Incidence of **urinary tract infection** after surgery for **fractured hip**

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Introduction

To prevent urinary tract infections (UTI) The National Clinical Guidelines for patients with Hip Fracture - recommends e.g. early and systematic mobilization and no use of indwelling catheters (**1**). Since 2003, these recommendations have existed and been implemented in the ward. Besides serious individual implications, hip fracture is also associated with substantial health costs (**2**).

In order to achieve the best possible result for the hip patient, two areas of nursing interventions seem particularly important. UTI is one of the most frequent complications related to hip fracture (**3**) and early mobilization accelerates functional refunds and contributes to a shortening of hospitalization (**4**).

Aim

To describe the number of patients mobilized within 24 hours after surgery and number of patients developing UTI during admission.

Methods

There were used a descriptive prospective design.This study was conducted from October 2015 to december 2016 at two departments of orthopedic surgery in Farsoe and Hjoerring, Aalborg University Hospital in Denmark.

The criteria for inclusions were adult patients who had surgery for fracured hip. Exclusions criteria were patients discharged to other departments than orthopedics, diagnosed dementia, not being able to talk and understand the Danish language, patients with catheter a demure, usually catherization, or patients in antibiotic treatment on admission.

In this study all patients had urine samples collected on admission and at discharge, using sterile intermittent catheterisation . The urine sample should be collected within eight hours after admission to the imergency room. The definition of Centers for Disease Control (**5**) modified for Danish conditions (10^4) were used to define urinary tract infection (**1**). Both urine samples were send to microbiological analysis, to diagnose the presence of UTI. Demographic data : age, gender, type of fracture, comorbidity, form of anaesthesia and waiting time for surgery. Care process data: time for early mobilization after surgery and which and for how long urinary catheter were used. Data are processed in the statistical program SPSS, version 23.

Discussion

In our study, 29.2 % had a positive urine culture on admission. Other studies showed that 8- 52 % of patients had UTI during admission (**7–9**). It is therefore within the normal area of patients with UTI.

In this study, none of the patients with an indwelling cathether, was found to affect the incidence of UTI.

Furthermore, the study shows that the nurses had followed the National Clinical Guidelines, prevention UTI. There seem not to be problems in relation to adhere to the quality of hygiene by applying intermittent catheterization or catheter a demure.

The National Clinical Guideline emphasizes the importance of early mobilization, for patients with a fractured hip (**1**). The goal for mob ilization is 90 %, within 24 hours postoperatively. The mobilization rate in this study were 52.3 %. This is lower than expected, when the National Clinical Guideline were implemented several years ago. Moreover, it was expected that the nurses knew the national Clinical Guideline.

Results

The findings showed that 29.2% of patients with a fractures hip had a positive urine culture on admission to hospital. 6.2 % contracted nosocomial urinary tract infection during admission. None of these patients had catheter a demure at hospitalization. All the patients with a diagnosed UTI received antibiotics for the infection, during their hospital stay. At discharge, 20 % of the patients had a positive urine sample, but no symptoms. 13 patients were given a catheter a demure under hospitalization. 4 patients had Catheter a Demure beneath 24 hours (mean 14.75 hours). 9 patients had Catheter a Demure in more than 24 hours (mean 93.11 hours). None of those had urinary tract infection. The chi- square test used, testing whether patients with UTI and indwelling catheter, more often had an UTI than those, who not have been catheterized. Significance level was 0.898 and thus not significant.

Urine cultivation was performed on 96.9% of patients after hospitalization within 8 hours of arrival at the emergency room. 83 % got it examinet at discharge. Four patients did not wanted to use intermittent catherization upon discharge, because of no symptoms and therefore didn't want the intervention. Five patients were treated for UVI during hospitalization.

Patient with UTI 9.2 % were intermitted catherized. These patients were catherized from 0- 23 times, exept the two times, which were part of the project.

55.5 % of patients were not intermitted catherized. Out of the 27 patients who were intermittent catherized more than once, 5.4 % received a nosocomiel urinary tract infection.

At first mobilization, nurse noted data and time. Mobilized patients within 24 hours postoperatively, were 52.3% of the patients. One patient didn't want mobilization. The rest of not mobilized patients, reason was not possible finding

Patients mobilized within 24 hours and who received an UTI, were 36.9 %.

Table 1. Descriptive statistics	N= 65
Female	87.7 %
Male	12.3 %
Age (mean, SD)	80.82 (SD 9.1)
(range)	55- 96
Anesthetic:	
General anesthesia	43.1 %
Spinal anesthesia	55.4 %
Comorbidities:	
Malignancy	6.2 %
Moderate to severe Chronic Kidney disease (CKD)	6.2 %
Congestive heart failure (CHF)	49.2 %
Chronic Obstructic Pulmonary Disease (COPD)	13.8 %
Cerebrovascular accident	7.7 %
Peptic ulcer disease	1.5 %
Connective tissue disease	12.3 %
Peripheral vascular disease	4.6 %
Diabetes mellitus	4.6 %
Other diseases	35.4%
Fracture type:	
Colli femoris	44.6 %
Pertrocanteric	43.1 %
Interchrocanteric	3.1 %
Subtrocanteric	9.2 %
Waiting time for surgery, hours (mean, SD)	20.14 (SD 13.7)
(range hours)	0 - 72

Table 2 Percentage of results	N= 65
Urine culture at admission	96.9 %
Urine culture at discharge	83.0 %
Number of patients with:	
UTI on admission	29.2 %
UTI during admission	6.2 %
UTI at discharge	20. 0 %
Patients with UTI, where sterile intermittent chaterization were used	9.2 %
Mobilization < 24 hours postoperatively	52.3 %
Patients mobilized < 24 hours postoperatively, also having UTI	36.9%
Patients with Catheter a Demure	18.5 %
Mean (hours)	69.07
(range hours)	9 - 168

Conclusions

The two departments who took part in this study do not have a higher number of UTI than other departments. Furthermore, there is a difference in the result because the sample results are number of bacteria, which is 10^4, whereas the results compared to, are 10^5.

In this study, all patients who had UTI were mobilized within 24 hours. Even if evidences indicate that mobilization can help prevent UTI, it does not appears as a valid factor in this study. However, it should be mentioned that this study was carried out on a basis of 65 patients, of which only 24 had UTI.

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