KRISTIANSTAD UNIVERSITY

Klinisk Patientnära Forskning 3

Pressure Ulcers 2005 -

"We have none at our ward"

A prevalence study at the hospital in Akureyri, Iceland in cooperation with Kristianstad University

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Klinisk Patientnära Forskning

The research team "Patient Focused Clinical Research" is located at Kristianstad University and does research and development within the area of patient-safety.

Aim
To perform patient focused clinical research, and develop tools for patient risk evaluation and safety issues. At the same time facilitate a scientific understanding in the clinical studies for the nursing students.

Pressure Ulcers 2005 - "We have none at our ward" A prevalence study at the hospital in Akureyri, Iceland in cooperation with Kristianstad University

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Sammanfattning

Syftet med studien var att undersöka prevalens och grad av trycksår samt frekvens av riskbedömning, frekvens av patienter i riskzonen för att få tryckår samt frekvens av olika typer av prevention. Hur vanligt är det med trycksår?, Vilka grader av trycksår förekommer?, Förekommer riskbedömning enligt Nortonskalan och i vilken utsträckning?, Hur stor andel av patienter/boende har Nortonpoäng <=20 (hög trycksårsrisk)?, Kan förekomst av trycksår relateras till Nortonpoäng <=20?, Hur ofta förekommer preventiva åtgärder för patienter i riskzonen för att få trycksår respektive med etablerade trycksår?

Genomförande: Samtliga inneliggande patienter (mellan kl 07.00-21.00) den 19 oktober på sjukhuset i Akureyri riskbedömdes enligt Modifierad Nortonskala. Huden över tryckutsatta kroppslokalisationer inspekteras enligt kroppsschema av studiegruppen. Studieledningen var tillgänglig för stöd och support under studiedagen. Punktprevalensen beräknades på det totala antalet patienter som visats på respektive enhet den aktuella studiedagen.

Resultat: Totalt undersöktes 119 patienter från olika avdelningar. Tio procent (12 st) avstod från att deltaga i studien. Arton patienter (17%) av deltagarna fanns ha trycksår. Tjugotre procent hade ökad risk att utveckla trycksår enligt Nortons bedömningsskala. Av dessa hade nästan alla någon form av prevention insatt.

Conclusion: The majority of the pressure ulcers in the present study were localized to the ankles, the knees, over the sacrum and over the tuberositae. The lack of correlation between low Norton score and presence of pressure ulcers might have been balanced by the fact that the mattress in Fjordungssjukrahusid were of extraordinary good quality and thickness.

Diskussion: Majoriteten av trycksåren i denna studie var lokaliserade till anklarna, knäna, över sakrum och sittbensknölarna. Den svaga korrelationen mellan låg nortonpoäng och utvecklandet av trycksår kan orsakas av de tjocka madrasserna på Fjordungssjukhuset. Dessa var av extraordinärt god kvalitet.

Nyckelord

Akureyri, Island, Nortonskalan, Punktprevalens, prevention, risk faktorer, sjukhus, trycksår, trycksårsgrad

Summary

Objectives: Pressure ulcers is an indicator of quality of care. Since data regarding prevalence, grades and localization of pressure ulcers as well as frequency of preventive actions was missing on Fjordungssjukrahusid, the decision was taken by the Management to perform a prevalence study.

The aim with the study was to investigate prevalence, localization, grades of pressure ulcers as well as patient-related risk factors and preventive actions available for patients with pressure ulcers or at risk for developing such ulcers.

Design: All of the in- patients admitted to the wards between 07.00 and 21.00 the 19th of October, at the Fjordungssjukrahusid were assessed for risk of developing pressure ulcers according to the Modified Norton scale. The total score was filled in. The skin of each patient was inspected according to a scheme, illustrated by front and back picture of a human. Preventive actions in bed and chair/wheelchair were recorded on the form. The prevalence was calculated as percentage of patients with pressure ulcers of the total number of patients admitted to the hospital on the day of the study. The patients were included after they had given informed consent. During the day of the study, the researchers were available for solving potential problems.

Measurements: What is the prevalence of pressure ulcers, Into what grades are these pressure ulcers classify, Is the risk of developing pressure ulcers measured with the Norton-scale and to what extent, What proportion of the patients have Norton scores <=20 (high risk of developing pressure ulcers, Is there a correlation between low Norton score <=20 and pressure ulcers, How frequent is the preventions for patients at risk of developing pressure ulcers respectively those with established pressure ulcers? In bed and in chair/wheelchair

Results: A total number of 119 patients from different wards participated in the study. Amount of patients participating: 119. Amount of patients not participating in the study: 12 (10%). Amount of patients with pressure ulcers: 18 (17%). Twenty-three patients were at risk of developing pressure ulcers according to the Norton risk assessment scale (total score <=20). Of these, almost all had any form of prevention.

Conclusion: The majority of the pressure ulcers in the present study were localized to the ankles, the knees, over the sacrum and over the tuberositae. The lack of correlation between low Norton score and presence of pressure ulcers might have been balanced by the fact that the mattress in Fjordungssjukrahusid were of extraordinary good quality and thickness.

Key words

Akureyri, grade, hospital, Iceland, Norton scale, pressure ulcers, prevalence, prevention, risk factors

Content

Acknowledgement

Thank you for your support

- Fjordungssjukrahusid, Akureyri
- Kristianstad University
- Albert Westergren, Central hospital Kristianstad

Pressure Ulcers 2005- "We have none at our ward"

A prevalence study at the hospital in Fjordungssjukrahusid, Akureyri, Iceland in cooperation with Kristianstad University

Background

Pressure Ulcer is a complication to sickness, care and treatments that expert suspect will dramatically increase during the years to follow because of the "demographic winter" as described as a "ticking bomb". Patients admitted to acute somatic care, geriatric care and community elderly services are in the risk to be affected.

In a recently published Swedish prevalence study, including one university hospital, one state hospital and one community elderly home, the prevalence of pressure ulcers was 24%, 13% and 20% (Gunningberg, 2004).

Pressure ulcers are more common in elderly people (Young, Nikoletti, McCaul, Twigg & Morey, 2002), but will occur in younger patients with for example spinal injuries (Byrne & Salzberg, 1996) and patients having undergone surgery (Schoonhoven, Defloor, van der Tweel, Buskens & Grypdonck, 2002) as well.

Pressure ulcers are costly and have been described as the third largest cost for health and care in the Netherlands (Haalboom, 1998). In a study based in the Netherlands, the costs for pressure ulcers patients were estimated to be at least somewhere in between 362 and 2.8 billion dollars a year, representing 1% of the total budget for the health care system (Severens, Habraken, Duivenvoorden & Frederiks, 2002).

In the individual perspective, the pressure ulcer is a serious hazard to general health. In a follow up study from Uppsala, Sweden, 35% of all patients identified with pressure ulcers were dead three months after the primary study (Lindholm, Bergsten & Berglund, 1999). Infections, sepsis, pain (Reddy, Keast, Fowler & Sibbald, 2003) and reduced quality of life has been reported to complicate the diagnosis of pressure ulcers.

Pressure ulcers is regarding to European standards categorized into four grades (European Pressure Ulcer Advisory Panel) (EPUAP):

Grade 1: Non-blanchable erythema of intact skin. Discoloration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly on individuals with darker skin.

Grade 2: Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister.

Grade 3: Full thickness skin loss involving damage to or necrosis of subcutaneous tissue that may extend down to, but not through underlying fascia.

Grade 4: Extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures with or without full thickness skin loss.

(European Pressure Ulcer Advisory Panel, EPUAP) (EPUAP).

The frequencies of pressure ulcers can be measured either as prevalence (the number of pressure ulcers at a given time) or as incidences (the number of pressure ulcers that develops during a defined care-episode).

The prevalence method gives a picture over the total number of pressure ulcers at a given time-point, without answering the question of when or where the ulcer was developed.

The method is suitable to obtain a baseline before interventions and as a follow up instrument to measure the effects of such interventions. The method is helpful for planning and monitoring optimal utilization of available resources. Prevalence studies can be performed with relatively modest costs and include total populations. A prerequisite however is that all patients are inspected for pressure ulcers, and that the data are not built on verbal communication.

A group of researchers within EPUAP have developed and tested (in larger studies) a simple form for registration of the prevalence, patient-related risk factors for developing pressure ulcers and prevention actions (attachment 1).

This questionnaire can be used together with a specially designed color-picture card for ulcer classification (Christina Lindholm © 2006) which contributes to a standardization of the classification of pressure ulcers. On the back of this card, the modified Norton scale is printed (attachment 2).

The modified Norton Scale has been tested for its validity and reliability (Ek & Bjurulf, 1987) and is used in many hospitals and nursing homes to predict pressure ulcers development.

Studies where effects of design care-given-programs and education programs have demonstrated contradictive results. A Canadian study made during three years, shows that an educational program have been very efficient to decrease the incidence of pressure ulcers (Cole & Nesbitt, 2004). Continues feed back of pressure ulcer incidence during a period of years has also proven to be of significant values in the efforts to reduce the number of pressure ulcers in one study (Bours, Halfens, Candel, Grol & Abu-Saad, 2004). In another study (Robinson, Gloekner m.fl., 2003), repeated educational efforts led to a decrease of pressure ulcers of 10%-20%. In one study, however, the value of strategies to lower the incidence of pressure ulcers raised questions and the conclusion was that "no intervention strategy has so far been reported to lead to reproducible decrease of the incidence of pressure ulcers" (Thomas, 2003).

Rationale for the study

Pressure ulcers is an indicator of quality of care. Since data regarding prevalence, grades and localization of pressure ulcers as well as frequency of preventive actions was missing on Fjordungssjukrahusid, the decision was taken by the Management to perform a prevalence study. The intention was also to give feedback of the results to the wards, to discuss suggested prevention actions, to train the staff in pressure ulcer development mechanisms and classification of pressure ulcers and to implement a 5-point program. The intention was also set to repeat the study after one year.

Aim

To study prevalence, localization, grades of pressure ulcers as well as patient-related risk factors and preventive actions available for patients with pressure ulcers or at risk for developing such ulcers.

Questions

* What is the prevalence of pressure ulcers?
* Into which grades are these pressure ulcers classified?
* Is the risk of developing pressure ulcers measured with the Norton-scale and to what extent?
* What proportion of the patients have Norton scores $\leq$20 (high risk of developing pressure ulcers?
* Is there a correlation between low Norton score $\leq$20 and pressure ulcers?
* How frequent is the preventions for patients at risk of developing pressure ulcers respectively those with established pressure ulcers?
    A. In bed
    B. In chair/wheelchair

Methods

Prior to the study, information was given to the Management and all departments of Fjordungssjukrahusid (Ólína Torfadóttir).

Two responsible nurses/ward were allocated to perform the data collection during one set day. These nurses were carefully instructed, and forms were test-filled in and questions answered by representatives from Kristianstad University and by the director of Nursing in Fjordungssjukrahusid (Ólína Torfadóttir).

A patient information was developed and given patients well in time for the actual study. If the patients gave their informed consent, they were included in the study.

All of the in- patients admitted to the wards between 07.00 and 21.00 at the Fjordungssjukrahusid were assessed for risk of developing pressure ulcers according to the Modified Norton scale. The total score was filled in.

The skin of each patient was inspected according to a scheme, illustrated by front and back picture of a human.

Preventive actions in bed and chair/wheelchair were recorded on the form.

The prevalence was calculated as percentage of patients with pressure ulcers of the total number of patients admitted to the hospital on the day of the study. The patients were included after they had given informed consent.

During the day of the study, the researchers were available for solving potential problems. The questionnaires were collected and distributed to the research assistant at the University of Kristianstad for data-analysis.

Results

Participating wards

Lyflækningadeild 1, Lyflækningadeild 2, Öldrunarlækningadeild, Endurhæfingadeild, Slysadeild, Hjúkrunarheimilið, SelI-deild, Gjörgæsludeild, HO deild.

A total number of 119 patients from different wards participated in the study.

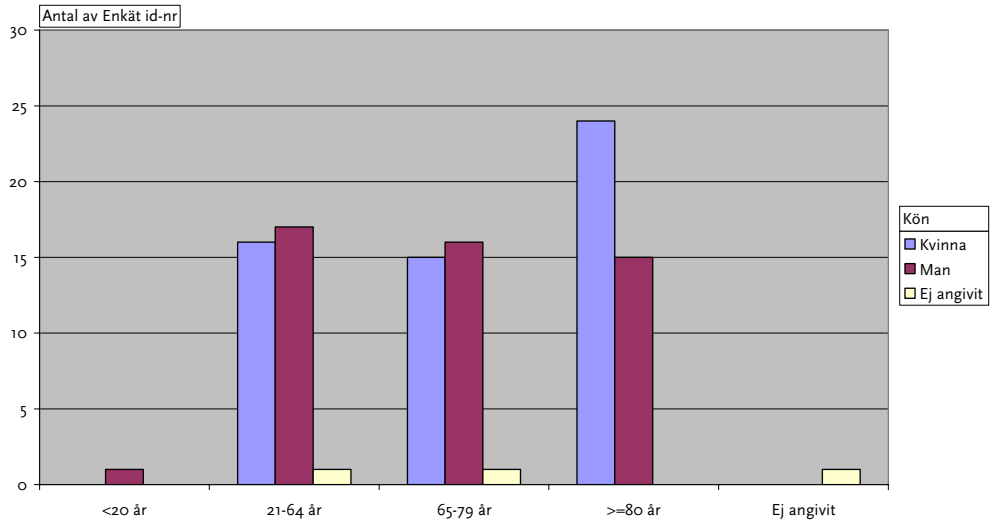

Figure 1 – Gender – Age at all patients investigated
(Ålder = Age, Kvinna = Female, Man = Male, Ej angivet = No information given, år = years of age)

Table I – Prevalence of pressure ulcers in all participating patients:

Amount of patients participating:	**119**
Amount of patients with pressure ulcers:	18
Prevalence, pressure ulcers:	17%

Amount of patients not participating in the study:	12
% Not participating:	10%

*Missing information about having pressure ulcers for one patient.

Table II – Degree of pressure ulcers

Amount	All investigated
Degree 1	33
Degree 2	4
Degree 3	0
Degree 4	0
Total	**37**

Table III – Mean score Norton scale

	All participating patients
With pressure ulcers	22,2
Without pressure ulcers	24,3
Total score	**23,9**

The routines for assessing the risks of developing pressure ulcers varied, but no patients had any notes in their records about being examined for pressure ulcers.

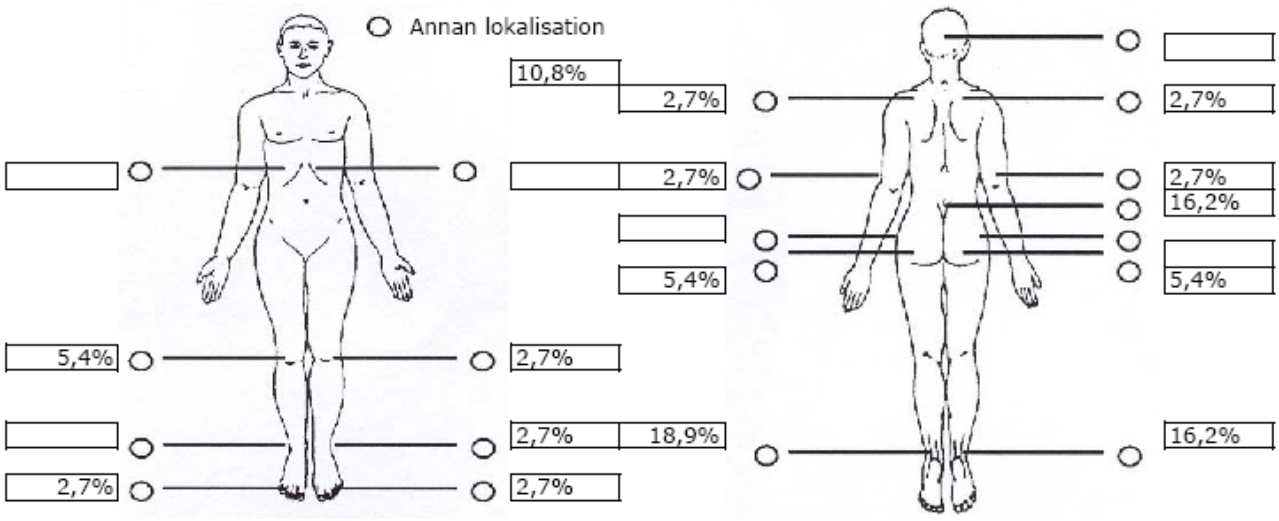

Figure 2 – Location of pressure ulcers, all patients

Twenty-three patients were at risk of developing pressure ulcers according to the Norton risk assessment scale (total score •20). Of these, almost all had any form of prevention.

Table IVa and IVb – Prevention total

Table IVa Patients with the Norton score ≤20 (high risk patients) (n=23)

	Total
Some preventions used	22
None prevention used	1
% with preventions and the Norton score of <=20	96%

Patients with a Norton of total score of ≥21 had some type of prevention in 66% of the cases.

Table IVb Patients with the Norton score ≥21

	Total
Some preventions used	54
None prevention used	28
% with preventions and the Norton score of >20	66%

Table V - Prevention, patients with pressure ulcers

Preventions used for patients with pressure ulcers

	Total	%
Pressure preventions used in the bed	13	72%
Pressure preventions used in the chair	6	33%
Turning/moving scheme used in the bed	4	22%
Turning/moving scheme used in the chair	2	11%
Any prevention used	14	78%

Discussions

Methodological considerations

Due to the meticulous preparations, and the excellent work by the nurses, the data collection went on smoothly, and without any problems. This resulted in carefully filled in forms with few missing data.

Personal communication with the nurses indicated that they had perceived the study as meaningful, and that the forms were easy to fill in.

Ten percentages of the patients did not participate in the study, which is a bit more than in Kristianstad (4%) (Lindholm, Westergren, Ulander & Axelsson, 2005). There is no indication that more severely sick patients refrained from participating.

Result discussion

The prevalence of pressure ulcers was low at the Fjordungssjukrahusid (17%) compared to hospitals in many European countries (approx 21%) and Akademiska hospital in Uppsala (24%) (Gunningberg, 2004). However, compared with a hospital of the same size in Sweden (Enköping) 13%, the prevalence was somewhat higher. The prevalence in Kristianstad general hospital with approximately 400 beds was 15% (Lindholm, Westergren m.fl., 2005). In that hospital, however, the department of pediatrics was included. The prevalence in two Swedish hospitals of similar size as Fjordungssjukrahusid 2005, the prevalence was 25% and 27% (Lindholm, Westergren m.fl., 2005). Differences in prevalence can always be explained by different patient mix. In Fjordungssjukrahusid a ward for rehabilitation was included, which might raise the prevalence per se.

The precision of the nurses assessment might also differ between wards and hospitals.

Eighty-nine percent of all the pressure ulcers were grade 1 ulcers, and only a few (n=4=11%) with grade 2 were observed. No pressure ulcers of grade 3 and 4 were detected. These results could be compared with the study in Uppsala (Gunningberg, 2004), were 66% of the ulcers were grade 1 ulcers. In the Skåne study (Lindholm, Westergren m.fl., 2005), the percentage of grade 1-ulcers was mean=63%, grade 2=20%, grade 3=6% and grade 4=4%.

The majority of the pressure ulcers in the present study were localized to the ankles, the knees, over the sacrum and over the tuberositae. These findings are in accordance with findings in other studies (Gunningberg, 2004; Lindholm, Westergren m.fl., 2005).

Tin the hospitals in Skåne (Lindholm, Westergren m.fl., 2005), the mean Norton score for patients with pressure ulcers was 20,4. In Fjordungssjukrahusid, the mean score for patients with pressure ulcers was 22,2, which is exceptionally high, and which indicates a high number of patients with relatively good health status. Patients without pressure ulcers in the three Skåne hospitals had a mean Norton score of 25 (Lindholm, Westergren m.fl., 2005), whereas this figure was 24,3 in Fjordungssjukrahusid.

Even if the score was >20 for patients with pressure ulcers in the present study, 20 has proven to be a safe cut off point for high risk patients (Ek & Bjurulf, 1987; Gunningberg, 2004; Lindholm, Westergren m.fl., 2005). The pressure ulcers identified in Fjordungssjukrahusid were all superficial, and it is likely that in more severely ill patients (low Norton score) there would have been more severe pressure ulcers.

The lack of correlation between low Norton score and presence of pressure ulcers might have been balanced by the fact that the mattress in Fjordungssjukrahusid were of extraordinary good quality and thickness compared to mattresses in the Skåne

hospitals. These excellent mattresses might also explain the absence of grade 3 and 4-ulcers.

Another explanation of the absence of severe pressure ulcers might be the extremely high outcome of prevention actions in the present study.

In Fjordungssjukrahusid, 96% of the patients (n=23) with Norton score ≤20 had some prevention, compared with the Skåne hospitals where only 24% of these high risk patients had any prevention (Lindholm, Westergren m.fl., 2005).

However, prevention in chair/wheelchair was only reported in 44% of the patients with pressure ulcers in the present study. This can of course be explained by the fact that some of these patients were too sick to be moved out of bed. The comperative figure for Skåne was 49% (Lindholm, Westergren m.fl., 2005).

From the experience of this and other similar studies, a 5-point program can be recommended to be implemented in the wards of Fjordungssjukrahusid.

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5 – point program pressure ulcers

* Use the Modified Norton scale to observe all the patients in beds/wheelchairs, and all ≥70 years of age – **Document the findings**
* Inspect the skin costume and note the degree of pressure ulcers when the patient is admitted to the ward/unit at a regular basis if they are in beds/wheelchairs **– Document the findings/observations**
* For patients with a risk of developing pressure ulcers – prevention by using madras's in the beds and in chairs and use of turning/moving schemes for the patients - try to keep the skin dry and soft – **Document the findings/observations**
* "Floating ankles" – **Document the preventions used**
* Responsible persons for pressure ulcers at every ward/unit – continuing education

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Bilaga 1

HÖGSKOLAN KRISTIANSTAD

Enkät avseende kvalitetsuppföljning av trycksår / Sjukhus

Skåne 9/2 2005

Bedömarens namn .....

Sjukhus ..... Verksamhetsområde .....

Avdelning..... Antal patienter totalt på avdelningen .....

Data patient

Ålder:
- ☐ ≤ 20 år
- ☐ 21-64 år
- ☐ 65-79 år
- ☐ ≥ 80 år

Kön:
- ☐ Kvinna
- ☐ Man

Dokumentation sista månaden

Längd ..... ☐ Uppgift saknas

Vikt..... ☐ Uppgift saknas

Riskbedömning enligt Modifierad Nortonskala, se trycksårskort * (fyll i på baksidan)

Patientens totala riskpoäng enligt Norton .....

Finns tidigare riskbedömning enligt Nortonskalan av patienten i journalen? ☐ Ja ☐ Nej

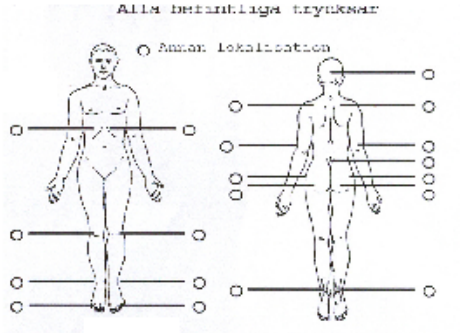
Patienten har trycksår
- ☐ Ja
- ☐ Nej

Hudbedömning och gradering av tryckskada. Använd trycksårskortet.

Grad 1 Kvarstående missfärgning, hel hud (bleknar ej vid tryck)
Grad 2 Blåsa eller ytlig epitelskada
Grad 3 Fullhudsskada utan sårkavitet
Grad 4 Fullhudsskada med sårkavitet (eventuellt med nekros)

Inspektera huden enligt bifogade mallar och fyll i graden i respektive ring.

Markera och gradera patientens tryckskada på figuren till höger
Sätt ett kryss i ringen på figuren till höger och skriv graden av tryckskadan, 1, 2, 3 eller 4 vid ringen



Preventiva åtgärder

Utrustning: I säng
- ☐ Ingen tryckavlastande/-utjämnande dyna
- ☐ Tryckavlastande dyna
- ☐ Eldriven tryckavlastande dyna
- ☐ Annat

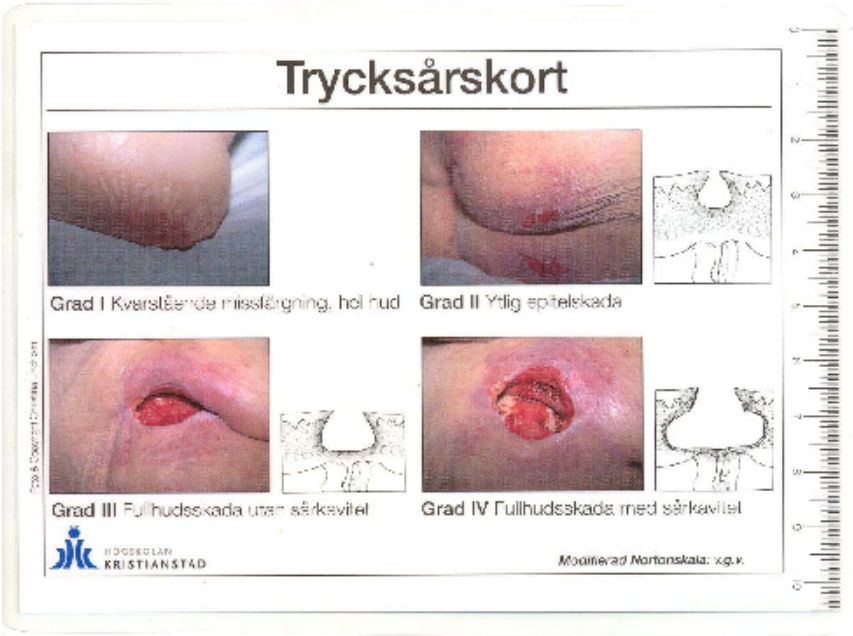
Lägesändring: I säng
- ☐ Inte planerat/oregelbundet
- ☐ Varannan timme
- ☐ Var tredje timme
- ☐ Var fjärde timme

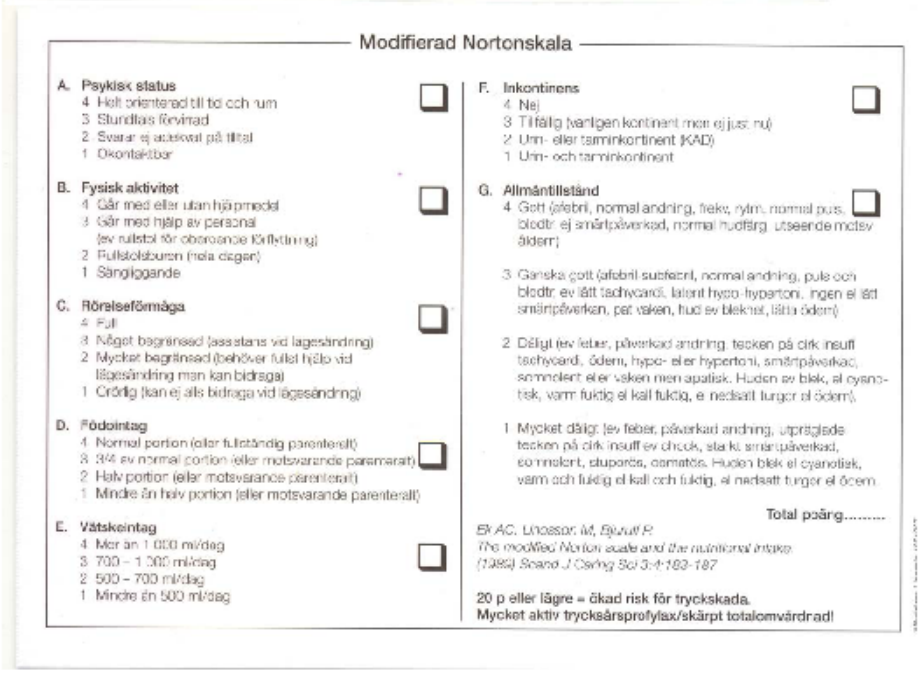
Utrustning: I stol/rullstol
- ☐ Ingen tryckavlastande/-utjämnande dyna
- ☐ Tryckavlastande dyna
- ☐ Eldriven tryckavlastande dyna
- ☐ Annat

Lägesändring: I stol/rullstol:
- ☐ Inte planerat/oregelbundet
- ☐ Varannan timme
- ☐ Var tredje timme
- ☐ Var fjärde timme

* Trycksårskortet distribueras separat

Bilaga 2





Modifierad Nortonskala

A. Psykisk status
4 Helt orienterad till tid och rum
3 Stundtals förvirrad
2 Svarar ej adekvat på tilltal
1 Okontaktbar

B. Fysisk aktivitet
4 Går med eller utan hjälpmedel
3 Går med hjälp av personal (ev rullstol för oberoende förflyttning)
2 Rullstolsburen (mela dagen)
1 Sängliggande

C. Rörelseförmåga
4 Full
3 Något begränsad (assistans vid lägesändring)
2 Mycket begränsad (behöver fullst hjälp vid lägesändring men kan bidraga)
1 Orörlig (kan ej alls bidraga vid lägesändring)

D. Födointag
4 Normal portion (eller fullständig parenteralt)
3 3/4 av normal portion (eller motsvarande parenteralt)
2 Halv portion (eller motsvarande parenteralt)
1 Mindre än halv portion (eller motsvarande parenteralt)

E. Vätskeintag
4 Mer än 1 000 ml/dag
3 700 – 1 000 ml/dag
2 500 – 700 ml/dag
1 Mindre än 500 ml/dag

F. Inkontinens
4 Nej
3 Tillfällig (vanligen kontinent men ej just nu)
2 Urin- eller tarminkontinent (KAD)
1 Urin- och tarminkontinent

G. Allmäntillstånd
4 Gott (afebril, normal andning, frisk, nytvn, normal puls, blodtr ej smärtpåverkad, normal hudfärg, utseende motsv åldern)
3 Ganska gott (afebril subfebril, normal andning, puls och blodtr ev lätt tachycardi, latent hypo-hypertoni, ingen el lätt smärtpåverkan, pat vaken, hud ev blekhet, lätta ödem)
2 Dåligt (ev feber, påverkad andning, tecken på cirk insuff tachycardi, ödem, hypo- eller hypertoni, smärtpåverkad, somnolent eller vaken men apatisk. Huden ev blek, el cyanotisk, varm fuktig el kall fuktig, e nedsatt turgor el ödem).
1 Mycket dåligt (ev feber, påverkad andning, utpräglade tecken på cirk insuff ev chock, stelkramp, smärtpåverkad, somnolent, stuporös, comatös. Huden blek el cyanotisk, varm och fuktig el kall och fuktig, el nedsatt turgor el ödem.

Total poäng.....

Ek AC, Unosson M, Bjurulf P.
The modified Norton scale and the nutritional intake.
(1989) Scand J Caring Sci 3:4:183-187

20 p eller lägre = ökad risk för tryckskada.
Mycket aktiv trycksårsprofylax/skärpt totalomvårdnad!