjects: General neuroscience nursing topics, anatomy/pathology and clinical medicine. Furthermore, health and social topics, quality improvement, patient education and counselling skills, and research methods and evidence based practice. Students can specialize in different areas, such as Neuro Intensive care, neurosurgery, neurology, Neuro Oncology, Nurse led Out Patients Clinics, Living with chronic Neurology disease, Management and Quality Improvement.

The past and the future

The Post-Graduate program has been arranged 7 times from 2005 up to today, and the ongoing class offers for the first time a Master's program. So far, up to 150 nurses have graduated as specialized clinical nurses in Neuroscience Nursing. We find it very interesting to discuss what should be the important learning goals and competence outcomes in neuroscience nursing education, and we are more than ready to join in international collaboration on curriculum for Post-Graduate Programs/Masters Programs, and also research collaboration between countries and institutions.

NTNU

