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A retrospective cohort study to assess influence and adverse effect of restraint use among patient admitted at all Intensive Care Unit

Rajesh Soni (MBBS MD Chest Physician) , Dr. Pulkit Goyal (MBBS MD Physician) ,Dr .Anand Goyal, (MBBS MD Physician) Dr Ganpat Singh (MBBS MD Physician) Mr. Gaje Singh (Post Basic B.Sc. Nursing, MBA)
Department of Critical Care Medicine
Goyal Hospital & Research Centre Pvt.Ltd Jodhpur Rajasthan

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ABSTRACT:
Background:In an ICU (Intensive Care Unit), patient restraints may be used to ensure the safety of patients who might harm themselves or others. However, their use is typically a last resort and must follow strict protocols. Here are key considerations about ICU patient restraints: In general, restraint use in the ICU must be governed by principles of minimizing harm and ensuring patient well-being while safeguarding essential medical care. The use of restraints in healthcare has a complex history, evolving from widespread use in the past to more regulated, limited application today due to ethical concerns and advancements in patient care. Historical Context: *Ancient and Medieval Times*: Restraints, both physical and environmental, were common in caring for mentally ill or agitated individuals. This was often done to prevent harm, but in many cases, it was used as a means of control, lacking compassionate care.
Objective: To find out reason of restraint use in intensive care units and also need to observe type of restraint use for .assess the complication arise due to use of in restraint and seclusion..
Methods: A cohort Prospective study designed, total 360 patient admitted in ICU during study period out of 90 patients' restraint used from all intensive care unit of Goyal Hospital and research centre pvt ltd data collected in month of May- June 2024 rom from patient admitted in critical area. Setting and sample of 80 patient collected those underwent restraint physical and chemical and data was collected with following details Age, Diagnosis, Reason for restraint and impact of restraint as any complication and also captured the duration of restraint use for.
Conclusions: restraints are more commonly used in hospitals, physical and chemical both restraints has their own draw back and benefits. but whenever its necessary its used by health care staff in intensive care units after taking consent from patients and their relatives. in this study we found 16.5 % Patient experienced complication of restraints. And they all had received restraint more than 24hrs, physical restraints used more and its 65% of patients .in 72% cases restraint used to avoid behavioural

KEYWORDS: RESTRANT, INTENSIVE CARE UNIT, EDVERSE EFFECT OF RESTRANT

I. INTRODUCTION

Patient restraint refers to ensure patient safety and withhold unnecessary movement to reduce harm for that use physical and chemical adjunct at critical area of hospital. The use of restraints is highly regulated and subject to ethicalissue.as improper use can leads to physical harm, psychological trauma and violation of patients' rights.

Objectives:

To Find out reason of Restraint use in intensive care unites and also need to observe type of restraint use for. assess the complication arise due to use of in restraint and seclusion..

Background

In an ICU (Intensive Care Unit), patient restraints may be used to ensure the safety of patients who might harm themselves or others. However, their use is typically a last resort and must follow strict protocols. Here are key considerations about ICU patient restraints:

Types of Restraints:

1. *Physical Restraints*: These include wrist or ankle cuffs, belts, or vest restraints that limit a patient's movement.

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2. *Chemical Restraints*: The use of medications to sedate or control a patient's behaviour.

Reasons for Use:

- Prevent self-harm*: Patients might try to remove medical devices -Tubes which can leads to trouble.
- Prevent harm to others*: In some cases, patients may become aggressive or confused, posing a risk to staff or other patients.
- Maintain life-saving treatments*: Restraints might be used if patients try to interrupt treatments like mechanical ventilation.

Guidelines and Protocols:

Assess Need Regularly*: Continuous evaluation is crucial. Restraints are only used when necessary and for the shortest duration possible.

Documenting*: Every instance of restraint use must be well-documented, including the reason, duration, and any monitoring performed during its application.

Patient Comfort*: Even when restrained, a patient's comfort, dignity, and human rights must be respected. Regular checks for circulation, skin integrity, and positioning are necessary.

De-escalation First*: Non-restraint techniques such as verbal de-escalation, distraction, or reorientation should be attempted before resorting to restraints.

Ethical Considerations Consent*: If possible, consent from the patient or family is sought before applying restraints.

- *Risk of Complications*: Restraints can cause physical injuries, including bruising, nerve damage, or restricted blood flow. Psychological distress is also a concern.

Alternatives: Use of specially trained staff to calm patients.

Modifying the environment to minimize confusion or anxiety.

-Addressing the root causes of agitation, like pain, fear, or medication side effects.

In general, restraint use in the ICU must be governed by principles of minimizing harm and ensuring patient well-being while safeguarding essential medical care.

The use of restraints in healthcare has a complex history, evolving from widespread use in the past to more regulated, limited application today due to ethical concerns and advancements in patient care.

Historical Context:*Ancient and Medieval Times*: Restraints, both physical and environmental, were common in caring for mentally ill or agitated individuals. This was often done to prevent harm, but in many cases, it was used as a means of control, lacking compassionate care.

18th and 19th Century*: With the rise of asylums and institutions, the use of restraints became more structured, though still widespread. Treatments for psychiatric conditions often involved confinement and restraint. In this period, physical restraints like chains, straitjackets, and shackles were routinely used.

Early 20th Century*: The development of psychotropic medications and advancements in psychiatry began to shift the reliance away from physical restraints, although these methods remained common in hospitals and care facilities.

Mid to Late 20th Century*: Growing awareness of patient rights and the ethical implications of using restraints led to reforms. Reports of abuse, injury, and psychological harm brought about legal changes and advocacy efforts to limit restraint use to exceptional circumstances.

Modern Era*: Today, restraints are viewed as a last resort, with strict legal, ethical, and medical guidelines governing their use. Many institutions now emphasize alternative, non-restrictive interventions.

Current Guidelines and Regulations:*

1. Legal Framework:*Human Rights-Based Approach: The modern perspective prioritizes the rights, dignity, and autonomy of patients. International guidelines such as those from the **World Health Organization (WHO)* and *United Nations* emphasize that restraint should only be used in emergencies to prevent imminent harm.Country-Specific Legislation: In many countries, such as the U.S., **Centers for Medicare and Medicaid Services (CMS)* and the *Joint Commission* enforce rules requiring facilities to demonstrate the necessity of restraint and to explore all alternatives first.
2. Clinical Guidelines: Indications for Use*: Restraints should only be employed when absolutely necessary to protect the patient or others from harm and only when less invasive interventions have failed. Informed Consent*: When possible, consent should be obtained from the patient or a legal guardian. If a patient is unable to provide consent (due to sedation or altered mental status), the need for restraints must be carefully documented and justified. Time-Limited*: Restraints must be temporary, regularly reviewed, and promptly removed when the threat of harm subsides. Monitoring*: Patients in restraints must be closely monitored for signs of distress, discomfort, or physical harm. Frequent checks

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(usually every 15–30 minutes) are mandated. Training*: Healthcare providers must undergo regular training on restraint use, focusing on de-escalation techniques, the safe application of restraints, and the ethical and legal implications of their use.

3. Ethical Considerations: Dignity and Autonomy*: Even when restrained, patients should be treated with respect. Restraints should never be used as punishment, for staff convenience, or to coerce compliance. Minimizing Harm*: Restraints carry risks such as injury, psychological trauma, or even death (e.g., from asphyxiation in physical restraints). Facilities must ensure that staff are trained to minimize these risks. Least Restrictive Option*: The least restrictive method (such as verbal de-escalation or environmental changes) should always be prioritized before physical or chemical restraints.
4. Types of Restraints*:Physical Restraints*: Devices or materials that restrict movement (e.g., belts, straps). Chemical Restraints*: Medications used to control behavior (e.g., sedatives). These must be used with care and under strict medical supervision. Environmental Restraints*: Modifications to the patient's surroundings (e.g., locked doors, padded rooms).

Best Practices:* Prevention*: The goal is to prevent the need for restraints by managing the patient's environment, communication, and addressing causes of agitation like pain or fear. De-escalation Techniques*: These are non-restraint interventions aimed at calming the patient, such as therapeutic communication, offering reassurance, or distraction. Multidisciplinary Approach*: Physicians, nurses, psychologists, and patient advocates should collaborate in decision-making regarding restraint use, ensuring all perspectives are considered.

4. *Regular Reassessment*: The necessity of restraint use should be continuously evaluated, and restraints should be removed as soon as it is safe to do so.

Global Guidelines and Declarations: *

WHO's Mental Health Policy*: Calls for restraint-free psychiatric care wherever possible, urging countries to promote humane treatment.

In summary, the history of patient restraints reflects a shift from widespread, unregulated use toward modern-day efforts focused on ethical, compassionate care, **emphasizing the least restrictive options, patient autonomy.**

Methods

A cohort Prospective study designed used to find influence and effect of restraint for that data collected from all intensive care unit of Goyal Hospital and research centre pvt ltd data collected in month of June and July 2024 rom from patient admitted in critical area. Setting and sample of 80 patient collected those underwent restraint physical and chemical and data was collected with following details Age, Diagnosis, Reason for restraint and impact of restraint as any complication and also captured the duration of restraint use for. For the International measurement. In the hospital setting, all critical care units were eligible. Those patient admitted at intensive care units and restrained applied are eligible and involved in data collection. consent taken from patient or there relative for study . and those patient admitted other then intensive care unit are excluded patients aged or who could not give informed consent (for instance, due to cognitive impairment or language barriers). Data collected through standard checklist and observation. Care dependency was assessed using the Care Dependency Scale (CDS) (Dijkstra et al., 2012).

Statistics

Age

N	Valid	80
	Missing	0
Mean		55.7750
Median		55.0000
Mode		76.00
Std. Deviation		18.05966
Minimum		22.00
Maximum		86.00

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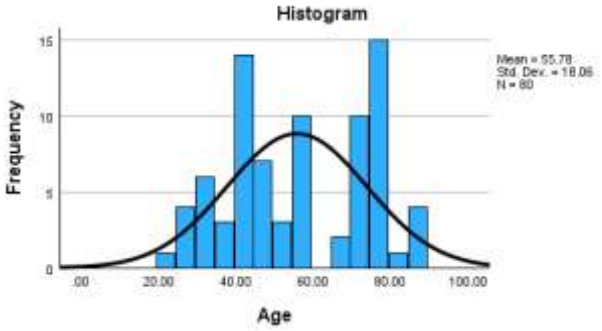
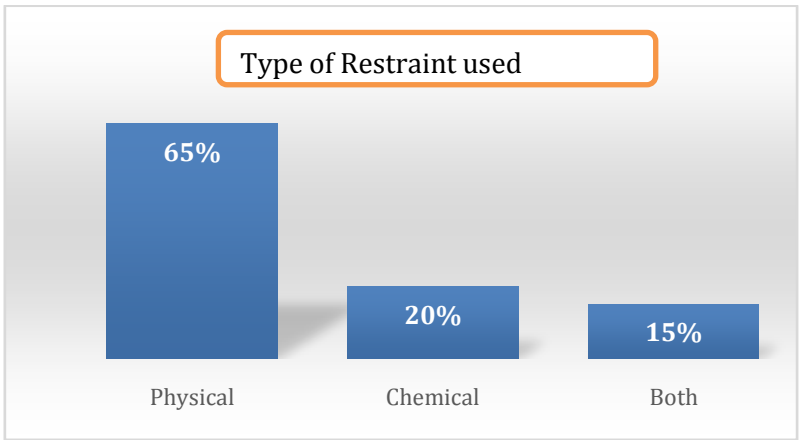
RESULT: The data from the two Intensive care units of Goyal Hospital and research centre was collected an Descriptive statistics total Population of 360 patients hospitalised in ICU on that duration 90 patient used restraint and 80 restraint patients participated from all intensive care units of hospitals were surveyed regarding the use of restraints in hospital and out of 80 patient 52 was Male patient and 28 was Female patient Reasons for restraint use the main reason for restraint use was fall prevention total 7 (8.75%, n = 80), followed by confusion or delirious behaviour was Higer in all 58 no (72.5%, n = 80). This behaviour changes due to electrolyte imbalance, head trauma and other medical condition. In intensive care units patient was on mechanical ventilation restraint use to avoid tube displacement 19 no (18.75%, n = 80). Health care professional explained reason and risk benefits to patients or there legal relative then taken consent and documented in all patients file without any failure and even the have regularly A regular evaluation with all persons involved, including the patients shift wise monitoring done and restraint hold time also recorded in proper format and found that restraint use more then 24 hrs 16.25% of patient Developed monitored and counselling to patient or relative which is also documented in all the patient file. mild complication like swelling ,redness ,skin peeling . this is found that on 65% (52) patients physical restraint used and on 20%(16) Chemical restraint used and where both restraint used on 15%(12) due to that Behavioural , Mechanical ventilation and fall prevention reasons .



Type of Restraint		
Physical	65%	52
Chemical	20%	16
Both	15%	12



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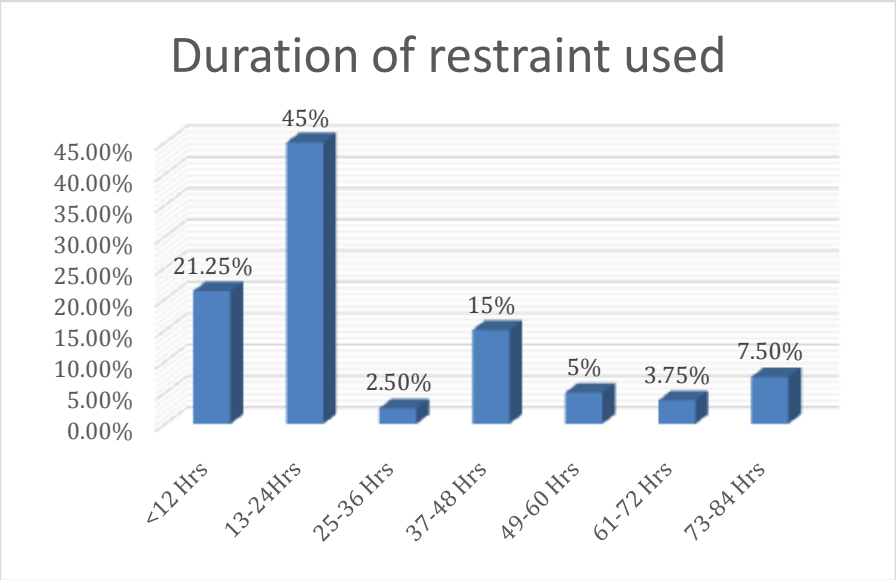

Duration of restraint Use		
<12 Hrs	**21.25%**	**17**
13-24Hrs	**45%**	**36**
25-36 Hrs	**2.50%**	**2**
37-48 Hrs	**15%**	**12**
49-60 Hrs	**5%**	**4**
61-72 Hrs	**3.75%**	**3**
73-84 Hrs	**7.50%**	**6**

Discussion the cohort study on restraint use in hospitals, we found that approximately every 6th patient was affected by restraint use. Most frequently mechanical methods (for example, bed rails) were applied followed by electronic and pharmacological restraints. Restraints seem to be used in complex care situations such as with patients at risk of falling or with delirium. When using restraints, processes such as documentation and regular evaluation do not appear to be systematically implemented. The strongest association for restraint use was found with patients' care dependency and mental and behavioural disorders. This indicates that a very vulnerable patient group was most affected by restraint use.

Conclusions in present restraints are more commonly used in hospitals, physical and chemical both restraints has their own draw back and benefits. but whenever its necessary its used by health care staff in intensive care units after taking consent from patients and their relatives. in this study we found 16.5 % Patient experienced complication of restraints. And they all had received restraint more then 24hrs , physical restraints used more and its 65% of patients .in 72% cases restraint used to avoid behavioural. Overall, this first study on different restraint types, irrespective of medical specialities in hospitals, provides insight into possibilities for quality improvement approaches

Recommendation:

On the bases of study, we need to decrease the use of physical restraint in hospital area patients and if its use needs to use as short time and regular monitoring to be done with high standard of infection control and patient safety protocol.

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