

DRUGS AND THE ELDERLY CAN COMPLIANCE BE IMPROVED?

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In treatment with medicines, it is important that the benefits to the patient, both long and short term, are greater than any problems which may be caused by the medicines administered. Several factors (Table 1) should be considered to enhance achievement of best results for the patient. These include: Clinical Picture, Plasma Levels of Drugs, Toxic Effects, Therapeutic Efficacy, Biochemical and Physiological Correlation and Compliance¹.

Table 1
A holistic approach

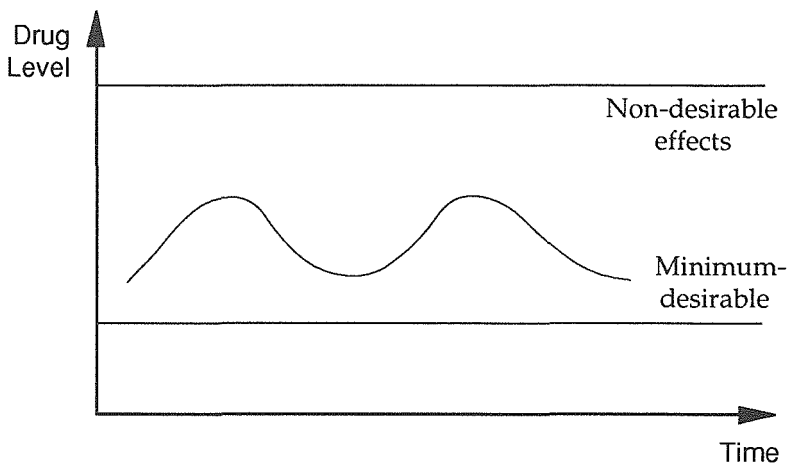
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- Clinical picture
 - Plasma levels of drugs
 - Toxic effects
 - Therapeutic efficacy
 - Biochemical and physiological correlation
 - Compliance
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It is preferable to consider these factors together, adopting a holistic approach, rather than follow the traditional approach adopting the classical separation of topics and treating Pharmacodynamic and Pharmacokinetic aspects on their own. The holistic approach requires that the patient is considered as a person rather than one in a group and the care team is a one group rather than individuals. Compliance features last in the list given above, but none of the other factors,

however good and expensive the procedures may be, could lead to best patient benefits unless compliance by the patient is achieved as the culmination of the process which includes the writing of the prescription and then the dispensing of the medicines by the pharmacist as its final moments.

Compliance is needed to ensure that the dosage taken by the patient is the optimum below the nondesirable effect level and above the minimum desirable effective level (Figure 1).

Fig. 1. Aim of correct dosage regimen



Compliance

The Concise Oxford Dictionary² defines Compliance as: "an action in accordance with a request or command".

The First International Congress on Patient Counselling proposed that: "When a patient does not follow the treatment schedules suggested to him by the physician for the management of some illness, then the patient can be described as non-compliant." Two observations can be made in this respect. Firstly, drug non-compliance is not the only form of compliance to be considered. There might be failures to obey instructions on other aspects of health care such as dieting, exercise, smoking or drinking habits. Secondly, the word "compliance" implies

an element of submission and action in accordance with command. It must be accepted that patients are individuals who have a right to decide which aspects, if any, of their medical advice they will follow. Drug defaulting is not a failure in obedience but rather in comprehension and co-operation. Perhaps "adherence" would be a better term if compliance is described as above³.

Others have given a more flexible interpretation of compliance. Haynes (1979)⁴ defines compliance as "the extent to which the patient's behaviour coincides with medical or health advice." The patient is termed non-compliant "when the failure to comply is so significant as to interfere appreciably with achieving therapeutic goals" (Table 2).

Table 2
Definition of compliance and non-compliance

Compliance

"The extent to which the patient's behaviour coincides with medical or health advice."

Non-Compliance

"The patient is termed as non-compliant when the failure to comply is so significant as to interfere appreciably with achieving therapeutic goals."

Basically there are three types of non-compliance⁵ (Table 3).

Table 3
Types of non-compliance

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- Accidental
 - Triggered
 - Intentional
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a) Accidental - the patient forgets to take the dose or takes it incorrectly because the instructions given were not properly understood (Figure 2a and 2b).

b) Triggered - the patient starts to feel better and stops taking the medicine, or conversely, he feels worse and stops the medication (Figure 3a and 3b).

c) Intentional - the patient makes a conscious decision not to take the medicine as recommended (Figure 4).

Fig. 2a. Patient forgets to take the dose.

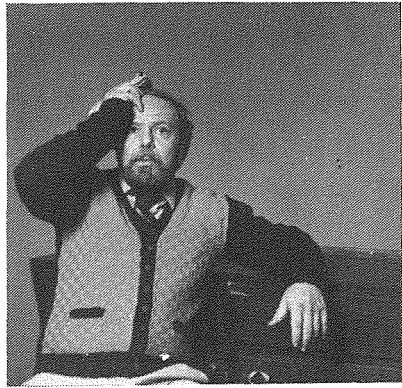


Fig. 2b. Instructions given are not understood



Fig. 3a. Patient starts to feel better and stops taking medicine



Fig. 3b. Patient feels worse and stops the medication

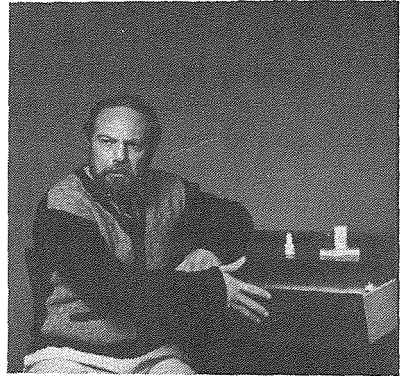
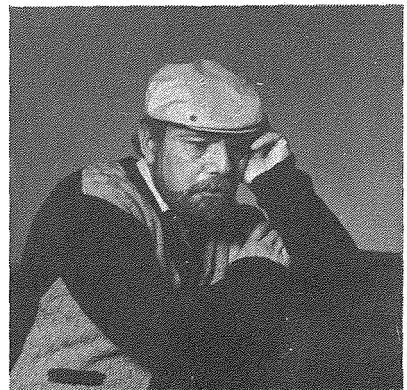


Fig. 4. The patient makes a conscious decision not to take the medicine



Compliance in the elderly

At all ages, poor compliance with the prescriber's instruction presents a threat to safe treatment and more so in elderly patients who may have memory impairment, poor eyesight and difficulty in coping with complex drug regimens.

Studies on compliance

Several studies have been carried out about patient compliance. The subjects were out-patients, patients in homes for the elderly, those recently discharged from hospital and on patients in geriatric hospital. The techniques used involved interview and pill counting methods (Table 4):

Table 4
Studies on compliance in elderly patients

Investigators	Year	Country	Study Group Size	Sample technique	Measurement	Compliance
Schwartz et al	1962	USA (New York)	Out-patients	178	Interview	41
Hemminki	1975	Finland (Helsinki)	Patients in homes for the elderly	217	Interview	70
Parkin et al	1976	U.K.	Patients recently discharged from hospital	130	Interview and counting	74
Macdonald et al	1977	U.K. (Nottingham)	Patients recently discharged from hospital	60	Pill counting	25
Murray et al	1986	USA	Elderly in public housing	155	Home interviews	49
Sneddon	1989	U.K.	Inpatients and out-patients at an acute geriatric hospital	100	Interview	56
Sweeney et al	1989	U.K.	Patients recently discharged from 2 acute wards	103	Interview and counting	31

One study showed that as many as three quarters of patients make errors in their compliance with prescriptions⁶. This study also showed that 48% of elderly patients were taking less than half their prescribed tablets six weeks after hospital discharge.

Sweeney (1989)⁷ classified the seriousness of non-compliance in percentage form as follows. For each drug, the discrepancy between the quantity prescribed and that actually taken was expressed as a percentage of the correct number of doses. This was described as the percentage non-compliance. The patients were divided into three groups: those patients who took their drugs exactly as directed (zero non-compliance), those who made a few errors (0 to 15%), and those who made sufficient errors to compromise their well being (>15% non-compliance) (Table 5).

Table 5
Classification of non-compliance

0%	- patients taking drugs as directed
0-15%	- few errors
> 15%	- serious non-compliance

Using this arbitrary figure of 15% Sweeney (1989)⁷ showed that 23.1% of the non-compliant elderly patients made serious medication errors. Perkins (1976)⁸, using the same method, found that 26% of patients made serious medication errors. Murray (1986)⁹ observed that of the non-compliant patients, 83% were females and 17% were males (Table 6). However, this difference could have been the result of greater drug consumption by the female sex.

Table 6
Sex difference

	Non-Compliant	
Males		Females
17%		83%

Several other studies throughout the last three decades such as those by Schwartz (1962)¹⁰ (59% non-compliance), Hemminki (1975)¹¹ (30% non-compliance) and Sneddon (1989)¹² (44% non-compliance) reinforced the evidence of a significant non-compliance problem in elderly patients.

Non-compliance in Malta

A survey was carried out by Scicluna (1985)¹³ on the compliance of patients in taking drugs dispensed from government pharmacies. A 15 day survey was conducted by interviewing patients over 60 years of age being dispensed with free drugs. Each elderly patient was given his/her monthly supply of drugs and informally asked how each type of drug supplied was being taken. The patient was also asked to put forward any difficulties encountered regarding the administration of each dosage form. Any indication of non-compliance was referred to and confirmed by the doctor, following which the interviewer explained the correct directions to the patient. The interviewee was also asked the reasons for any deviations from the prescribed doses. The interview was carried out in a lively and informal manner to try to exclude the possibility of a 'hostile environment' which the interviewer might seem to create for the patient. The exercise was carried out as part of an action research project, and action was taken to try to achieve compliance in the non-compliant group. A total number of 230 patients over 60 years of age were interviewed and the following results were obtained (Table 7).

Table 7
Compliance according to dosage form

Dosage Form	No of elderly patients taking the dosage form	No of elderly patients non-compliant to dosage form	% of elderly patients non-compliant to dosage form
Tablets/capsules	226	97	42.9
Injectables	32	3	9.4
Aerosols	13	1	7.7
Oral Mixtures	11	3	27.3
Suppositories	10	10	55.6
Eye Drops	7	3	42.9

The number of patients not following directions on their medication card for each dosage form was calculated as a percentage of the number of patients taking each particular dosage form. This figure reflected the percentage non-compliance of elderly patients for each drug product. The consumption of medicines by the 230 elderly subjects interviewed during this survey was as follows: (Table 8).

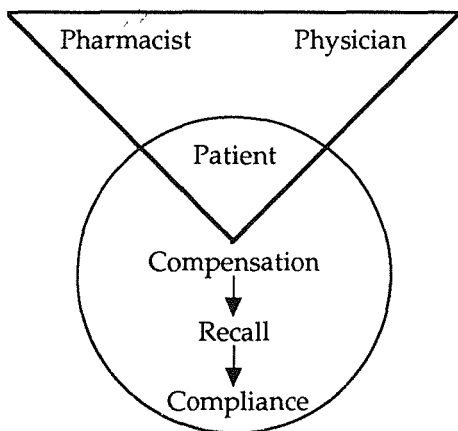
Table 8
Dosage form distribution

Number of dosage forms	% patients
1	8.3
2	9.6
3	25.7
4	24.3
5	17.8
6	10.0
7	4.3

Major reasons for non-compliance

There is no established classification of the causes of non-compliance, but the problem can be related on the one hand to the triumvirate of physician, pharmacist and patient, and on the other hand to the medication. More than one factor may be involved in a particular situation¹⁴ (Figure 5).

Fig. 5. Determination of compliance



Adapted from: Boyd J.P. *et al* Am. J. Hosp. Pharm. 1974:31; 362-367.

The patient

Elderly patients who make errors in compliance are likely to (1) be living alone; (2) have impaired memory; (3) be confused; (4) have impaired mobility.

Compliance problems particularly encountered with the elderly include (1) stopping treatment when no improvement is seen; (2) reluctance to take medicine when symptoms are absent; (3) stopping therapy when feeling better.

The physician and pharmacist

The physician and pharmacist can influence compliance in several ways. The physician is the person responsible for drug prescribing and in this case he is also the person expected to instruct the patient on how and when to take the medication. This guidance is to be reinforced by the pharmacist as an integral part of dispensing. The pharmacist has also to instruct patients when dispensing non-prescribed medicines. Schwartz (1962)¹⁰ showed that 21% of those who made serious errors in compliance did so because of inaccurate knowledge of their drugs. Sneddon and Farrall (1989)¹² showed that only 63% of the compliant elderly patients had good knowledge about their medications. Apart from inappropriate patient counselling, the doctor can also be a potential source of further confusion, as when he leaves the pharmacist to guess his instructions to the patient. This happens when the instruction on the prescription is vague, as for example "to be taken as directed". The pharmacist may also be guilty of misadventures in drug taking due to lack of counselling. Misfortunates may be therefore not only iatrogenic, but if one can coin a word - pharmacogenic - namely caused by the pharmacist, to describe the pharmacist's negligence in such a case.

Some studies have pinpointed the important role of the pharmacist in improving patient compliance. Macdonald et al (1977)⁶ found that after discharge from hospital, elderly patients counselled by a pharmacist made less than 1/3 of the errors made by uncounselled patients. Sweeney et al (1979)⁷ observed that after one week of discharge from hospital 26.2% of elderly patients previously counselled by a pharmacist were non-compliant as opposed to 65.2% of uncounselled patients.

Six to seven weeks post-discharge, 44.8% of the counselled group and 69.2% of the uncounselled group were non-compliant (Table 9).

Table 9
The pharmacist and patient compliance

Macdonald Study (1977)	
Patients counselled by the pharmacist - 1/3 less errors than uncounselled patients.	
Sweeney Study (1989)	
Non-compliant patients one week after discharge	
Patients counselled by Pharmacist	26.2%
Uncounselled patients	65.2%
Non-compliant patients six weeks after discharge	
Counselled group	44.8%
Uncounselled	69.2%

The physician may further be responsible for patient non-compliance by giving insufficient attention to the number of drugs and timing of doses. Studies have shown that the rate of non-compliance increases with the number of drugs given together^{9,12,15} and with prolonged and frequent doses. It is therefore highly essential that physicians review their patients frequently in an attempt to simplify the dosage regimen. Pharmacists should refrain from adding non-prescription drugs especially with elderly patients unless essentially required.

The medication

The properties of the dosage form can influence patient compliance. Drug formulation is important since poor compliance is associated with such dosage forms as suppositories, greasy skin preparations and drugs that are difficult to swallow. Scicluna (1985)¹³ found that suppositories get the least compliance from elderly patients. The argument put forward by the patients were that the suppositories were difficult to insert and often uncomfortable. Injectable preparations were well-complied with by geriatric patients probably due to the fact that the majority of the patients interviewed were insulin-dependent diabetics.

Such patients daily visited the Government dispensary for insulin therapy in fear of hypoglycaemic reactions.

The colour of the formulation can also present problems to the elderly particularly if they have a poor eyesight. Hurd and Blevins (1984)¹⁶ and Murray et al (1986)⁹ found that patients had difficulty in distinguishing green and blue tablets but had less difficulty with yellow, pink and red ones. It has been argued that if the patient finds the colour of a particular pharmaceutical dosage form to be pleasant, compliance does improve¹⁹. McElhatton (1987)²⁰ studied the different reaction of patients to accept drugs of different colour (Table 10).

Table 10
Medication and colour preference

Medication	Colour preferred	%
Antibiotics	Red and black	47
	White and blue	11
	Red and yellow	3
Laxatives	Red and brown	32
	Brown and green	23
	Grey and black	13

It was shown that some would accept a multivitamin tablet if it were a stimulating orange or an 'explosive' red colour, but would not be keen to accept a 'neutral' white tablet.

The container

The type of container can also affect patient compliance. It was shown that elderly patients have difficulty in opening child resistant closures and blister, bubble or strip pack containers¹⁷. In addition elderly patients may have difficulties in reading labels on containers especially if these are written in a small print. Murray (1986)⁹ and Sweeney (1989)⁷ showed that patient compliance improved when large print labels were used. Scicluna (1985)¹³ also showed that eighteen per cent of the pa-

tients interviewed, who were non-compliant to tablets or capsules, complained of inadequate instructions and difficulty in reading small print on the labels. These patients were usually prescribed more than one type of drug and sometimes forgot the directions of drug administration.

As no written instructions were provided, these patients took their medication at their own discretion. On the other hand, some of the patients who complied to the medication repeatedly had to ask the nursing officer at the dispensary to write down the directions and the purpose of each drug in lay language on each paper-bag.

Adverse effects

Adverse effects following drug therapy may effect compliance and may lead to patients stopping their medication. Montamat (1989)¹⁸ points out that as many as 70% of elderly patients alter their intake of prescribed medication in an attempt to minimise adverse effects. Murray (1986)⁹ also showed that 65% of non-compliance patients had past Adverse Drug Reactions as opposed to 49% of the compliant patients (Table 11).

Table 11
Reasons for non-compliance

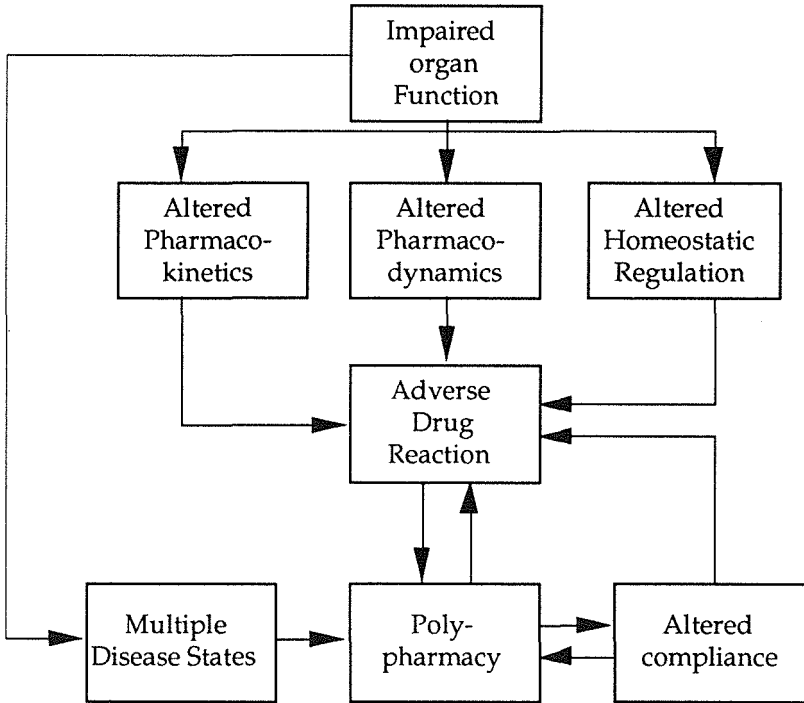
Montamat (1989). As many as 70% of elderly patients alter their intake of prescribed medicines in an attempt to minimise adverse effects.

Murray (1986). Past Adverse Drug Reactions
65% non-compliant patients; 49% of compliant patients

Poor compliance is one of the factors responsible for Adverse Drug Reactions in the elderly (figure 6). Actually it may be responsible for only a relatively small proportion of ADRs, since poor compliance usually results in underdosage of drugs rather than overdosage. However, overdosage and resultant ADRs are more commonly encountered in the elderly and may result in a variety of ways. For instance, if the patient is confused and he is instructed to take one tablet once daily, and another one three times daily, he may reverse the number of tablets.

Overdosage can also happen if the elderly patient thinks that a larger dose will be more effective than a smaller one. Also, the patient may forget that the drug has been taken, and this may lead to taking the same, or another drug, once more.

Fig. 6. The effect of altered compliance on ADRs



Adapted from: Nielson CP., Cusack BJ., Geriatric Clinical Pharmacology and Clinical Therapeutics

Polypharmacy

One may conclude these remarks on effect on compliance of ADRs and polypharmacy by giving a recent example (1990) of a case study of a patient admitted to St Vincent de Paule Residence for the Care of the Elderly presented in a dissertation on Adverse Drug Reactions in the Elderly²¹ [Tables 12(a), 12(b)]. A 75 year old woman was brought to the

admission ward and on examination was diagnosed as being anxious and depressed. The lady had been widowed some time before and was fully independent. She had a past and present history of coeliac disease and was on a gluten free diet.

On admission the patient's drug regimen was as shown in Table 12a. During her stay at the ward the drug regimen was changed several times and other antidepressant and anti-anxiety drugs such as mianserin, thioridazine, promazine, trifluoperazine, bromazepam and chlormethiazole were tried. In all, the patient was exposed to 26 different drugs and as a result of this polypharmacy the patient took no less than 12 drugs that could potentially interact. During her stay at hospital the patient suffered from six ADRs which she attributed to the drugs being taken especially the antidepressant and anti-anxiety ones. As a result, patient compliance was very poor and sometimes the patient refused to take her drug regimen.

Table 12a
Case study

-
- 75 year old lady admitted to SVPR
 - Diagnosed as anxious and depressed
 - Past history of coeliac disease

Drug Therapy on Admission

Nifedipine	10 mg	tds	po
Vit. ABCD	1 mg	bd	po
Metoclopramide	10 mg	tds/PRN	1M
Glyceryl Trinitrate	5 mg	PRN	SL
Triazolam	25 mg	po	nocte
Loperamide	2 mg	qid	po
Codeine	30 mg	nocte	po
Lorazepam	1 mg	bd	po
Amitriptyline	25 mg	bd	po

- Drug Regimen changed several times
 - Total exposure to 26 different drugs
-

Table 12b
Patient compliance

-
- Patient suffered 6 ADRs which were attributed to drug therapy
 - very poor patient compliance (sometimes 0%)

Suspected ADR

Confusion with Trypitzol

Diarrhoea with Ampicillin

Dizziness with Lexotanil

Dizziness with Halcion

Rectal haemorrhage with Ibuprofen

Extrapyramidal disorders with Trifluoperazine

Scicluna¹³ has also studied the effect of polypharmacy on compliance. She found that polypharmacy is also frequent among uninstitutionalised elderly Maltese patients. The patients interviewed were prescribed an average of 3.8 different drugs during any one period. Equally worrying is the finding that from 230 patients interviewed, 57 per cent were prescribed more than four different types of drugs and 4.3 per cent of such patients were prescribed more than six different drugs. The British National Formulary of 1976-1978, summarised the problem well: 'Most elderly patients have poor memories and get confused. They may live alone or with a partner who is no better. They may find it difficult to follow even simple instructions and the complicated schedules sometimes offered with many drugs to be taken at different times are quite beyond them'. 10.3 per cent of the interviewed patients not compliant to tablets blamed the complex medication programme prescribed to them for their non-compliant attitude.

If drugs are prescribed in unreasonably large quantities, 'under use' is a way for the patient to avoid ingesting excessive amounts of drugs. However, self-adjustment has its own risk. Too generous prescribing of symptomatic drugs may undermine the patients' respect for drugs and drug prescribing instructions¹¹.

STRATEGIES TO IMPROVE COMPLIANCE

Standards of labelling

There has been increasing evidence in recent years of a growing awareness in pharmacy, that the system of labelling dispensed medicines was far from satisfactory (Beanland, 1972)²² (Table 13). This statement holds true for the labelling of paper-bags in which tablets or capsules are usually dispensed at St Luke's Hospital Pharmacy. Unfortunately, the standard of labelling used is very poor. The label simply includes the generic name of the drug inside the paper-bag and the quantity supplied, both of which are written in small type. It is not always fully appreciated that a decline in visual acuity with age leads to problems associated with drug identification and small print reading.

Table 13
Strategies to improve patient compliance

1.	Standard of Labelling	2.	Packaging
-	large	-	stability
-	clean	-	colour
-	simple	-	size
-	specific	-	shape
3.	Review patient prescriptions	4.	Improve rapport
-	number of drugs		between doctor
			and pharmacist
5.	Patient education		

It is therefore essential to adopt a method of large clear labelling for all dosage forms. Davidson (1973)²³, who undertook experiments in self-administration of drugs, found that more patients were able to use the label as a source of information about their medicine when the label was typed as opposed to handwritten. The name of the drug, strength of each dosage unit and amount supplied should appear on the label. It should also state the relationship of the dose to food, i.e. if each dose should be taken before or after meals²⁴.

There is good evidence to suggest that many patients do not understand common labelling instructions which may be unspecific and ambiguous. Phrases such as 'four hourly' are too vague³. Therefore instructions on the label should be simple and specific. The dose to be taken should be stated in terms of the number of tablets, capsules or spoonfuls (in case of mixtures) rather than milligrams or millilitres, eg. 'two tablets four times a day' or in the case of mixtures, 'one tablespoon three times a day'²⁴. If the patient is illiterate, symbols and graphics may be used to emphasise the administration. Efforts should be made to prevent any prescriptions leaving the pharmacy bearing the instructions 'take as directed' or 'take as formerly'. The doctor should be asked to define this to allow the label to be written in full³. It is always necessary to explain in lay language the purpose of each drug prescribed, e.g. for 'water', 'heart', 'pain' etc. It would also be helpful if the purpose of the drug in lay language is clearly written down on the container²⁵. The expiry date should be included on the label when appropriate, e.g. in the case of eye-drops or oral mixtures.

The patient should be asked by the pharmacist if he/she requires additional information on the label to aid in identification and compliance.

Packaging

The majority of tablets and capsules issued from St Luke's Dispensary are packed in small paper-bags. Such packing is advantageous to elderly patients as they can easily be opened, however drug stability problems arise with the use of such packings. Some patients have the habit of storing their medication in humid places such as kitchens or bathroom. Twenty-one of the patients interviewed pointed out that Trinitrin tablets crumble after some time stored in a paper-bag, while the Orovite tablets supplied become sticky. Such is the fate of the majority of uncoated tablets when stored in paper-bags.

Equally worrying is the fact that certain elderly patients may transfer the medicines from labelled paper-bags to an assortment of other containers which may be poorly labelled thus creating confusion.

Medical authorities at St Luke's Hospital have in fact considered the disadvantages related to the dispensing of drugs in paper-bags and are

discussing the possibility of using suitable tablet containers to eliminate such problems.

A large range of containers are available for the dispensing of medicines, however, not all may be suitable for elderly patients. The presence of arthritis or the loss of fine finger movement in Parkinsonism will make medicines inaccessible if the size of the container is too small or the cap difficult to manipulate. Many elderly patients have difficulty with the unit dose bubble packs of tablets or foil wrappings of suppositories. It is also well recognised that child-proof containers are also 'pensioner-proof'^{3,23}. The Medicines Commission (D.H.S.S., 1974) mentioned that child-resistant, reclosable containers for dispensing tablets, capsules or oral mixtures presented some disadvantages. The elderly and infirm might be frustrated in their efforts to open the containers and omit taking doses of medication. The Commission also looked at the colour of the containers and suggested that, where possible, solid-dose medicine should be dispensed in opaque, amber or tinted containers. However, elderly people often remember their drugs by colour and this type of container would be a disadvantage²⁴.

Davidson (1973)²³ stated that patient errors due to difficulty of access are reduced if medicines are prescribed in palm-sized containers, strong enough to withstand frequent handling but capped in a way that rendered medicines accessible to elderly patients. Davidson also confirmed that errors due to identification difficulty are reduced when medicines are presented in transparent containers.

As elderly patients strongly rely on colour, containers might be used with different coloured stoppers. A red top for morning dosing, white for noon, blue for evening, and a red-white-blue, striped top for drugs taken three times daily. Strongly coloured containers might be used for dangerous drugs such as narcotics and sedatives. Containers for hypnotic drugs might possess a fluorescent stopper as a night precaution.

Social isolation

A consistent finding has been the beneficial role of a partner who ensures that the medication is taken as directed. Eleven per cent of the patients interviewed said that their medication was administered by a relative or spouse. Visits of the community nurse or the presence of a

reliable 'educated' neighbour or partner for the administration of injectables is beneficial. Social isolation was found to make a major contribution to non-compliance³.

In fact all the elderly patients interviewed during the survey who were non-compliant to injectable dosage forms (Vitamin B₁₂ injections) were people who lived alone and were never informed about the community nurse service. It is the duty of the pharmacist or medical officer to inform the patient of such a service when dispensing the medication.

The unit dose

The Unit Dose system has proved to be very helpful in enhancing patient compliance and the pharmacist should take the opportunity to advise the patient about the medication since he is allowed more time by such a system. This could help the patient to comply better to his medication when discharged from hospital.

Complex therapeutic regimens

Elderly people are likely to suffer from more than one disease and because of this, they may be prescribed a variety of different drugs. It is significant that a great number of drugs may be prescribed for an old person, each to be taken in a different number and possibly at different times²⁴.

As Annabel Hecht wrote in the FDA Consumer of September 1983:

"Every night before he went to bed, Grandpa would line up his drugs for the following day. There was the diuretic to reduce the accumulation of water in his tissues and the potassium supplement needed to replace that lost from the action of the diuretic. These tablets were to be dissolved in a glass of orange juice. Then there was the digoxin to aid his ailing heart and another tablet to take when he felt faint. A minor tranquilliser helped him over bouts of anxiety. On top of it all were the antacids and laxatives he bought without prescriptions".

In a paper on drug interactions, MacLennon (1974)²⁶ coined the appropriate term 'geriatric confectionery' for this prescribing regime. Even young, alert persons would find it difficult to abide by such

regimes. It is known that medication errors are common in the elderly, and that the more complex a drug regimen is, the poorer is the compliance.

Gibson and O'Hare (1968)²⁷ suggested that the elderly can usually only manage to take three prescriptions at a time, and that this number of different drugs given to an elderly person should not be exceeded. In a survey conducted by Dass et al (1977)²⁸ it was found that 25 per cent of the elderly patients could not manage to take more than three preparations reliably during one period.

Patient compliance may benefit from minimising the complexity of the therapeutic regimen and restricting prescribed drugs to the absolute minimum essential number. Although sustained-release, long-acting preparations and fixed dose combination products can have disadvantages, some may help compliance in the elderly simply by reducing the number of drugs to be taken³⁰.

Mental frailty

Inevitably, patients may forget to take an occasional dose of medication. In isolation, such incidents are usually harmless but they may become frequent and troublesome in the confused elderly patient who finds it difficult to follow even simple instructions. Doses may be completely omitted, or a loss of memory of a few minutes after drug intake may result in unnecessary duplication of dosage³.

Forgetfulness can be a real problem for older people who take several drugs and at different times throughout the day. Such patients are sometimes guilty of mixing a variety of tablets in a single bottle and whenever the owner felt in need of a dose, the first tablet to fall out of the bottle would be taken³.

Wandless and Davis (1977)³⁷ have evaluated two systems in a randomised clinical trial to alleviate compliance problems in the elderly who tend to forget.

- a. A 'daily calendar' detailing each day's drug treatment in chronological order together with standard instructions and labelled medications;
- b. A 'tablet identification card' bearing samples of the medication and details of the administration schedule, together with standard

instructions and labelled medication.

The study revealed that elderly patients with 'daily calendars' made fewer errors than those with 'tablet identification cards'. Those patients with either a card or a calendar, made significantly fewer errors than those given only standard instructions and labelled medication.

This approach can be recommended for alleviating specific compliance problems in individual patients but it is not feasible for application on a routine basis.

Nature of medication

Complications of old age, when eye sight and manual dexterity may be failing, make the type of drug preparation an important factor in terms of compliance. Extremely small tablets may be troublesome because they are difficult to handle or identify. On the other hand, large tablets are frequently difficult to swallow and it is therefore wise to avoid large tablets and capsules and perhaps use liquid preparations³. Seven per cent of interviewed patients non-compliant to tablets/capsules complained that some of the tablets prescribed were too large to swallow. Tablets are marked so that the patient can easily 'break' them in half. It is doubtful that the elderly can always do that. In addition, this may lead the patient to believe that it can be done with all tablets. If not cautioned, the patient may well break an extended dose tablet in half, completely negating its effect. Liquid oral formulations can also pose problems; a 500 ml bottle containing an aqueous suspension weighs 900 g and has a circumference of 25 cm. With this in mind, the instruction 'Shake the bottle' presents a real challenge to an elderly patient. Bad tasting liquid preparations may also reduce compliance to such dosage forms.

Little attention is paid to patients' dislike of some drugs, of their taste or colour, and to the important fact that drugs supplied by hospital may differ in size, colour and shape from those written up by the family doctor²⁴. It is therefore wise to ensure that the size, colour and shape of the tablet dispensed by the hospital pharmacist is the same as that subsequently provided on future occasions³⁰.

Many tablets and capsules of widely differing pharmacological action

are similar in size, shape and colour. Lanoxin^(R), Lasix^(R), Valium^(R), and Stemetil^(R) are all small, white, round tablets which can easily form part of the medication schedule for an elderly patient. Even if these drugs are appropriately packaged and labelled, patient confusion may arise.

If such preparations are to be used together, it would be advantageous if they were not of the same colour and shape. The more distinctive the medication, the easier and safer it will be for geriatric use.

Side effects

Blackwell (1976)³² has reviewed several studies which confirm a significant correlation between the incidence of side-effects and discontinuation of therapy. Examples of such uncomfortable side-effects include gastric irritation with Indomethacin capsules, blurred vision caused by Pilocarpine eye-drops, frequent urination with diuretics, dry mouth with parasympathetic inhibitors. Advising the patient on possible side effects which should indicate whether or not to stop the medication may improve patient compliance.

Deliberate deviation

Intentional premature discontinuation of a course of treatment may occur for a variety of reasons. In a chronic asymptomatic illness such as mild hypertension, motivation may be lacking. Some elderly patients believe that once they begin to feel better, treatment can either be taken as required or stopped altogether. Occasionally, therapy may be stopped because the patient is concerned about habituation or the development of new symptoms which may be ascribed rightly or wrongly to the drug³.

Some elderly patients prefer to take their medication when they feel like it, while others are convinced that they obtain better results when they take their medication their own way⁵. Only careful counselling and availability of physician and pharmacist could enhance compliance in this case.

Lack of doctor/pharmacist/patient Rapport - Inadequate patient education

The behaviour and attitude of the physician is strongly correlated with subsequent patient compliance. A number of physicians have anecdotes about patients using tablets as suppositories, suppositories as tablets, inhalant capsules in the nose and antibiotic capsules in the ear.

These complaints, although exceptional, are not funny when the reasons behind them are examined. Certain physicians assume that elderly patients are as skilled as themselves in proper drug administration. Lack of proper advice given to patients about the use of their medicines is a prime reason for non-compliance³. The physician should never assume that the elderly patient knows all about the drug. He should ask in simple language whatever questions he believes necessary in order to determine whether or not the patient understands the method of drug administration and directions of use.

Many of the illnesses suffered by elderly people are chronic incurable disorders in need of long-term treatment. Regular medical interviews are required in addition to the simple mechanical monthly prescription repeats which so often are written out by a receptionist only to be signed by the dispensing physician. Such is the case at a number of Government dispensaries visited in Malta. The majority of elderly patients interviewed during the survey only visited the Government dispensary in order to collect their monthly supply of drugs and had not been visited by the dispensary physician for some months.

The role of the pharmacist in patient education and counselling is very important. Pharmacists frequently hand over a sealed dispensary bag without a word of advice, caution or encouragement. The situation is worse in Government dispensaries as no pharmacist or pharmacy technician is available at these dispensaries for drug distribution and advice. This is hardly an ideal way of demonstrating professional interest or competence.

Regular medical interviews are therefore essential. Such interviews should be carried out when the patient visits the dispensary for prescription repeats. At the medical interview the physician should consider whether each drug would still be necessary. He could look out for evidence of adverse effects and together with the pharmacist, check that the patient is complying to the medication and dosage forms prescribed.

The presence of a pharmacist at each Government dispensary is therefore essential, or preferably the Malta Government's plan for future drug distribution to take place from the pharmacist of one's choice.

CONCLUSION

Compliance is best expressed as to do something with pleasure. In the case of health, it concerns self-discipline, as in alcohol, smoking and stress restrictions, or in taking a drug at the correct time. The need for compliance in reporting toxic effects is emphasised by Borg (1985) in a case description of how a 75 year old failed to report symptoms of digitalis intoxication - a common cause of fatality due to lack of compliance³³. The non compliance attitude is a fault as old as mankind. Eve's non compliance in the Garden of Eden needs no repetition and as long as 2500 years ago Hippocrates stated that:

"The doctor should realise that patients often lie when they assert that they have taken a certain medicine".

The topicality of patient compliance is illustrated by the recent flood of literature on the subject. Whereas, as recently as the early seventies the number of articles dealing with patient compliance did not exceed 80 articles in a year, in the late eighties the number exceeded 400 articles. This is an important subject.

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