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Self medication

SELF-MEDICATION AND THE ELDERLY PATIENT

by
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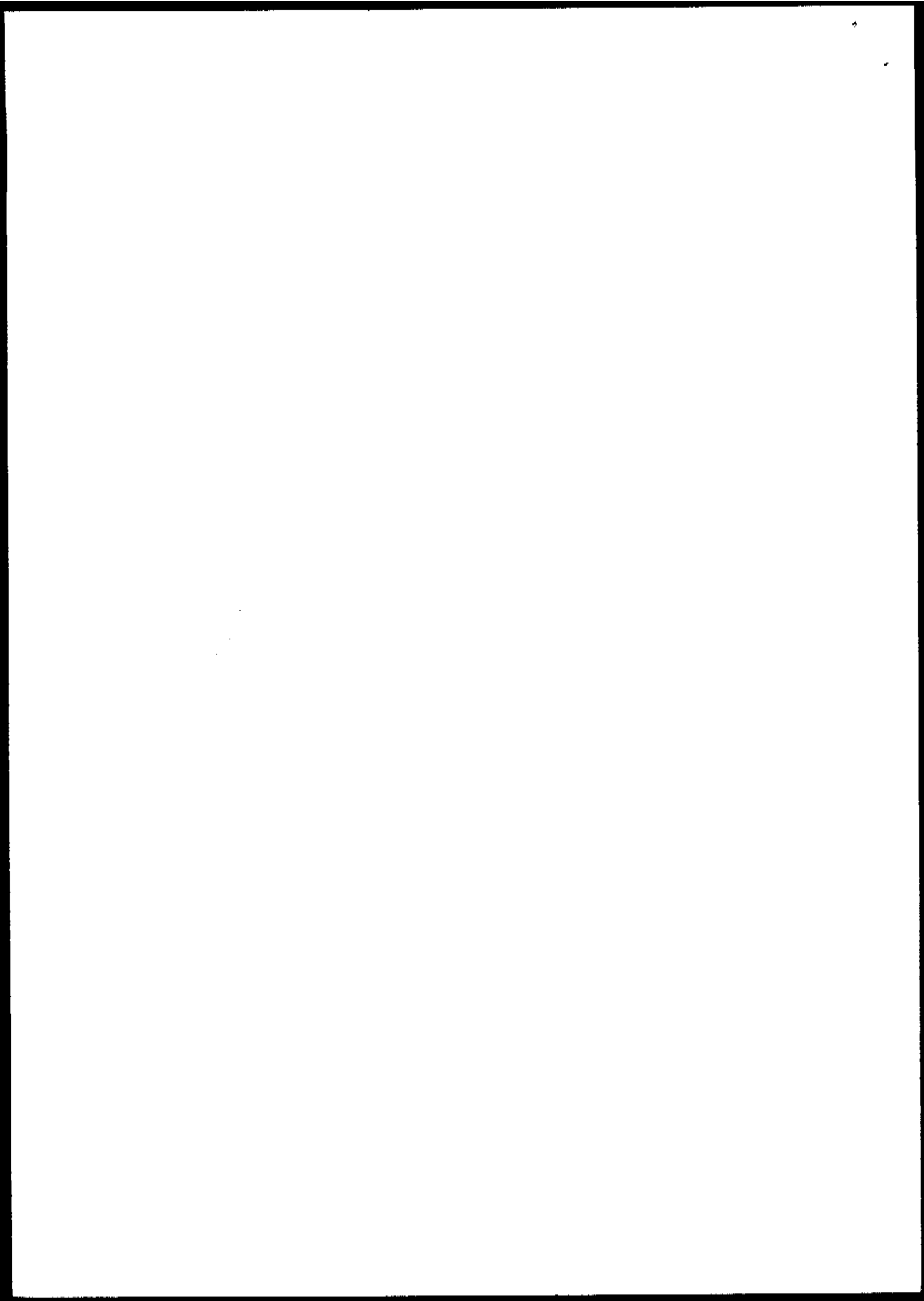
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SELF-MEDICATION AND THE ELDERLY PATIENT

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"The desire to take medicines is perhaps the greatest feature that distinguishes man from animals"

1. INTRODUCTION

This statement by Sir William Osler in 1891 could have been made to-day, in our drug-oriented society. In fact this is not so peculiar: like to-day man in early times made use of medicines or home-remedies to combat pain and discomfort. He sought a cure for his ailments. There are two ways to initiate a therapy either by medication or self-medication.

If the diagnoses of an existing or assumed affliction is made by the patient himself and he consequently purchases and uses medicines the term self-medication is applied.

The number of elderly people is rising in many countries. It therefore seems significant to investigate the nature and the extent of self-medication by the elderly. Although this may vary from country to country and from region to region it is interesting and perhaps essential to indicate which form of self-medication is acceptable and under which circumstances self-medication is not acceptable; financial aspects in the various countries are of course involved. A cheap, non-prescription drug in western Europe may be expensive and available only on prescription in the third world.

2. THE PREVENTION OF SELF-MEDICATION

From several studies on self-medication it appears that \pm 80% of the examined elderly patients practiced self-medication once per year and \pm 40% practiced it in a 48-hour period. Adamson and Smith (1978), Calkhoven (1980).

In addition it was found that the use of medicines by the elderly increases with the age of the patient. This applies in particular to elderly women.

In addition it was shown that there is a continuous need for education concerning non-prescription medications. Adamson and Smith (1978).

3. MEDICINS AND ELDERLY PEOPLE

Elderly people have a high medicine consumption. Burger (1979), Merkus (1978). This medicine-consumption can, especially with the elderly, lead to interaction, undesired side-effects and even to intoxications. Moreover one should take into account the fact that elderly people may suffer from an impaired renal function and a reduced detoxifying capacity of the liver. Brocklehurst (1978).

Finally the binding capacity of the tissues is altered, as is the distribution of medicines in the body.

4. SOME ASPECTS OF SELF-MEDICATION

4.1. The diagnosis and the symptoms

When a patient uses self-medication he makes his own diagnosis of his supposed illness. He may be wrong and may be treating symptoms only.

CASE HISTORY:

- Patient A, male, 81 years, self-diagnosed constipation. He used a laxative as self-medication. He had a colon-tumor.
- Patient B, female, 72 years, suffered from pain in the chest. She used aspirin. She was admitted to a hospital with a heart-infarction and a bleeding from the stomach.

4.2. Therapy

Patients may initiate a particular therapy whilst a different kind of therapy is really indicated:

- Patient C, male 85 years, had abdominal pains and took aspirin. He had to be operated on.

4.3. Contra-indications

4.3.1. Sometimes certain patients should not use certain drugs; self-medication with aspirin by stomach patients can be hazardous.

4.3.2. Sometimes certain medicines should not be combined: if a patient uses medicines he should be cautious not to add self-medication.

4.4 Side-effects

All use of medicines involves the risk of side-effects. This also applies to self-medication.

4.5. Patient compliance

If patients change dosage-instructions this can be interpreted as a kind of self-medication. This kind of self-medication can be very hazardous, especially in the case of: cardiac drugs, anti-coagulants, anti-convulsants, etc. etc..

4.6. Wrong medicines

Handicapped elderly people are sometimes unable to visit the doctor and/or the pharmacy. They then use ("borrow") medicines from somebody else; this can be dangerous.

5. SELF-MEDICATION - THE CATEGORIES OF NON-PRESCRIPTION DRUGS

What kind of medicines are used as self-medication by the elderly? This varies from country to country and in some cases, like in the third world countries, little is known of the subject.

The number of medicines listed in the literature is great, but not unlimited.

The self-medication options of the elderly are divided into three groups:

5.1. Homeopathic medicines

5.2. Herbs

5.3. "Chemical agents"

5.1. Homeopathic medicines

Homeopathic medicines usually consist of highly diluted extracts. Their therapeutic value is questionable, but side-effects rarely occur. Porsius (1980).

In the rich countries homeopathic medicines should only be rejected if they interfere with some other indispensable therapy. In the poor countries the money should not be wasted.

5.2. Herbs

The use of herbs as medicine has its supporters and its opponents. Those who advocate the use of herbs state that they are less harmful to health than the "chemical drugs".

On the other hand the opponents state that the roots, leaves and flowers, that herbs consist of, are still the result of a synthetic process though not by human means but by plants ! This discussion disregards the fact that patients in the so-called poor countries are often forced for financial reasons to make use of herbs. Objectively one could state that a disadvantage of the use of herbs as medicine is in the composition which is not constant.

Another disadvantage is that insufficient exact analytical methods are available in order to quantify the compounds of herbs. In other words when a treatment is chosen one rejects the strictly composed capsules and prefers a certain number of plant cells, containing a series of chemicals with an unknown, pharmacological and pharmacokinetic action.

As can be seen for example under the heading antitussives - 5.3.4. Yet a free choice may not be possible: economic circumstances in the so-called poor countries can force people to focus their choice on herbs as a medicine.

Unfortunately a clear inventarisation of these herbs is not available in some of these countries. Nor has the pharmacological and pharmacokinetic action been established. Finally there is a need for proper health education in this field.

5.3. "Chemical medicines"

In spite of all this there will always be the need for the so-called chemical medicines in every country, as is shown in the history of the treatment of t.b.c., malaria, hypertension, pain etc. etc..

The advantages of chemical treatment are:

- the agent is chemically pure
- the dosage can be exact
- the biological availability is known
- the side-effects are known
- the therapeutical experience has been acquired

In studies on self-medication by the elderly one finds predominantly 'chemical medicines'. Lundin (1978), Law and Chalmers (1976), Porsius (1980), Calkhoven (1980) en Adamson en Smith (1978).

It seems significant to divide these medicines into a number of groups, making it possible to choose a number of important and relatively cheap medicines suitable for self-medication.

The literature on self-medications allows a division into 5 groups of medicines:

- 5.3.1. Internal analgesics and antipyretics
- 5.3.2. Laxatives
- 5.3.3. Antacids
- 5.3.4. Antitussives
- 5.3.5. Hypnotics and sedatives

5.3.1. Analgesics and antipyretics

Treatment of pain, fever, common cold and flu in elderly patients is the most common reason for self-medication.

Apart from bed rest and heat application a number of pharmaca are used, which are usually presented in combination-preparations.

In Table 1 these pharmaca are mentioned:

TABLE I

List of drug ingredients of 55 preparations available in the Netherlands with an analgesic and antipyretic (anti-inflammatory) action. (from Porsius).

drugs	the dosage of each compound is stated in mg. The numbers between brackets indicate the number of preparations containing the given quantity.
caffeine	10(2), 14(2), 17,5(1), 20(1), 23(2), 25(6), 35(1), 37,6 (2), 46(1), 50(21)
phenacetin	25(1), 40(1), 50(1), 100(1), 125(4), 150(1), 171(1), 200(8), 250(13)
acetylsalicylic acid	200(2), 247,8(1), 250(5), 300(3), 350(1), 400(1), 450(1), 500(4)
phenazone	100(1), 125(1), 150(1), 200(2), 206(2), 225(1), 250(4)
paracetamol	200(1), 250(3), 500(7)
ascorbic acid	10(1), 30(3), 50(5), 80(1)
quinine	1,5(1), 5(1), 20(1), 25(1), 30(3), 45(1)
prophyphenazone	150(4), 250(2)
salicylamid	135(1), 200(2), 225(1), 250(1)
thiamine	1(1), 5(2)
phenylephrine	5(3)
dipyrrone	50(1), 100(1)
ephedrine	5(1)

Combining drugs mentioned in Table 1 can lead to an almost infinite amount of preparations.

The following objections against the compounds of these preparations can be raised:

5.3.1.1. Of Ascorbic acid, Quinine and Thiamine the supposed analgesic and antipyretic effects have never been proven.

5.3.1.2. Phenylephrine and ephrine can promote hypertension.

5.3.1.3. The use of caffeine only makes sense if contained in headache preparations. The possibility that caffeine promotes the acid secretion of the stomach and can be nephropathic, is the reason that caffeine is an undesired compound of all other analgesic preparations.

5.3.1.4. Phenacetin may also cause renal damage.

From the above it seems wise management to use combination preparations as little as possible. My personal preference is to use only analgesics and antipyretics - if necessary! - in the form of the old-fashioned, cheaper acetylsalicylic acid. This also has disadvantages, but adequate health education - especially in the case of self-medication - is indicated.

5.3.2. Laxatives

A Dutch survey of more than 300 elderly people (van Zonneveld, 1961) showed that 8,3% and 10,6% of the male and female elderly people respectively had complaints of constipation. How does one define constipation?

Dock (1952) defines constipation very clearly:

"Constipation is evidenced by failure to move the bowels with the customary frequency or by passage of rare, small, hard and perhaps 'painful masses'."

Which kind of laxatives are used? See Table 2.

TABLE 2. Ingredients found in combination preparations with a laxative effect.
The numbers between brackets indicate the amount of products in which the compound has been used.

aloë (5)	peppermint (1)	carbo adsorbens (1)
aloës-extract (8)	prunus (1)	lactobacillus (1)
anise oil (1)	psyllium (1)	magnesium sulfate (3)
anise fruit (1)	rhamnus (7)	sodium bicarbonate (3)
aniseed (4)	rathany-extract (4)	sodium biphosphate (1)
belladonna-leaf (1)	rhamnus cathartica ()	sodiumcitrate (2)
belladonna-extract (1)	rheum ()	sodium chloride (1)
betula alba (1)	senna leaf (11)	sodium fosfate (1)
yeast-extract (1)	senna-extract (1)	sodiumlauryl sulfate (1)
extract boldo (1)	senna-fruit (5)	sodiumsulfate (3)
extract bryoniae (1)	juice of liquorice (2)	nicotinamide (1)
calendula flowers (1)	tamarindus (1)	pantothenic acid (1)
chellidonium (1)	taraxacum (1)	pareffin (1)
colocynthis-extract (3)	theobroma cacao (1)	siliciumdioxide (1)
crataeguafruit (1)	triticeus (1)	sorbitol (3)
curcuma-root (1)	forficulum (2)	sterculiagum (1)
quisetum (1)	viola (1)	tartaric acid (2)
fucus (6)	sambucus (1)	soap (5)
oxbile (3)	figs (1)	
hyoscyamus-leaf (1)	zingiber (1)	
hyoscyamus-extract (3)		
jalsapa (2)		
juniper (1)		
cerum cervi (2)	agar (2)	
cervi-oil (1)	cholic acid (1)	
corianderoil (1)	citric acid (1)	
coriander-fruit (2)	danthron (2)	
coriander-seed (1)	parthenol (1)	
caryophyllum (1)	diethylsulfocacinate (3)	
liquorice (1)	phenolphthalein (2)	
malvae (1)	gall salts (1)	
maté (Paraguay tea) (1)	glycerol (1)	
melissa (1)	potassium bitartrate (1)	
millefolij herba (1)	potassium chloride (1)	
ononin-spinosa (1)	potassium sulfate (1)	
orthosiphon (1)	camphora (1)	
peppermintleaf (1)	khellin (1)	

In this table a number of substances are mentioned , which may show the following side-effects:

- a) The Jalappa roots can cause irritation of the bowel mucosa.
- b) Paraffin may impair the resorption of fat soluble vitamins and may cause allergies. Elderly patients aspirate frequently and with paraffin this may lead to paraffinomes.
- c) Anthrachinonglycosids and Sennosids containing laxatives can cause pseudomelanosis coli.
- d) The inert laxatives, which were regarded as being innocent in early days, may lead to electron microscopic changes.

This concludes Table 2.

Is the use of laxatives harmful?

Frequent use of laxatives can lead to diarrhœa , malabsorption, atony of the bowel and muscular weakness. In addition hyponatremia and hypokalemia may occur, the latter leading to disturbances in the cardiacrhythm, which may be hazardous in cases of simultaneous use of digitalis.

If an elderly patient suffers from constipation, the following home-remedies may be considered:

1. Reassurance

Many elderly patients are under the impression that a good bowel movement means a daily one and is preferably induced with the aid of a laxative. Elderly people are sometimes obsessed with their (daily) bowel movement. A calm explanation may help them to overcome their 'bowel-consciousness'.

2. Diets rich in cellulose

Without prescribing complicated or expensive diets, good results can be obtained by means of simple dietary instructions.

3. Restrictions

The patient should be instructed not to use products which may promote constipation: strong tea, chocolate milk, blackberry syrup, white bread, rice, toast, sliced apple and cinnamon can cause constipation.

4. Sufficient fluid intake

Fluid intake should be generous; too much strong tea should be avoided. A glass of water is considered to be an adequate home-remedy by many elderly. In the case of dried fruit consumption

(containing hydrophilic colloids) or consumption of a bulk laxative the elderly patient should be instructed to use fluids generously.

5. Irritant purgatives

It is essential that the food contains sufficient substances, that stimulate bowel activity. In this regard we can mention: marmelades, stewed fruit, yogurt and buttermilk. Food should also contain sufficient fat and spices (no cinnamon!), as long as this is not in contradiction with other instructions.

6. Reactivation of the normal bowel pattern

Normal defecation pattern should be reinitiated. The elderly should be allowed to take sufficient time to walk to the toilet and to spend a quiet and undisturbed session. Even in the case of the urge not being present he should try to visit the toilet regularly on the same hour.

7. The laxatives

If dietary and other regimens are ineffective one can prescribe a laxative. Bulk laxatives (like MgO) or lubricant laxatives (like paraffin) are the drugs of first choice. Laxatives diminish the sensitivity of the bowel for physiological stimuli. Therefore do not prescribe them for too long a period.

8. Physiotherapy

If frequent physiotherapy is available one can advise ultrashort wave treatment and/or 'connective tissue massage'.

9. Medicines, that may cause constipation should be avoided as much as possible.

In the case of these, often adequate, measures failing, one can prescribe (preferably for a short period) laxatives. My first choice would be MgO.

5.5.5. Antacids

This group consists of drugs that can reduce gastric acid production. Causes of hyperacidity may be many: stress, duodenal reflux, overproduction and iatrogenic, such as intake of salicylates, phenylbutazone, oxyphenylbutazone and caffeine (see 5.3.1.3.). In that case the use of medicines should be interrupted.

Which antacids are used for self-medication?

Anticholinergic substances, and H_2 -receptor blocking agents - cimetidine - are rarely involved in self-medication.

The pharmaca in Table 3 are used more frequently.

MgO	12,5 - 1000
MgCO ₃	75 - 700
MgO.SiO ₂	26 - 700
Al(OH) ₃	25 - 660
CaCO ₃	17,5 - 1500
NaHCO ₃	50 - 990
Bi(OH)NO ₃	10 - 816
BiCO ₃	2,8 - 200

From this table it can be concluded that the more frequently used antacids contain aluminium, magnesium, sodium and calcium.

These agents may possess undesired side-effects:

- a) Aluminium may cause constipation which, in the case of the elderly patient, is an undesired side-effect (see 5.3.2.)
- b) Magnesium may cause a magnesium intoxication in the elderly patient, who frequently suffers from impaired renal function.
- c) Sodium containing acids often contain sodiumbicarbonate, which can produce CO_2 in combination with the gastric acid. This may lead to belching and perforation of the stomach.

In addition the acid base equilibrium may be disturbed.

Hypertensive patients should avoid these sodium containing acids.

- d) Bismuth; its therapeutic value is doubtful.

All these Al., Ca., Na. and Bi. - containing antacids have side-effects and the Ca. and Sodium-containing antacids in particular should be avoided.

The combination of aluminium and magnesium in antacids should be preferred in a 3 to 1 ratio.

The vegetable antacids, that contain liquorice syrup, are either ineffective or have to be applied in such high dosage that they will cause abdominal discomfort.

Apart from the fact that these antacids do not cure anything; they just bind acids.

It would seem sensible to create stomach diets in every country in spite of the sometimes scarce availability of food and to make a list of reliable antacids.

A healthy way of life is essential.

5.3.4. Antitussives

A productive cough is useful and should not be suppressed.

A non-productive cough is annoying for the patient and his surrounding and should be treated.

Porsius (1980) analysed 53 antitussives; the compounds are listed in Table 4.

TABLE 4.		
List of ingredients of 53 antitussives (combination preparations) available on the Dutch market.		
The numbers between brackets indicate the numbers of specialities in which the compound has been used.		
althaea syrup (4)	primula extract (1)	dextrophan (1)
althaea root (1)	primula syrup (1)	diphenhydramine (1)
anise extract (1)	primula tincture (2)	droserin (1)
anise oil (4)	prunus laurocerasus (1)	ephedrine (11)
anise spirit (2)	pulmonaria (1)	emetine (1)
anise fruit (1)	pulsatilla oratenale (1)	Emu salt (1)
anise seed (2)	rose water (1)	ethylnarcein (1)
artemisia (1)	rose oil (1)	eucalyptol (2)
belladonna tincture (1)	salix fragilis (1)	fedrilate (1)
canada balsam (1)	salvia (1)	phenacetin (2)
capsicum (1)	scilla (1)	phosphoric acid (1)
carrageen (1)	senega-extract (3)	glycerol (1)
ipecacuanha root (1)	senega syrup (1)	guaiacol (3)
drosera extract (8)	solanum dulcamara (1)	guaiaphenesin (5)
drosera leaf (1)	juice of liquorice (5)	honey (3)
drosera tincture (1)	tulobalsam syrup (2)	potassium antimonytartrate (1)
millefolii herba (1)	thyme (3)	potassium bicarbonate (1)
equisetum (1)	thyme extract (10)	potassium iodide (1)
eucalypt oil (4)	thyme oil (2)	camphor (2)
helenin (1)	thyme syrup (2)	lactic acid (1)
hyocyanum (5)	valerian (1)	menthol (8)
ipecacuanha-extract (2)	carrageen (2)	methylsympetrine (1)
ipecacuanha-syrup (2)		sodium benzoate (3)
ipecacuanha-tincture (7)		sodium citrate (2)
juniper fruits (1)		sodium diborate (1)
chamomilla (1)		noscapine hydrochloride (2)
laurocerasus (1)	acetosal (2)	oxememazine (1)
liquorice-extract (4)	alcohol (2)	paracetamol (1)
liquorice syrup (1)	ammonium carbonate (1)	pentoxysyrine (1)
liquorice root (2)	ammonium chloride (10)	promethazine (2)
malt extract (1)	antimony sulfide (3)	pseudo-ephedrine (2)
orange flower (1)	ascorbic acid (1)	sulfoguaiacol (2)
papaver syrup (1)	acetic acid (1)	terpine (1)
peppermint (1)	benzoic acid (2)	terpineol (1)
pimpinella (1)	bromoform (3)	thymol (2)
ipecacuanha-alkaloide (1)	calciumlactophosphate (1)	glacial acetic acid (1)
	carbinoxamine (2)	
	chlorfenamine (1)	
	chloroform (1)	
	citric acid (1)	
	caffein (2)	
	creosote (4)	

Many of these ingredients should not be contained in antitussives because of their serious side-effects, interactions and toxicological risks. In particular attention should be paid to the following group of pharmaea:

parasympatholytics, antihistamins, sympathicomimetics and toxic agents like bromium and potassium iodide.

Most of these ingredients are expensive and their effect is doubtful. All these have been combined into preparations that should better be avoided for pharmacological and toxicological reasons.

As a rule I prefer bromiumhexin.

Although cough potions are a fine example of how many herbs can be put into medicines, their therapeutic value is doubtful and in some cases even undesired.

Althae syrup and Thyme syrup however are innocent. (See Table 4).

Finally it should be mentioned that adequate health education must stress that cough may be caused by infections of the respiratory tract, that need treatment with antibiotics.

5.3.5. Hypnotics and sedatives

The consumption of hypnotics - also by elderly patients - in our western society is very high. A study of this phenomena within the frame of self-medication is hindered by the fact that hypnotics are available only on prescription in one country whilst in another country they may be available over the counter.

In addition elderly patients often exchange each other's hypnotics. Barbiturates have always been very popular, but they can be responsible for nocturnal restlessness and may induce pseudo-dementia.

The interruption of the use of barbiturates may give rise to nightmares and delirium.

According to Brocklehurst (1973) nitrazepam is a safer alternative. In the case of self-medication against sleeplessness the elderly frequently make use of bromium and valerian preparations. These may cause serious side-effects.

Bromium containing preparations may cause bromism, acne, conjunctivitis, apathy, ataxia, depressions and allergic reactions. No objections can be raised against preparations from the valerian root.

When guiding self-medication and medication in the case of sleeping problems it should always be stressed that sleeplessness may have a cause.

This cause must then be tackled:

is the underlying cause depression try to relieve social stress or isolation, is it bodily discomfort relieve the pain, pruritus or distended bladder. Is the underlying cause anxiety, try to relieve social stress, is it acute state of confusion treat the underlying organic disease, is it organic dementia, try to relieve bodily discomfort.

If however self-medication or medication must be applied we prefer placebo's, nitrazepam or products of valerian root

Good information on sleeping problems is indispensable and should amongst others put its use and usefulness into the proper perspective.

5.4. Discussion

As stated, it appears that the elderly in many countries frequently use self-medication.

Analgesics, laxatives, antacids, antitussives, hypnotics, sedatives and herbs in particular are used.

In the case of self-medication I distinguish two stages:

- the non-medical stage (5.4.1.) and
- the medical stage (5.4.2.)

5.4.1. The non-medical stage

In this stage the patient looks after himself, without help from the doctor. In this stage it is very important that the patient has been instructed adequately and has received good information. Simple information on the nature of his affliction and on the (im-)possibilities of self-medication should be given to the patient in this stage.

Furthermore the patient should have at his disposal some good and cheap medicines for self-medication.

The various governments should have lists of medicines suitable for self-medication, which can be used to reduce the import of expensive medicines.

In 5.3.1. - 5.3.5. some suggestions were put forward.

There also seems to be a demand for adequate health education

5.4.2. The medical stage

In this stage the elderly patient calls in the doctor or his "associate" It is very important in this stage that the doctor makes inquiries into possible self-medication in order to prevent interactions and to recognize possible side-effects of self-medication (4.3.1., 4.3.2. and 4.4.3.).

5.5. Conclusion

In many countries elderly people make generous use of self-medication (and medication !).

There is a demand for good, simple instruction and health education.

The W.H.O. should stimulate initiatives in every country in order to analyse the (im-)possibilities of an acceptable form of self-medication (and medication !) for the elderly. Following this, schemes should be developed, containing reliable and cheap medicines suitable for self-medication (and medication).

An analysis of simple, cheap home-remedies should also be stimulated by the W.H.O. in every country.

The above mentioned suggestions can lead to a more acceptable form of self-medication (and medication).

On the other hand a reduction in the costs of the use of medicines may be achieved, which is of great importance to the poor countries.

The W.H.O. should undertake initiatives in every country to fill the need for good health education for the elderly as regards the area of self-medication.

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REFERENCES

- Adamson, K.A., Smith, D.L. (1978)
- Canadian Pharmaceutical Journal, 4, 80
- Brocklehurst, J.C. (1973)
- Textbook of Geriatric Medicine and Gerontology
Edinburgh and London, Churchill Livingstone, p.632-649
- Burger, A.K.C. (1979)
- Pharmaceutisch Weekblad, 114, 581. Holland
- Calkhoven, J.E. (1980)
- Huisarts en Wetenschap, 23, 226. Holland
- Dock, W. (1952)
- Constipation and diarrhoea: Principals of internal medicine
New York, T.R.Harrison-Blackston Co.
- Law, R., Chalmers, C. (1976)
- Brit. Medical Journal, 1, 565
- Lundin, D.V. (1978)
- Drug Intelligence and Clinical Pharm, 12, 518
- Merkus, F.W.H.M. (1978)
- Het voorschrijven van geneesmiddelen,
Utrecht, Bohn, Scheltema & Holkema,
Holland p.186-208
- Porsius, A.J. (1980)
- Zelfmedicatie, Utrecht, Bunge. Holland p. 5.
- Zonneveld, R.J.van (1961)
- The health of the aged, Assen,
van Gorcum en comp. Holland.