Physical Restraints in Intensive Care In Europe

PRICE

Investigators:
Sheila Adam UK
Julie Benbenishty Israel
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Physical Restraints in Intensive Care in Europe
Myth Vs. evidence

Myth #1:

• Restraining intubated patients will prevent self-extubation.

Evidence:

• In a 12 month study in a general ICU of intubated patients, found self-extubation occurred despite of sedation and restraints.

• Those who self extubated were restrained, sedated, or both.

Myth Vs. Evidence

Myth #2:

• Restrained patients have a longer hospital stay.

Evidence:

• Restrained patients were hospitalized twice as long as those who were not restrained, the mortality increased in those patients who were restrained.

Myth Vs. Evidence

Myth #3:

- Increased awareness can result in change in restraint practice.

Evidence: Simply increasing the staff’s knowledge about the risks associated with restraint use and introducing appropriate alternatives can change behavior.

Critical Care Nurse, Juanita Reigle August 1997
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- Purpose:
- Little data available in European ICU’s
- Extent and Criteria
- Influencing practice: staffing, culture, diagnosis of patient, ventilation
- The violent patient
- Types of restraints used
- Development of guidelines/policy
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- The Last Resort- The use of Physical Restraints in Medical Emergencies
- In surgical ICU patients: a study of the effects of physical restraints and sedation on the incidence of self-extubation
  - American Journal Medical Quality Sep–Oct 2000
- Decreasing unplanned extubations in the surgical intensive care unit
  - American Journal of Surgery Dec 1995
- Restrained patients: an important issue for critical care nursing
  - Heart and Lung Jan–Feb 1993
ESICM Barcelona Nursing pro-con debate physical restraint findings:

Vast range of usage.
Few represented countries had clear guidelines/policies
Many nurses feel ethically challenged
Evidence based- sedation use causes prolonged intubation?
Issues raised during conference:

- Use of physical restraint in ICU varies across Europe
- Varied reasons for and against the use of physical restraint
- It is possible that use is more likely to be governed by Socialisation and cultural attitude than clinical evidence
Socialisation and Culture

Restraint practice may be more of a cultural phenomenon

Patients with similar levels of agitation are managed with physical restraint in some countries and without physical restraint in others

Nurse:Patient ratios

Martin & Mathison (2005)
Observational study in 5 ICUs
- 3 USA, 2 Norway

• 50 patients in each country
  - 1 observation at night, 1 in the day - on each pt

• 39 incidents of restraint in U.S., none in Norway

• Norway – higher sedation rates, N:P ratio 1.05:1, patients had higher NEMs scores

• U.S. – Pts significantly more awake (SAS), less morphine, N:P ratio 0.65:1, 7 episodes of unplanned removal of invasive devices

• No LOS recorded

Martin & Mathison Am J Crit Care; 14: 133-42
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Research Questions:

• What is extent of PR use in Europe
• Are there differences between countries
• Differences between units in same country
• What are reasons for PR
• What methods are used
• Relationship between nurse: patient ratio
• Relationship between sedation/use of PR
**PRICE**

- **Methodology**
- A prospective, descriptive survey of the prevalence of PR use in European ICU’s
- Recorded on 2 separate days-weekday/weekend
- **Inclusion criteria**- All adult patients in ICU
- **Exclusion criteria**- less than 18 years of age
- **Number of patients restrained, reasoning, type, effectiveness, effect on patient, length of time restraint used.**
Sedation Problems

* respiratory depression
* haemodynamic effects (e.g. low BP, low CO)
* gastrointestinal effects (e.g. ileus, constipation)
* long-acting, cumulative - renal/liver dysfunction
* withdrawal ---> agitation
* tolerance
* cost
## Data collection sheet

The Use of Physical Restraints in European ICUs

<table>
<thead>
<tr>
<th>Name of ICU</th>
<th>Country</th>
<th>Name of data collector</th>
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<tbody>
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**Usual nurse:patient ratio:**
- 1:1
- 1:2
- 1:3
- 1:4
*(please circle the appropriate ratio)*

**Average admissions/month**

**Number ICU beds**

**Date**

The unit has a Physical restraint policy? **Y/N**

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Please record for all patients - **if no restraint is in use record 'none' under type of restraint and leave the rest blank**

<table>
<thead>
<tr>
<th>Patient Number</th>
<th>Type of restraint</th>
<th>Limbs restrained</th>
<th>Position of patient (i)</th>
<th>Position of patient (ii)</th>
<th>Reason for restraint</th>
<th>Pt behaviour causing restraint</th>
<th>Alternative measures used</th>
<th>Length of time pt. restrained</th>
<th>Restraint successful?</th>
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### Codes for responses

<table>
<thead>
<tr>
<th>Type of restraint</th>
<th>Limbs restrained</th>
<th>Position of patient (i)</th>
<th>Position of patient (ii)</th>
<th>Reason for restraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- padded gloves</td>
<td>1- one hand only</td>
<td>1- in bed restrained to guard rais</td>
<td>1 - is optimal for patient stability and/or recovery</td>
<td>1- prevent the pt from falling</td>
</tr>
<tr>
<td>2- gauzecotton pad</td>
<td>2- both hands</td>
<td>2- in bed restrained to bed frame</td>
<td>2- not optimal for pt stability and/or recovery</td>
<td>2- prevent falling from chair</td>
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<tr>
<td>3- crepe bandage</td>
<td>3- torso</td>
<td>3- in chair restrained to back of chair</td>
<td>3- varies</td>
<td>3- pt is pulling out tubes/</td>
</tr>
<tr>
<td>4- sheet</td>
<td>4- one leg</td>
<td>4- in chair restrained to arms of chair</td>
<td>4- pt wanders off unit</td>
<td>4- pt is dangerous to self</td>
</tr>
<tr>
<td>5- commercial</td>
<td>5- both legs</td>
<td>5- other (please comment)</td>
<td>5- reason for restraint is unclear</td>
<td>5- reason for restraint is unclear</td>
</tr>
<tr>
<td>wrist straps</td>
<td>6- other</td>
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<td>7- prevent self-extubation</td>
<td>7- prevent self-extubation</td>
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<tr>
<td>6- other</td>
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<td>8- other</td>
<td>8- other</td>
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</tbody>
</table>

### Patient behaviour causing restraint

1- confusion  
2- drowsiness  
3- restlessness  
4- hallucination  
5- disorientation  
6- delirious from fever  
7- physically unstable on feet  
8- aggressive/dangerous to others  
9- other (please comment)  

Please note - more than one descriptor may be used

### Other measures used

1- sedative drugs
2- continuous restraint by staff
3- verbal reassurance by staff
4- other (please comment)
5- none

### Other measures

- sedative drugs
- continuous restraint by staff
- verbal reassurance by staff
- other (please comment)
- none

### Length of time restrained

1- this shift only  
2- 1 day  
3- 1-2 days  
4- more than 2 days  
5- more than 5 days

### Sedation (please add dose)

1- benzodiazepine  
2- opiates  
3- propofol  
4- ketamine  
5- isoflurane  
6- haloperidol  
7- chlorpromazine  
8- other (please state)

### Restrained successful?

1- yes  
2- no  
3- partially

*(please circle the appropriate ratio)*

### If you have a physical restraint policy or guidelines, please send a copy with the form.

Please return the data collection form to:

by email

Juhi Benbenishty  
email address - data_processing@ethics.org.il

Sheila Adam  
email address - sheila_adam@virgin.net  
sheila_adam@uclh.org

or by post to

Sheila Adam  
Chair, Nursing Section ESICM  
ICU, The Middlesex Hospital  
Mortimer St  
London W1T 3AA
Results

- 34 general ICUs participated from 9 European countries and 1 participated from Australia
- 750 patients were included with detail of physical and sedative restraint in 545 patients
- Average size of ICU = 14 beds (range 4 – 24)
- Average number of admissions/month = 63 (range 15-143)
Countries involved

- Portugal
- Italy
- France
- Spain
- Australia
- Greece
- Switzerland
- Finland
- Netherlands
- Israel
% of patients physically and chemically restrained by country

- Portugal
- Italy
- France
- Spain
- Australia
- Greece
- Switzerland
- Finland
- Netherlands
- UK

% pts physically restrained
% pts sedated
Nurse:Pt ratio
Reasons for use of physical restraint

- To prevent self-extubation (25%)
- Patient is dangerous to self (27%)
- Reason for restraint is unclear (8%)
- To prevent falling from chair (3%)
- Other (9%)
- Patient is pulling out tubes (2%)

To prevent the pt from falling
Types of physical restraint used

- Commercial wrist straps: 90%
- Gauze/cotton pad: 6%
- Sheet: 3%
- Crepe bandage: 1%
- Padded gloves: 0%
- Other: 0%

Legend:
- Commercial wrist straps
- Gauze/cotton pad
- Sheet
- Crepe bandage
- Padded gloves
- Other
Types of sedatives used

- Opiates: 36%
- Benzodiazepine: 25%
- Propofol: 11%
- Other: 3%
- Haloperidol: 1%
- Ketamine: 1%
- Isoflurane: 23%
Where patients are restrained

- In bed restrained to bed frame: 39%
- In bed restrained to guard rails: 3%
- In chair restrained to back of chair: 1%
- In chair restrained to arms of chair: 1%
- Other: 56%
Patient behaviour requiring restraint

- Restlessness: 77
- Delirious from fever: 57
- Confusion: 42
- Drowsiness: 40
- Physically unstable on feet: 37
- Disorientation: 27
- Hallucination: 12
- Other: 4
- Aggressive/dangerous to others: 3

N=299
Summary

- Majority of patents were restrained to the bed
- Sedation drugs- Opiates, Benzodiazepines, Profofol
- Commercial bought wrist straps were used
- Most common reason for restraining- restlessness
- The more sedative drugs were used, less restraints were used
CONCLUSION

First major study into European ICU physical restraints
Physical restraint use in intensive care units across Europe: the PRICE study.

Benbenbishty J, Adam S, Endacott R.
Reasons for Use of Physical Restraint

1) Restraining intubated patients will prevent unplanned invasive device removal
   • In a study comparing physical restraint use in 100 patients in Norway and the US.
   • Physical restraint use only occurred in the US.
   • Unplanned device removal occurred only in the US

   Martin, B; Mathisen, L. 2005 USE OF PHYSICAL RESTRAINTS IN ADULT CRITICAL CARE: A BICULTURAL STUDY. American Journal of Critical Care; Mar 2005; 14, 133 -142
Detrimental effects of Physical restraint

- Restrained patients have a longer hospital stay.

Evidence:

- Restrained patients were hospitalized twice as long as those who were not restrained, the mortality increased in those patients who were restrained.

Primary objective:

• To gather descriptive data on the incidence of, and the reasons for physical restraint use in adult ICUs in Europe.

Secondary objectives:

• to determine differences between European countries in
  – the use of physical restraints,
  – reasons for use,
  – type of restraints used
  – policies for use.

• to describe any relationship between nurse: patient ratio and the use of physical restraint
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Methodology

- Prospective, descriptive multi-national European survey of physical restraint use in adult intensive care patients.
- Point prevalence study of restrained patients on one weekday and one weekend day
  - Inclusion criteria- All adult patients in ICU
  - Exclusion criteria - less than 18 years of age