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PROBLEMS ASSOCIATED WITH THE USE OF PHYSICAL RESTRAINTS

Physical or mechanical restraints are those "devices, material, and equipment which: 1) are attached to or are adjacent to the patient's body; 2) prevent free bodily movement to a position of choice (standing, walking, lying, turning, sitting); and 3) cannot be controlled or easily removed by the patient" (Stilwell, 1988, p. 42). The use of physical restraints in North America as a management practice with elderly patients recently has come under scrutiny by nurses, physicians, and ethicists (Evans & Strumpf, 1989; Frengley & Mion, 1986; McHutchion & Morse, 1989; Robbins, 1986; Robbins, Boyko, Lane, Cooper, & Jahnigen, 1987; Schafer, 1985; Schwartz, 1985; Strumpf & Evans, 1988). The frequency of this practice in North America as compared to other developed countries raises questions about its benefits and utility in managing elderly patients in both nursing home and hospital settings (Evans & Strumpf, 1987; Anonymous, 1980; Anonymous, 1984). This discussion reviews the use of physical restraints with elderly patients, including: the extent of the practice; beneficial and deleterious effects; the various dimensions (medical, legal, ethical) of the practice; and the agenda for future research.

State of the Science

Prevalence

Use of physical restraints for elderly individuals in nonpsychiatric settings is common. In the acute-care setting, overall prevalence rates of 6.0 to 17 percent have been reported (Frengley & Mion, 1986; Katz, Weber & Dodge, 1981; Lofgren, MacPherson, Granieri, et al., 1989; Robbins et al., 1987). However, these prevalence rates increase to 18 to 20.3 percent for patients who are older than 65 and to 22 percent for those older than 75 (Frengley & Mion, 1986; Mion, Frengley, & Adams, 1986; Robbins et al., 1987; Warshaw et al., 1982). In the nursing home setting the prevalence rates range from 19 to 84.6 percent and a rate of 34 percent has been reported in the rehabilitation setting (Dube & Mitchell, 1986; Folmar & Wilson, 1989; Anonymous, 1980; Katz et al., 1981; Mion, Frengley, Jakovcic & Marino, 1989; Zimmer, Watson, & Treat, 1984). Interestingly, psychiatric settings report the lowest prevalence rates, 3.6 to five percent for all ages, with the use of restraints almost nonexistent for older persons in these settings (Bornstein, 1985; Soloff, 1978). It has been noted that physical restraints are legally limited in psychiatric settings (Shindul & Snyder, 1981; Soloff, 1978). Federal regulations governing restraint use exist for the nursing home setting (Omnibus Budget Reconciliation Act of 1987), but no agreed upon guidelines or mandatory statutes exist for the acute-care setting. In their excellent review of the literature on physical restraints, Evans & Strumpf (1989) note that it is unclear when restraints were first used for elderly nonpsychiatric patients.

Reasons for Use

Several studies have examined nursing staff's rationale for using physical restraints on elderly nonpsychiatric patients (Mion, Frengley, et al., 1989; Strumpf & Evans, 1988; Yarmesch & Sheafor, 1984). Yarmesch & Sheafor (1984) presented four case studies to 23 nurses on four acute medical units and two nursing home units; the nurses were asked if they would use physical restraint, chemical restraint, or alternative measures for these cases. Of the 91 decisions, 81 (89%) involved using physical and/or chemical restraints. Of the 149 reasons that nurses gave for restraining a patient, the two most common were to protect the patient and to protect others. The authors noted that there was wide variation in the decisions and motivations of the nurses in response to individual case studies. Strumpf and Evans (1988) interviewed 20 elderly medical patients who were physically restrained at some time during their hospitalization. They also interviewed each patient's primary nurse (N=18). The main reasons given by nurses for restraint were changes in the patient's mental status (65%) and prevention of falls (60%). Other reasons in descending order of stated frequency were to protect others' safety (55%), to facilitate treatment (40%), and noncompliance (10%). Usually more than one reason was given. Patients' perceptions of the reasons for restraint were not always in agreement with nurses' perceptions; none of the patients stated facilitation of treatment as a reason.

Mion, Frengly, and colleagues (1989) interviewed nurses on an acute medical ward and two medical rehabilitation wards about their specific reasons for restraining patients. The acute medical nurses offered the following rationale: 1) to keep the patient from getting out of the bed/chair (71%); 2) to maintain therapies; that is, to prevent the disruption of tubes and dressings (34%); 3) to manage wandering or hyperactivity (23%); 4) to manage violent behavior (11%); 5) to maintain the patient's sitting balance (11%); and 6) to prevent the patient from harming himself (11%). The rationale offered by the rehabilitation nurses differed in order of frequency: 1) to keep the patient in the bed/chair (67%); 2) to maintain the patient's sitting balance (33%); 3) to manage wandering or hyperactivity (14%); 4) to prevent the patient from harming himself (14%); 5) to maintain therapies (8%); and 6) to manage violent behavior (2%). These latter two surveys support Yarmesch and Sheafor's (1984) observation of wide variation among nurses' rationales for the use of physical restraints.

The nurse is the primary health professional who decides whether or not to restrain a patient, with little input from other members of the interdisciplinary team (Frengley & Mion, 1986; Silver, 1987; Strumpf & Evans, 1988). Several authors have offered rationales for nurses' use of restraints based on observations and clinical experience that were not reflected in the studies noted above. These include nurses' and administrators' fears of legal liability, inadequate staffing, nurses' dislike of a chaotic ward, nurses' intolerance of deviant behavior, and pressure from families (Cubbin, 1970; Frengley & Mion, 1986; McHutchion & Morse, 1989; Robbins, 1986; Silver, 1987). The frequent use of physical restraints on older persons also has been attributed to "benevolent paternalism" among nurses based on their belief that the elderly patient is incapable of rational choice (Schafer, 1985; Wilson-Barnett, 1986).

Patient Characteristics

A few prospective studies, all in the hospital setting, have been published that examined characteristics of restrained patients as compared with nonrestrained patients (Frengley and Mion, 1986; Mion, Frengley et al., 1989; Robbins et al., 1987). Because studies did not examine the same variables, generalizability of the data is limited to some extent. Nevertheless, certain common characteristics of hospitalized restrained patients have emerged. The studies found that restrained patients tended to be older, had higher morbidity and mortality rates, and had longer lengths of stay as compared with nonrestrained patients.

Only two studies used multivariate analyses to determine risk factors of physical restraint use (Mion, Frengley et al., 1989; Robbins et al., 1987). Robbins and colleagues (1987) did multivariate Cox regression analysis on the following variables, present on admission, to determine risk of physical restraint: age, ward, service (medical or surgical), prognosis, ambulatory status, pre-hospitalization living situation, mental status, and admission documentation of an organic brain syndrome. Variables assessed as potential risk factors that occurred during hospitalization included: room change, surgery, and the number of mobility restrictors, that is, devices used for medical therapy that necessitated restricted patient movement. Results indicated that only abnormal mental status, presence of an organic brain syndrome, surgery, and the presence of at least one mobility restrictor were predictive of physical restraint.

Mion and colleagues (1989) examined the following variables as potential predictors of physical restraint in hospitalized patients: age, gender, race, severity of illness, physical function, pre-hospitalization living situation, mental status, documentation of a psychiatric disorder, and use of a major tranquilizer. Logistic regression analysis showed that greater physical dependency, decreased cognitive status, increased severity of illness, presence of a psychiatric diagnosis, and being Caucasian increased the risk of physical restraint in the acute-care setting. In the rehabilitation setting, the presence of cognitive impairment, physical dependency, and being male were significant predictors for restraint use. Although the two studies were not identical in settings and methodology, what does emerge is the absence of increased age as an independent risk factor for restraint use. The presence of cognitive impairments was the common variable in determining increased risk for physical restraint use. Moreover, the patient risk factors identified in these two studies are complementary to the nurses' rationales for using physical restraints.

Evans (1989) reported on a comparison study of eleven restrained versus nine unrestrained nursing home residents. Although restrained residents were more physically impaired and disoriented, the restrained and unrestrained residents did not differ significantly on demographic variables, health state, or overall cognitive function. Although the sample was small, these findings reflect those of the acute-care settings.

Deleterious Effects

Ensuring patient safety is one of the main reasons given for use of restraints. However, numerous studies report that the use of physical restraints is unlikely to prevent falls (Catchen, 1983; Lund & Sheafor, 1985; Lynn, 1980; Mion, Gregor, Buettner, Chwirschak, Lee & Paras, 1989). Also, it does not necessarily follow that using restraints in anticipation of harm is beneficial. Direct deleterious effects of restraints have been reported including death by strangulation, hypoxic encephalopathy secondary to strangulation, skin abrasions, decreased socialization, and psychological distress (Berrol, 1988; DiMaio, Dana & Bun, 1986; Dube & Mitchell, 1986; Folmar & Wilson, 1989; Katz et al., 1981; Mion, et al., 1989; Strumpf & Evans, 1988; Werner, Cohen-Mansfield, Braun, & Marx, 1989). Indirect effects of physical restraints are caused primarily by prolonged immobilization and include decreased physical functioning, pressure sores, flexion contractures, pneumonia, and biochemical and physiological changes (Gillick, Serrell, & Gillick, 1982; Lofgren et al., 1989; Miller, 1975). Use of physical restraints to prevent the patient's disruption of therapy, for example, intravenous lines and nasogastric tubes, often is seen in the acute-care setting. Approximately half of the patients who die in these settings have been physically restrained; many die with the restraints still in place (Frengley & Mion, 1986; Lofgren, MacPherson, Granieri, Myllenbeck, & Sprafka, 1989; Mion, Frengley et al., 1989; Robbins, et al., 1987). Clearly the high morbidity and mortality associated with physical restraints raises questions about the quality of the end of life.

Deleterious effects from the application of physical restraints are experienced not only by the patients but also by the nurses. DiFabio (1981) interviewed 15 nurses who worked in acute

psychiatric inpatient settings and had been involved in situations where patients were placed in restraints. She found that most of the nurses suffered distressful reactions such as anxiety, feelings of inadequacy, hopelessness, frustration, guilt, dissatisfaction, and repugnance. Strumpf and Evans (1988), who analyzed nurses' perceptions of the use of physical restraints of hospitalized nonpsychiatric elderly, reported that primary nurses "struggle to reconcile their decisions and interventions with a value for patient autonomy and dignity" (p. 136). The use or nonuse of physical restraints effect a variety of psychological responses of nurses as well as patient outcomes.

Ethical and Legal Issues

Legal Issues. The use of physical restraints has been limited legally in the psychiatric setting over the past few decades, primarily as a response to the patient's right to refuse treatment (Shindul & Snyder, 1981). Paradoxically, staff in nonpsychiatric settings (acute-care and long-term care) are likely to be charged with neglect for not restraining a patient who subsequently falls and injures himself (Cushing, 1985; Regan, 1982). Regan (1982) cautions nurses to "apply as much restraint as is necessary to protect a patient from hurting himself or hurting anyone else" (p. 4). However, court cases have not resulted in similar conclusions, and this ambiguity has placed greater emphasis on the nurse's responsibility to exercise judgement in applying restraints (Cushing, 1985; Harris, 1985). Harris (1985) contends that "concerns about liability often lead to decisions regarding use of restraints that are not necessarily in the patient's best interest" (p. 45). At a recent hearing of the U.S. Senate Special Aging Committee on the use of physical restraints in nursing homes, it was stated that the actual number of successful litigation cases involving absence of restraints are far outweighed by cases involving injury from the physical restraints (Hunt, 1989; Kapp, 1989).

Federal regulations regarding physical restraints in the long-term care setting basically affirm that residents have the right to be free from physical and chemical restraint (HCFA, 1988). However, a lack of clear criteria and definitions has led to multiple interpretations and confusion concerning this practice (Harris, 1985). Regulations on restraint application do not exist for the acute-care and rehabilitation-care settings although guidelines for nurses in the use of physical restraints have been published (Fulmer, Dix, Yoder & Terrill, 1983; MacLean, Shamian, Butcher, Parsons, Selcer, & Barrett, 1982; Misik, 1981; Morrison, et al., 1987; Rose, 1987). All agree that alternatives must be tried before resorting to physical restraints; that physical restraints should not be used for staff convenience; and that careful, continuous assessment of the restrained patient is required. Although not legally binding, these guidelines can be used as standards of care by which the professional nurse judges her/his practice.

Ethical Concerns. The primary ethical concern associated with the use of physical restraint is the conflict between the principles of beneficence and autonomy (McHutchion & Morse, 1989; Mitchell, 1986; Silver, 1987; Shafer, 1985). The principle of beneficence, to do only good for the patient, is a guiding principle of nurses (Ellis, 1984; Meleis, 1987; Nightingale, 1859). Yet the principle of autonomy, the right of the individual to choose his or her own course of action, is central to the philosophy of the nursing profession (King, 1981; Orem, 1985) and to the field of geriatrics (Evans, 1984; Rodin, 1986; Rowe & Kahn, 1987). Each individual evaluates possible courses of action in everyday life and decides on the course that he or she values most. This decision does not necessarily take the course of least risk. Values held by the individual will influence his or her decision. The unsteady or weakened elderly individual may choose to attempt to do things for himself or herself and maintain his or her independence rather than call for assistance from the nursing staff. Silver (1987) cautions that we cannot ignore or take these considerations lightly, "even if we don't judge them to outweigh the possibility of great harm from a fall" (p. 1414). Schmelzer & Anema (1988) state that nurses are likely to pay less attention to ethical problems that involve patient rights and abuse of professional power in daily activities than

to issues that they confront less often, such as organ transplants. The belief that use of physical restraints is for the patient's best interest lessens the inhibition of restricting a person's personal freedom (Schafer, 1985). Moreover, the internalization of the principle of beneficence is a strong motivator for nurses to continue to use physical restraints for the good of the patient. The episode of a fall in an elderly unrestrained patient is likely to elicit feelings of guilt and remorse for not anticipating and preventing the fall. "Decreasing the use of restraints is not such a simple process as some would like to believe," stated one director of nursing of a 500-bed nursing home. "Some say it's just a matter of education. But it's more than that. I've been working with the nurses on this issue for several years. Several months ago one of the head nurses came back from a workshop. Whatever happened at this workshop clicked with her. She instituted a "no restraint" policy on her unit and now all but two of 35 patients are free of restraints. She had certainly heard and read about not using restraints long before this workshop. But she had to believe that the physical restraints were not beneficial before changing her behavior."

Alternatives to Restraints

Wandering is a frequently reported clinical problem with suggested alternatives to physical restraints (Brannan, 1988; Heim, 1986; McHutchion & Morse, 1989; Rader, 1987; Rader, Doan, & Schwab, 1985; Young, Muir-Nash, & Ninos, 1988). The alternatives include careful assessment of the patient and environment; environmental manipulation, such as electronic surveillance devices; programs and activities specifically geared to the cognitively-impaired individual; specific interactions and approaches to reduce or manage wandering behavior; behavioral consistency among all personnel toward wandering patients; and full administrative support to forego use of restraints. Alternatives to physical restraints in the management of the agitated or confused elderly patient include reorientation, environmental cues, reduction of too many stimuli (e.g., noise levels), avoidance of too few stimuli, careful management of medications, and frequent observation and companionship (Brigman, Dickey, & Zegeer, 1983; Evans & Strumpf, 1989; McHutchion & Morse, 1989; Misik, 1981). Provisions to decrease the risk of falling before resorting to physical restraints include modification of bed heights or placing the mattress on the floor; furniture redesign; maximizing staffing patterns by redistributing patient activities (e.g., bathing time); accessible call light or communication system; use of surveillance devices; placement of patient near the nursing station; adequate lighting; and mobilization and rehabilitation of the patient to improve balance and strength (Blakeslee, 1988; Anonymous, 1980; Hernandez & Miller, 1986; Innes & Turman, 1983; Kustaborder & Rigney, 1983; Lund & Sheafor, 1985; Mion, Gregor et al., 1989). Protection of medical devices such as nasogastric tubes include use of mitts rather than wrist restraints; reevaluating the need for such devices and substituting alternative forms of therapy; decreasing confusion through sensory supports, prostheses, and explanations; and wrapping binders or dressings over tubes to prevent the patient from pulling them out (Brigman et al., 1983; Robbins, 1986; Robbins et al., 1987; Wolanin & Phillips, 1981).

Several reports exist of units or facilities that are either completely restraint-free or have dramatically reduced the use of physical restraints (Blakeslee, 1988; Cape, 1983; Davidson, Hemingway, & Wysocki, 1984; Mitchell-Pedersen et al., 1985; McHutchion & Morse, 1989). All are similar in that they have: 1) comprehensive approaches in caring for patients with severe cognitive and/or physical impairments; 2) administrative approval and support; and 3) staff awareness and education.

No controlled studies exist comparing alternative methods to physical restraints. Robbins (1986) suggests that "prospective study of the ways in which restraints are used and alternatives to them are clearly warranted to clarify their effectiveness and eliminate unnecessary and unethical use" (p. 597). A rather sardonic editorial in the *Lancet* (Anonymous, 1984) questions the necessity of a controlled trial in the routine use of bedrails (cotsides) to keep elderly patients in bed. They state, "It is true that there has never been a controlled trial of the routine use of cotsides for elderly

patients: there has also never been a controlled trial of the use of fetters in the treatment of schizophrenia" (p. 384).

Research Needs and Opportunities

With the above observation from our British colleagues in mind, exactly what are the central issues of physical restraint use and what direction should our research efforts take? Although well-controlled trials are of the greatest scientific merit, the realities of medical, ethical, and legal considerations place obvious restrictions on such trials. This is not to imply that research cannot or should not be done. Testing alternative approaches to care, understanding the implications and effects of physical restraint use on the patient and others, and studying ways to reduce this practice are lacking and certainly require further study. In addition, investigation of nurses' actions and beliefs regarding the use of physical restraints or alternatives when caring for elderly patients will clarify factors that can be addressed through educational programs. Nursing staff attitudes and reactions to patient behaviors that initiate the use of restraints also must be better understood. For example, DiFabio (1981) reported that vengeance, the need to retaliate because of anger, was felt by some nurses. In a study by Strumpf and Evans (1988), several patients reported their perceptions of physical restraint use as punishment by the nurses. Other research areas relevant to the use of physical restraints are quality of care, quality of life, seclusion rooms, and overuse of psychoactive medications (i.e., chemical restraints).

Quality of Life and Care

Research is needed on monitoring the quality of life of the restrained individual in terms of goals of therapy, ongoing therapy, and outcomes of therapy. Goals of therapy need to be clearly evaluated and acknowledged for each patient. Physically restraining a terminally ill individual to prevent the person from removing an intravenous line has a different beneficial/detrimental ratio for that person as compared with physically restraining a delirious person who is suffering from septicemia that requires aggressive antibiotic therapy (Evans and Strumpf, 1989; Robbins, 1986). Thus, a careful analysis of the beneficial/detrimental ratio of physical restraints, considering projected and actual patient outcomes, is required.

The care needs and self-care deficits of patients while they are physically restrained must be thoroughly investigated. Nursing interventions (e.g., release every two hours, range of motion) are presently based on guidelines that, although they make clinical sense, have not been verified as optimal approaches for patients who are restrained. The effect on health care professionals of seeing a patient in physical restraints also is largely unknown. The image of a restrained person as being less than a fully competent and mature adult (Schafer, 1985) may alter the health professional's approach and the care given to that individual. The control of another, even with the best of intentions, may lead to less than optimal care in the long-term. Indeed, Robbins (1986) contends that "...the use of restraints.... creates an atmosphere ripe for abuse of the patients" (p. 596). Enhancing the quality of life of a restrained patient by approaches such as providing for socialization and physical activity and addressing the psychological issues of self-worth and self-esteem must be examined.

Seclusion

The use of seclusion as a treatment for elderly patients has been absent in the debates on physical restraints. Restriction of older persons person's liberty and movement by the use of seclusion or locked rooms is an issue not only in the psychiatric setting but also in the nursing home setting. Questions regarding the beneficial as well as the detrimental effects on patients and others require investigation.

Psychoactive Drug Use

One alternative to the use of physical restraints cited by nurses is the use of chemical restraints, or psychoactive drugs (Yarmesch & Sheafor, 1984). However, the use of psychoactive drugs to control or manage behavioral problems of elderly demented nursing home residents has potential detrimental effects such as oversedation, tardive dyskinesia, and functional impairment (Ray et al., 1980; Sherman, 1988; Zimmer et al., 1984). As with physical restraints, over-reliance on the use of chemical restraints can foster an apathetic attitude towards implementation of alternative strategies for dealing with behavioral problems. Although psychoactive drugs are used widely in nursing homes (Ray et al., 1980; Zimmer et al., 1984), no well-designed study has demonstrated drug efficacy for behavioral problems of demented nursing home residents (Sherman, 1988). The emphasis placed on reduction of physical restraints may exacerbate the use of chemical restraints in the nursing home setting; this is an important consideration in studies that address the efficacy of alternatives to physical restraints.

Recommendations

Based on the foregoing assessment of research needs and opportunities in "Problems Associated with the Use of Physical Restraints," the Panel has made the following recommendations concerning research in this area over the next five years.

- Conduct systematic research to determine the reasons for use of physical restraints and to clarify decisionmaking regarding reliance on restraints in nursing practice; investigate staff attitudes and reactions to patient behaviors that initiate use of restraints.
- Investigate the care needs and self-care deficits of patients who are physically restrained; examine approaches to enhance both the physical and psychosocial quality of life of the restrained patient.
- Examine the ethics, values, attitudes, and beliefs of caregivers as they affect use of restraints and quality of patient care; conversely, determine the effects of using physical restraints on caregivers' attitudes toward restrained patients.
- Establish and evaluate standards for the therapeutic use of restraints.
- Test and evaluate alternative approaches to the use of physical restraints in elderly patients with a view toward reducing and, where possible, eliminating their use.

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