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Geriatric Assessment Unit Versus General Medical Ward

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GERIATRIC ASSESSMENT UNIT VERSUS GENERAL MEDICAL WARD

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A B S T R A C T

The creation of geriatric assessment units are the offspring of the growing number of elderly people and an awareness that today's health professionals have failed to meet the complex care needs of this segment of the population. Among several fundamental deficiencies are inappropriately admitting patients to institutions who could benefit more from living at home, incomplete and inaccurate medical assessments, inappropriate prescribing of medication, and a major shortage of well-trained and concerned professionals in primary and long-term geriatric care.

Fifty-eight patients over age 70 years were randomized onto either the geriatric assessment unit (GAU) or the general medical ward (GMW) at two teaching hospitals in Winnipeg. The purpose of the study was to determine if acutely ill geriatric patients admitted via Emergency receive equivalent care on a geriatric assessment unit in comparison to the care received on a medical ward. The adequacy of the research instruments and methodology used in the study will also be assessed. A much larger study will be conducted based on the experiences of this pilot study.

Patients were prospectively monitored in hospital and telephoned postdischarge at 1 month. There was no difference in age, sex, living arrangement prior to hospitalization and health status between the two groups. However, the mean number of drugs prescribed on a regular basis (GAU 6.6 ± 0.8, GMW 4.7 ± 0.9; $p<0.05$), the mean number of drugs prescribed with hypotensive side effects (GAU 1.8 ± 0.3, GMW 1.2 ± 0.3; $p<0.05$) and the number of patients who received psychotropic drugs (GAU 26/29 patients, GMW 14/29 patients; $p<0.05$) were higher on the geriatric assessment unit. As well, on geriatrics, there were fewer

foley catheters inserted (GAU 0/0 patients, GMW 10/29 patients; $p<0.05$) and fewer physical restraints used (GAU 16/29 patients, GMW 27/29 patients; $p<0.05$). The geriatric patients on the geriatric assessment unit remained in hospital for a longer duration (35.7 ± 6.5 days versus 18.6 ± 4.5 days, respectively; $p<0.05$) and upon discharge, more patients from the geriatric assessment unit were able to return to their previous place of residence (GAU 23/29, GMW 15/29; $p<0.05$).

The findings of this pilot study suggest that a geriatric assessment unit may improve certain aspects of care of an older adult as well as introducing aspects of care not currently available to patients in traditional settings such as more thorough diagnosis reflected in the greater number of drugs prescribed, improved patient outcome parameters such as the use of fewer catheters and restraints, and the issue of optimal placement.

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I. INTRODUCTION

It is a well known fact that elderly patients have more varied problems and health care needs than their youthful counterparts. The elderly are more prone to suffer from chronic and multiple diseases and are vulnerable to social, psychological and economic stresses. There is a growing awareness that contemporary health professionals fail to meet the complex care needs of the elderly. Several fundamental deficiencies are listed: inappropriate institutionalization of patients who could benefit more from living at home, all too frequent incomplete and inaccurate medical assessments, inappropriate prescribing of medication, and a major shortage of well-trained and concerned professionals in primary and long-term geriatric care.

One of the prime deficiencies of the existent system is inappropriate admission to an institution. Many recent studies have concluded that a substantial proportion, perhaps a third, of elderly patients in long-term facilities could live at home or in facilities providing lower levels of medical care (Rubenstein et al, 1982). Inappropriately admitting a patient to an institution is not only expensive but has many adverse effects on patients including depression, lowered activity levels, disinterest in the outside world and extensive use of chemical restraints such as psychotropic drugs.

Incomplete and inaccurate medical diagnoses are often made in geriatric patients whose illnesses frequently present atypically. An incorrect diagnosis is made in many elderly patients with congestive heart failure, left ventricular failure, pneumonia and urinary tract infections, especially when central nervous system symptoms such as

confusion and delirium are the presenting features (Exton-Smith and Windsor, 1979). Such patients may subsequently be given psychotropic medication with consequent worsening of their mental and physical state. Hodkinson (1973) has shown that preexisting dementia (often unrecognized), defective hearing and vision, and parkinsonism are important predisposing factors in the development of confusional states while pneumonia, cardiac failure, urinary infection, carcinomatosis, and hypokalemia are precipitating factors.

Another deficiency of the existent health care system that impacts on the elderly is a shortage of well trained and concerned professionals in primary and long-term geriatric care. This shortage of professionals arises partly from the negative attitudes toward the elderly. Medical students, for example, find their patience is overtaxed by tedious geriatric history-taking and examination (Adams, 1977). The investigation and diagnosis of diseases in childhood and early adult life are more straightforward, and cure is often more dramatic than improvement and slow partial rehabilitation of the elderly. As well, medical students have difficulty distinguishing those changes which can be accepted without concern from pathological changes which need investigation (Adams, 1977). This is further complicated frequently by mental and physical evidences of disintegration in the nervous system.

Lastly, inappropriate drug use in the elderly is another vast problem leading to suboptimal care in this population. As the study contained within this thesis places major emphasis on this aspect of health care in the elderly, a more indepth background is in order. Polypharmacy, for example, is very well documented in the

literature. A study of medication use by the elderly in the general hospital and nursing homes reported an average usage of 5 to 12 drugs per day per patient (Kalchthaler et al, 1977). In 12 Veterans Administration Hospitals, a survey showed that 77% of patients were receiving 10 or more drugs per day (Fraccnia et al, 1975). Daws and Bell-Irving (1973) found that at the time of admission to a 169-bed extended care unit in Vancouver, British Columbia, the average patient was receiving 7 to 9 drugs. After implementation of a drug monitoring and review program, this was effectively reduced to fewer than 3 drugs per patient. Polypharmacy not only increases the potential for drug interactions but can lead to drug-related adverse patient events.

Psychotropic agents are commonly prescribed for elderly patients, especially when they are using multiple drugs (Fraccnia et al, 1975). A study by Ingman and associates (1975) found that the more independent and mentally alert the geriatric patient was, the more likely the patient was to receive a psychotropic agent as compared to the senile, docile patient. The study implied that psychotropic agents are being employed to sedate active geriatric patients. The use of psychotropic agents concurrently occurs frequently. Salzman and VonderKolk (1979) found combinations of flurazepam and diazepam to be a common occurrence. Psychotropics are not devoid of side effects. Most psychotropic agents cause constipation and 67% of patients surveyed by Fraccnia and associates (1975) were receiving at least one laxative in addition to the psychotropic agent(s). Studies by Leroyd (1972) reported chest infections as a common consequence in apathetic, immobile, well-tranquilized patients and many cardio-

vascular accidents were thought to be precipitated by a drop in blood pressure induced by psychotropic drugs.

In addition to physicians overprescribing medication to elderly patients, inadequate drug monitoring is another problem. Central nervous and cardiovascular system drugs are often prescribed for an acute condition but after a particular time period may no longer be necessary. Dennis (1979) analyzed over 1,000 repeat prescriptions for psychotropic drugs which were given without the doctor seeing the patient. The analysis showed that the duration of repeat prescribing correlated positively with patient age and inversely with the adequacy of patient monitoring by his/her general practitioner. Inadequate contact between patient and physician when drug prescriptions are renewed was also reported by Kierman and Isaacs (1981) from London.

Elderly patients are frequently prescribed medications on a pro re nata (prn) or "as needed" regimen. This type of prescribing is often seen for analgesics, sedative/hypnotics, and laxatives which are frequently unnecessary. The use of 'prn' medications increases the number and complexity of the patient's drug regime resulting in an increased likelihood of drug-related adverse patient events.

A drug utilization review showed that proper use of certain medications and reducing the number of drugs given to geriatric patients created a subjective improvement in the patient's health (Letourneau, 1974). Leroyd (1972), in a study surveying 236 geriatric patients admitted to a regional psychogeriatric service, concluded that most elderly patients are over-medicated, and that deterioration of a patient's condition appeared to be correlated to higher doses of drugs being given and the variety of medications prescribed.

Improvement often occurred when drugs were discontinued.

Age-related disease may not be treatable, and drug treatment may in fact induce drug-related adverse patient events. For example, one-third of all persons over seventy years of age exhibit some disturbance in heart rhythm as a result of hypertrophy of the myocardium and to a certain extent an increase in collagen tissue. This usually does not produce morbidity; therefore, treatment with anti-arrhythmics is unnecessary and may, in fact, aggravate the disease process (Pagliaro and Benet, 1975). Vasodilators will also not relax thickened, noncompliant or calcified arteries which may be responsible for increasing the systolic pressure. Use of such agents can, and frequently do cause complications (Friend, 1961).

Older adults are often susceptible to drug-related adverse patient events (DRAPEs), as polypharmacy and the physiological and pathological changes with aging frequently result in an unpredictable drug response in the elderly. In a study of 714 hospitalized patients at John Hopkins Hospital, Seidl and associates (1966) found that 24% of patients over the age of 80 years had drug-related problems compared with 11.8% of patients 41-50 years old. In Belfast, a study showed the overall incidence of adverse drug reactions to be 10.2% in 1160 patients, but 15.4% in patients over age 70 (Hurwitz, 1969).

There are other factors which can increase a patient's susceptibility to DRAPEs aside from polypharmacy and physiological and pathological changes of aging. Certain drug classes, for example, are more likely to cause a DRAPE in the elderly because the elderly are less able to compensate for certain adverse drug effects than

their younger counterparts. The Boston Collaborative Drug Surveillance Program has shown that the drugs most frequently implicated in DRAPEs in the elderly are old and established, namely digoxin, quinidine, heparin, warfarin, aspirin, penicillin, corticosteroids and oral hypoglycemic agents (Levy et al, 1973). In hospitalized patients, race and sex have been suggested as risk factors for drug-related adverse patient events; Whites having a higher incidence than Blacks and women having a higher incidence than men. This has been found by several researchers including Cluff et al, 1964; Seidl et al, 1966; Stewart and Cluff, 1971; Caranasos et al, 1974; Domecq et al, 1980. Another important factor influencing a patient's susceptibility to drug-related problems is their past history of such events. Levy and coworkers (1979) found that a positive history for at least one drug-related problem was reported in 41.7% of patients admitted for an adverse drug reaction, compared to only 26.8% of patients admitted for other causes. In a separate population, Levy and associates (1979) found 32% of patients experiencing an adverse drug reaction also experienced a previous reaction. In contrast, only 2.3% of all other monitored patients had reported previous reactions.

An awareness of the many dilemmas facing elderly patients has triggered several responses from the health care sector in the areas of education, research and clinical programs (Weksler et al, 1983; Rodestein, 1983; Rai et al, 1985). Education in geriatrics has progressed with the establishment and growth of schools of gerontology, the organization of curricula aimed at geriatrics within schools of medicine, pharmacy, nursing and others as well as the

initiation of geriatric fellowship programs. There is also a growth of research in geriatrics in the areas of pharmacokinetics, drug utilization, medical disorders such as Alzheimer's disease and health services. Geriatric day hospitals and outpatient follow-up clinics are clinical programs which have been recently tested and implemented. A major advancement of clinical programs has been the development of special units designed to assess the full spectrum of geriatric needs, to effect a comprehensive plan of care, and often to provide at least initial steps toward rehabilitation, when appropriate. These units, termed geriatric assessment units, are an outgrowth of the special-purpose wards established in Great Britain to assess the special needs of the geriatric patient.

Geriatric assessment units originated in Great Britain between the World Wars. Since that time, the British system for geriatrics has served as a model for geriatric care in several countries with socialized or regionalized medical systems. These specialized geriatric units have taken several forms. They have been established on acute-care hospital wards, in outpatient facilities and in long-term care institutions. Some units provide only minimal assessment but extensive rehabilitation, others provide comprehensive diagnostic assessment without providing therapy and, still others, combine extensive assessment with therapy and rehabilitation.

While distinct from one another, all of these units appear useful in improving many of the problems currently identified with the older population. For example, several researchers studied the impact of geriatric assessment units on placement location following discharge from hospital. Rubenstein and colleagues (1981) found that following

treatment in their geriatric assessment unit, discharge placement was improved for 48% of the patients. Over half of the 62 discharged patients went home or to board and care homes (facilities which provide minimal care to elderly patients and allow them to maintain a maximum level of independence), and about a quarter went to skilled nursing facilities. Prior to their transfer to the geriatric assessment unit, about 80% of the geriatric unit patients were judged by their general ward physicians to require long-term institutional placement, and most of these patients had already been placed on waiting lists for these facilities. Thirty, or almost half of the patients received a placement location different than had been expected. Fourteen of these patients had been definitely expected to need institutional care, but went home; 12 had been expected to probably need institutional care, but went home; and 4 were expected to need nursing home care but were placed in board and care homes. For 22 patients, placement was unchanged from expectations (19 requiring institutionalization and 3 going home), and 10 patients required transfer back to the general service or died in the geriatric assessment unit. Similarly, Williams and associates (1973) studied the effects of an outpatient evaluation and placement program on patients who were referred specifically for nursing home placement. They found that only 38% of these patients actually needed placement in nursing homes or in chronic-care psychiatric hospitals, 39% needed only board and care or health-related facilities and 23% were able to remain home, usually with the help of community services. Analysis by an independent team of experts found that 84% of patients had been appropriately placed after the program began, compared with only

50-60% before the establishment of the program. Schuman and associates (1978) demonstrated an increase in the number of patients discharged home from their chronic care hospital, following institution of a new geriatric service, from 29% to 40%. Balaban (1980) showed that fewer patients were discharged to institutions from the geriatric unit than from the control group of patients treated on the other inpatient wards (14% versus 18%) but this was not statistically significant. Teasdale and associates (1983), however, were not able to prove that a multidisciplinary team applying a comprehensive medical care approach to geriatric patients in the hospital increased the number of patients discharged to home, nor did it reduce the incidence of nursing home placements or deaths. Teasdale's results need to be interpreted with considerable caution though, as there were two faults in the methodology of the study. The first of these is that the study population was too broad: it was selected on the basis of an age of 75 years or more and the presence of a "medical illness requiring hospitalization". It is currently thought, however, that only certain subpopulations of elderly people admitted to hospital will show greater benefit if cared for in a geriatric service. This subgroup generally includes those too frail to return home following their acute-ward stay, and does not include those with clearly too poor a prognosis to derive major benefit (for example, patients with end-stage cancer). Without excluding the latter group beneficial outcome is more difficult to identify. Teasdale and associates also assembled their control group from post hoc matching (matching after selection of study group) and not from random allocation. Nonrandomly assigned control groups contain numerous threats to validity and are of limited value in demonstrating