

Drug prices and access to essential drugs

Globally, serious concern is being raised about gradually receding access to essential drugs for large sections of the population in developing and least developed countries. Apart from resource and distribution crunch, several other factors are observed which have aggravated the situation. Prime among them is sharp rise of drug prices in recent years. It was propagated that since not many of the drugs in essential drugs lists are under patent cover, there is no scope of immediate price rise and threat to public health. This argument is simplistic. Newly introduced drugs are usually costlier and through cleverly orchestrated promotional campaigns tend to replace existing regimens of therapy – the cost of therapy rises as a result. The global-AIDS crisis has deepened with the cost of anti-HIV drugs beyond the affordability of people who need them most. Africa is the worst affected and the African tragedy is still unfolding. Not only anti-HIV drugs, but prices of other drugs required for HIV patients, like antifungal, antitubercular and several other anti-infective drugs, are kept inflated by a handful of multinational companies under the cloak of patents, much beyond reasonable returns on their investment in research. The profit earned by such companies is phenomenal. The pharmaceutical industry in USA, according to a Fortune 500 report, enjoys one of the highest rates of returns in comparison to the overall industry average.

A startling exposure of overpricing came to light when Indian drug companies offered 3 drugs for HIV patients to South Africa at the rate of \$350 yearly per patient in comparison to \$1500 yearly from multinational companies. The South African government welcomed this offer by changing policy decision, against which 39 multinational companies filed cases of violation of terms of parallel import under the clauses of the TRIPS Agreement. However, due to protest from international non-governmental organizations like Medecins Sans Frontieres [MSF], Oxfam and others, these companies were forced to drop the case in April last. Nevertheless, the multinationals have kept up their pressure on the South African government to bring regulations in line with their business interest. So far, the World Health Organization [WHO] has tended to evade the issue of prices and access to essential drugs, but increasing deterioration of health parameters in developing countries has caused WHO to discuss this issue with the World Trade Organization [WTO]. In a joint WHO-WTO workshop held at Hosbjor, Norway, WHO tried to develop a policy of differential pricing to favor developing countries with cheaper and subsidized prices of some drugs. This concluded with neither specific decisions being taken nor an unanimous opinion being reached. Some participants walked out of this meet protesting that differential pricing is a trade off forbidding the right of parallel import. It is scandalous that despite such objections WHO circulated decisions as if they were unanimous.

In such a global situation, the Indian government prepared a document titled 'Drugs and Pharmaceuticals – Vision 2010', proclaiming that, by 2010, drugs will be accessible to 90% of our population. Contrast this with the government's proposed withdrawal of price control on most drugs. Overlooking the possible adverse effects of the TRIPS Agreement on access to drugs, the document has promised that the country will not only meet the 'enormously increased domestic need' but will also register export growth by 20% per annum. On the other hand the Minister of Commerce and Industry stated that '... increased intellectual property protection, as a product of increasing globalization and technological progress is becoming counter-productive and harmful to several sections of society.' Even the Indian drug industry does not acknowledge that our per capita drug consumption may be declining and not due to improved standards of health.

Fortunately, Indian consumer groups are trying to dispel these gloomy clouds. Attempts are being made to develop a campaign on patients' right of access to essential drugs. In a recent symposium jointly held by the National Working Group on Patent Laws and MSF, a strategy for global coalition in this area was declared. Another national convention jointly held by Federation of Medical and Sales Representatives' Associations of India and Jan Swasthya Abhiyan developed a 17 point 'Peoples Charter of Access to Medicines'. The convention decided that a nationwide campaign would be conducted later this year. As part of this, there would be local level campaigns, including a mass signature campaign to mobilize one crore signatures in support of this demand. The growing risk of curtailed access to essential drugs can only be countered with global action by concerned organizations and citizens. Our survival depends on this.

Amitava Guha

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Cyclodextrins

Avijit Hazra

Introduction

In recent years the Indian market has seen the introduction of some pharmaceutical preparations where the active ingredient is formulated as a complex with beta-cyclodextrin. Examples of such preparations are listed in Table 1. As pharmaceutical excipients, cyclodextrins confer certain advantages over conventional preparation and are likely to be increasingly used. It is worthwhile, therefore, to be acquainted ourselves with these substances.

Cyclodextrins are crystalline, cyclic oligosaccharides

obtained from starch. They were called cellulosine when first described by Villiers in 1891. Soon after, Schardinger identified the three naturally occurring cyclodextrins – alfa, beta, and gamma. These new compounds were referred to as Schardinger sugars. For the next few decades, Pringsheim was the leading researcher in this area, demonstrating that these sugars formed stable aqueous complexes with many other chemicals. By the mid 1970's, each of the natural cyclodextrins had been structurally and chemically characterized and many more complexes had been studied.

Table 1. Cyclodextrin formulations in the Indian market

Brand	Active ingredient in cyclodextrin combination	Company
NIZER tablet	Nimesulide 100 mg	USV
NIZER suspension	Nimesulide 50 mg / 5 ml	USV
NIMTECH tablet	Nimesulide 100 mg	Unitech
CYCLADOL tablet	Piroxicam 20 mg	Ranbaxy

Alfa-, beta-, and gamma-cyclodextrins comprise of respectively 6, 7, and 8 glucose units. Hundreds of substituted cyclodextrin derivatives are now identified. Cyclodextrins occur as white, practically odorless, non-hygroscopic, fine crystalline powders with a slightly sweet taste. Some derivatives occur as amorphous powders. Most cyclodextrins are stable if protected from high humidity.

In shape, cyclodextrins are bucket-like or cone-like toroidal molecules with a central cavity. The size of the cavity varies according to the cyclodextrin type. Due to the arrangement of hydroxyl groups within the molecule, the interior of the toroid cavity is hydrophobic while the outside of the molecule is hydrophilic. This arrangement permits the cyclodextrin to accommodate a guest molecule within the cavity, forming an inclusion complex that is physically and chemically stable.

Use of cyclodextrins

Cyclodextrins have been used to form inclusion complexes with a variety of drug molecules. This results primarily in enhanced stability and improved dissolution which in turn increases bioavailability of the drug. Cyclodextrin inclusion complexes have also been used to mask the taste of unpleasant tasting active ingredients and to convert a liquid substance to a solid material. In parenteral formulations, cyclodextrins have been used to produce stable and soluble preparations of drugs that would otherwise have been formulated using a non aqueous solvent. Cyclodextrins have also been used in the formulation of oral solutions, creams and suppositories. In addition, they find use in the cosmetic industry.

Beta-cyclodextrin is the most commonly used cyclodextrin. Although it is the least water soluble, it is commercially more readily available and is also

the least expensive cyclodextrin. It has been used to form inclusion complexes with a number of molecules of pharmaceutical interest. Beta-cyclodextrin is considered to be non toxic when administered orally and has thus found use in tablet, capsule, and liquid formulations. It has also been used in topical formulations. However, beta-cyclodextrin is nephrotoxic when used in parenteral formulations and, therefore, is not used in injections. Beta-cyclodextrin derivatives tend to be non toxic when used either orally or parenterally and are becoming increasingly important in pharmaceutical formulations.

Alfa-cyclodextrin has the smallest cavity of the cyclodextrins and can only form inclusion complexes with relatively few small molecules. It is mainly used in parenteral formulations. In contrast, gamma-cyclodextrin has the largest cavity of all and can be used to form inclusion complexes with large molecules. Although gamma-cyclodextrin may be an even better choice than beta-cyclodextrin because of enhanced water solubility and low toxicity, the current availability of gamma cyclodextrin is limited.

In addition to their use in pharmaceutical formulation, cyclodextrins have also been investigated for use in various industrial applications. Analytically, cyclodextrin polymers are used in chromatographic separations, particularly of chiral materials.

Production

Cyclodextrins are generated through the enzymatic degradation of starch using specialized bacteria. For instance, beta-cyclodextrin is produced by the action of the enzyme cyclodextrin glucosyltransferase upon starch or a starch hydrolysate. The enzyme is produced by several organisms, *Bacillus macerans* being the earliest

source. An organic solvent is used to direct the reaction to produce beta-cyclodextrin and to prevent the growth of microorganisms during the process. The insoluble beta-cyclodextrin organic solvent complex is separated from a non cyclic starch, and the organic solvent removed by vacuum. The beta-cyclodextrin is then carbon treated and crystallized from water, dried, and collected. Hydroxypropyl beta-cyclodextrin is obtained by reacting beta cyclodextrin with ethylene oxide, while the hydroxypropyl derivative is made by reacting beta cyclodextrin with propylene oxide.

Metabolic fate and safety

Being starch derivatives, cyclodextrins are expected to be non-toxic materials. This has been amply borne out by animal studies which have reported very high LD₅₀ (median lethal dose) values of various cyclodextrin types by various routes. Cyclodextrins are thus regarded as essentially non-toxic and non-irritant materials. In addition to the pharmaceutical industry, they are being used in cosmetics and food products without problems. However, beta-cyclodextrin when administered parenterally is not metabolized; instead it accumulates in the kidneys as insoluble complexes capable of producing severe nephrotoxicity. Fortunately, the beta-cyclodextrin derivatives referred to above are not associated with nephrotoxicity and are reported to be safe for use in parenteral formulations.

Almost all cyclodextrins are safe for topical use when there is no danger of the cyclodextrin getting past the outer skin barrier. Topical use in situations such as eye drops, suppositories (vaginal and rectal), inhalations, and any others that have the possibility of getting beyond the initial barrier, require specific testing to eliminate possibility of irritation and systemic residuals.

Cyclodextrins, when administered orally as pharmaceutical excipients, are metabolized by the microflora in the colon releasing maltodextrin, maltose, and glucose. These are obviously non toxic metabolites. The complex as such is not absorbed from the gut.

There is no evidence to suggest that cyclodextrins are mutagenic or teratogenic. A potential synergism of cyclodextrins with certain carcinogens has, however, been reported.

No significant interactions have been reported between cyclodextrin administered as pharmaceutical excipients and other drugs administered concomitantly. It has however been reported that the activity of some antimicrobial preservatives may be reduced in the presence of the hydroxypropyl derivative of beta-cyclodextrin.

Why use cyclodextrin preparations

Cyclodextrin/drug complexes offer two important

advantages over conventional oral formulations – improved bioavailability and reduced irritation. Improved bioavailability is observed for certain drugs which are not fully absorbed or are absorbed in a variable manner due to incomplete dissolution of the drug in the gastrointestinal tract. Reduced irritation claimed for certain drugs like piroxicam, presumably results from the prevention of physical/chemical interaction of undissolved drug with the lining of the stomach. The products may have faster onset of action as well.

Complexation with cyclodextrin also offers the potential for improving the reliability of oral dosing by permitting the use of true solutions of the drug rather than suspensions during manufacture of the tablets or as the final formulation available to the patient. Compliance can be improved by using cyclodextrins to mask objectionable odor and/or taste.

Insoluble compounds, which previously could only be given by injection, may now be given sublingually when formulated with cyclodextrins. This has been reported with testosterone.

For parenteral products, the use of cyclodextrins can reduce both dosing volume and in situ irritation resulting from high or low pH, organic solvents or the direct chemical irritancy of the drug. The latter is especially important for anticancer agents which are highly reactive and are widely recognized for their propensity to cause phlebitis and pain at the site of injection. From the pharmacist's viewpoint, cyclodextrin/drug complexes are easily reconstituted (or can be provided in liquid form), eliminating the need for elaborate mixing procedures.

Conclusion

Since their discovery, cyclodextrins and their ability to form inclusion complexes have fascinated chemists and pharmaceutical scientists. Cyclodextrin/drug complexes are already in wide use by oral and dermal routes. Ocular, nasal, vaginal, rectal and pulmonary routes are being actively investigated. Chemically modified cyclodextrins, such as hydroxypropyl beta-cyclodextrin, are likely to be preferred to natural cyclodextrins because of their greater inherent solubility and better safety profile. Many questions remain. Why use cyclodextrins for drug solubilization and stabilization when alternative techniques are available? If a drug forms a strong cyclodextrin inclusion complex, how is the drug released in vivo? Dose the injection of a cyclodextrin/drug complex alter the pharmacokinetics of the drug? In topical use, how do cyclodextrins increase drug permeability? Are cyclodextrins completely safe? What should be the regulatory view of cyclodextrins? Answers to these questions will come in time. Meanwhile we should make informed use of cyclodextrin containing preparations so as to be able to justify the higher cost of these formulations to our patients.

Conjunctivitis

Amitava Sen and Avijit Hazra

Introduction

Conjunctivitis is inflammation of the conjunctiva i.e. the outer-most layer of the eye that covers the sclera. It is the most common cause of acute red eye. Although there are a number of possible causes, the great majority of cases are infective or allergic in origin. The three most frequently encountered types of conjunctivitis are viral, allergic, and bacterial. The management varies by type. With the exception of the allergic type, conjunctivitis is typically contagious.

Etiology and clinical features

Viral conjunctivitis is often associated with an upper respiratory tract infection, cold, or sore throat. It may occur in an epidemic form. Adenovirus infection is by far the most common cause of both sporadic and epidemic viral conjunctivitis. There are many different serotypes of the virus that may be responsible. Conjunctivitis may occur in conjunction with systemic viral infections like influenza, measles, varicella, mumps and dengue fever.

Allergic conjunctivitis occurs more frequently among those with allergic predisposition (atopy). Pollen hypersensitivity (hay fever) is a very common cause – the symptoms are often seasonal. Allergic conjunctivitis may also be caused by intolerance to substances such as cosmetics, perfumes, or drugs, including eyedrops, in which case there may be associated inflammation of the eyelids (blepharitis).

Bacterial conjunctivitis is caused by bacteria such as staphylococci, streptococci, *Haemophilus* and coliforms. The severity of the infection depends on the type of bacteria involved. Conjunctivitis may also occur in association with systemic bacterial infections like tuberculosis, leprosy, syphilis and tularemia, though these are now uncommon. Newborn babies may suffer acute purulent bacterial conjunctivitis due to bacterial infection acquired from their mother's genital passage or due to soiled linen. This is called ophthalmia neonatorum. Gonococci are frequently implicated in this condition.

Trachoma, the single most important preventable cause of blindness in the world, is caused by the intracellular pathogen *Chlamydia trachomatis*. It is widely prevalent in North West India, the Middle East and North Africa. The disease is spread by flies which feed on infected secretions and also transmit the infection directly from eye to eye. Trachoma starts off as chronic follicular conjunctivitis, leading eventually to corneal scarring and distortion of eyelids and eyelashes. We will leave trachoma out from this article.

Unlike, other causes of red eye, the vision remains clear in conjunctivitis, although there may be transient blurring due to discharge. This clears on blinking. However, persistent visual haze may signal corneal involvement. Although there may be intense irritation of the eyes, frank pain is usually absent. Severe purulent infection may be painful. The signs and symptoms are summarized in Table 1.

Table 1. Signs and symptoms of conjunctivitis

Viral conjunctivitis	Allergic conjunctivitis	Bacterial conjunctivitis
<ul style="list-style-type: none"> Infection usually begins with one eye, but may readily spread to the other eye. Red eye. Irritation / Gritty discomfort. Profuse watery discharge. May be associated with subconjunctival hemorrhage aggravating the red eye appearance. Regional (preauricular) lymph glands may be swollen. 	<ul style="list-style-type: none"> Usually affects both eyes. Red eye (relatively mild). Irritation / Itching. Clear discharge. Swollen conjunctiva due to edema (chemosis). Eyelids may also swell. 	<ul style="list-style-type: none"> Usually affects only one eye, but may spread easily to the other eye. Red eye. Irritation / Gritty discomfort. Swollen conjunctiva. Stringy discharge that may cause eyelashes to stick together, especially after sleeping. In severe cases pus discharge.

In severe viral conjunctivitis the cornea may become involved as well (keratoconjunctivitis) with slight blurring of vision. The punctate corneal lesions are however difficult to see with the unaided eye.

Vernal conjunctivitis (spring catarrh) refers to a recurrent seasonal conjunctivitis, of allergic

origin, with marked proliferation of the lymphoid and fibrous tissue elements of the conjunctiva lining the upper eyelids. This leads to a cobblestone appearance on everting the lid. The eyes are chronically inflamed with stringy mucoid discharge. There is a frequent association with eczema and asthma.

Bacterial conjunctivitis, if not promptly and adequately treated, may lead to corneal involvement with blurring of vision. Corneal ulceration and perforation may eventually follow, leading to complete blindness.

Diagnosis

An acute red eye is an alarming symptom and usually brings the sufferer rapidly to the doctor. Conjunctivitis may also be diagnosed during a routine eye exam – occasionally by using a slit lamp microscope. In some cases, a conjunctival swab may have to be taken for smear and culture tests to determine the type of bacteria causing the infection.

Treatment

The appropriate medical attention to conjunctivitis is dictated by the cause.

There is no specific treatment for adenoviral conjunctivitis. The condition is self-limiting with resolution in 2 – 3 weeks time. However, if corneal lesions develop, these may persist for months.

For the allergic type, cool compresses and artificial tears sometimes relieve discomfort in mild cases. In more severe cases, non-steroidal anti-inflammatory medications and antihistamines may be prescribed. Some patients with persistent allergic conjunctivitis (for instance vernal conjunctivitis) may also require topical steroid and sodium cromoglycate drops.

Bacterial conjunctivitis is usually treated with antibiotic eye drops or ointments that cover a broad range of bacteria. This includes chloramphenicol, gentamicin, ciprofloxacin, etc.

Tetracycline ointment may be used at night. Frequent installation is required in the initial few days of treatment. The eyes may be washed gently three times daily to remove mucopus. Too frequent washes are not desirable. In case intolerance to bright light (photophobia) develops, dark glasses may be used for comfort. Eye pads are not recommended as they tend to retain the secretions and provide warmth which favors the infection.

Referral to an ophthalmologist is necessary if the conjunctivitis fails to resolve in reasonable time or if there are signs of corneal involvement such as persistent haze in vision, pain or photophobia. Steroid eye drops must never be used if there is diagnostic uncertainty.

Prevention

Since most cases of conjunctivitis are contagious through fomites or airborne transmission, to avoid spreading infection, take these simple steps:

- Avoid rubbing eyes and touching the face.
- Wash hands frequently.
- Don't share towels or washcloths.
- Do not reuse handkerchiefs (use a tissue if possible) .
- Disinfect surfaces such as doorknobs with diluted bleach solution.
- Avoid shaking hands.
- Don't swim (some bacteria can be spread in the water).
- Do not allow tips of eye drop vials or eye ointment tubes to touch the eye during use.
- Prophylactic antibacterial drops may help prevent bacterial conjunctivitis from spreading to the other eye.
- In institutional deliveries, antibiotic eyedrops may be instilled in the eyes of newborn babies to prevent ophthalmia neonatorum, as a routine practice.

A Love Story

Once upon a time, there was an island where all the feelings lived: Happiness, Sadness, Vanity, and all of the others, including Love. One day it was announced to the feelings that the island would sink, so they all prepared their boats and left.

Love was the only one who stayed. Love wanted to stay until it started sinking. When love was almost sinking, he decided to ask for help. Richness was passing by Love in a beautiful boat.

Love said, "Richness, can you take me with you?" Richness answered, "No I can't, There is a lot of gold and silver in my boat. There is no place here for you."

Love decided to ask Vanity who was also passing by, "Vanity, please help me!"

"I can't help you Love. You are all wet and can probably damage my boat," Vanity answered.

Sadness was also close by so Love asked for help, "Sadness, let me go with you."

"Oh... Love, I am so sad that I prefer to go alone!"

Happiness passed by Love too, but she was so happy that she did not listen when Love called her!

Suddenly, there was a voice, "Come Love, I will take you." It was an elder. Love became so happy that he even forgot to ask the elder her name. When they arrived at dry land, the elder went her own way.

Love asked Knowledge, another elder, the name of the elder who had helped him. "It was Time," answered Knowledge. "Time? But why did Time help me?" asked Love. "Because only Time is capable of understanding who great Love is," answered Knowledge.

Anonymous

Normalization of blood pressure in a patient with severe orthostatic hypotension and supine hypertension using clonidine.

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A 78 year old woman presented with a 4-year history of recurrent dizzy spells, increasing in frequency over past 12-months. Past history included hypertension and glaucoma. Current medications were oral perindopril (an angiotensinogen converting enzyme inhibitor), aspirin and three eye drops – betaxolol, brimonidine, and latanoprost – for glaucoma.

Clinical examination revealed supine blood pressure (BP) to be 180/100 mm of Hg. There was no evidence of autonomic dysfunction or gross neurological abnormalities. There were 4 pre-syncope episodes over 5 days with no arrhythmia on telemetry. She had an aortic ejection systolic murmur from mild aortic stenosis and normal left ventricular function by echocardiography. Exercise stress test was negative. Tilt table test, and routine BP observations revealed significant postural hypotension (180/100 mm of Hg supine to 120/90 mm of Hg erect with no significant change in the heart rate).

Treatment with oral perindopril was stopped after 4 days due to worsening of the postural drop in BP and continuing symptoms. Brimonidine is an α_2 -adrenergic agonist that is 1000 times more selective for the α_2 -adrenoceptor than the α_1 receptor. Topical administration decreases intraocular pressure with minimal effects on cardiovascular parameters, though bradycardia and hypotension are known to occur in neonates. Caution is advised in concomitant use of sympathomimetic agents or antagonists of adrenergic receptors because brimonidine eye drops may reduce BP. Betaxolol is a topical β_1 -adrenergic blocking agent that may have minor effect on heart rate and BP; caution is advised in treating patients with a history of cardiac failure or heart block. Latanoprost is a selective prostanoid $F_{2\alpha}$ -receptor agonist that reduces intraocular pressure with no adverse effects on heart rate or BP. Combination of brimonidine with betaxolol eye drops could have contributed to her symptoms. Betaxolol eye drops were withdrawn with little effect on the BP. Two eye drops could not be withdrawn to avoid making the glaucoma worse. Thus, the vexing problem of severe supine hypertension with symptomatic postural hypotension continued. The use of standard agents (e.g. fludrocortisone or midodrine¹⁻³) for postural hypotension may have resulted in worsening of her hypertension.

Eventually, the subject was started on low dose clonidine (50 mcg/day) with almost immediate and marked improvement in both her supine hypertension and postural hypotension, and

cessation of pre-syncope episodes within 24 hours. By 48 hours, there was virtually no postural drop in BP with good control of hypertension (136/70 mm of Hg) and subject was symptom free. She was discharged home on the same dose of clonidine and has remained well since.

Clonidine has a predominant central action on α_2 -adrenoceptors. This results in the inhibition of bulbar sympathetic cardioaccelerator and sympathetic vasoconstrictor centers, with a decrease in heart rate. There is also an increase in baroreceptor activity that leads to reduction in BP. Additionally, it also stimulates peripheral α_1 -adrenergic receptors leading to vasoconstriction, increased venous return and increased BP. There are limited previous reports on the use of clonidine in the treatment of orthostatic hypotension.^{4,5} Robertson et al⁴ tried higher doses (400 to 800 mcg) in 4 patients with severe idiopathic orthostatic hypotension with good results. They postulated that the predominance of the pressor response over the depressor effect may have been due to a reduction in sympathetic outflow in these elderly patients, and low circulating catecholamine levels were documented. A combination of these two opposing effects may have led to the normalization of BP in our patient.

We suggest that clonidine should be considered in the treatment of symptomatic idiopathic orthostatic hypotension concomitant with supine hypertension.

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Report on CDMU – CARE WEST BENGAL Joint Training Program ‘Health and Drugs’

CDMU in collaboration with CARE West Bengal [CARE-WB], conducted a 2-day training program for health workers from the government and NGO sectors at Ahmadpur in the Sainthia Block of Birbhum District on April 14 & 15, 2001. The venue was the Primary Health Center in the Ahmadpur Gram Panchayat locality.

Background and objectives

CARE-WB is involved in the implementation of the Integrated Nutrition and Health Program [INHP] in collaboration with the Departments of Social Welfare and Health & Family Welfare of the Govt. of West Bengal, in 13 districts and 119 blocks of the state. This program seeks to improve the nutrition and health status of women & children by strengthening and working in concert with the existing health service delivery systems, such as the governmental primary health care set up, the Integrated Child Development Scheme [ICDS] workers and the local Panchayat and NGOs. It also seeks to create a demand among the target population for availing such basic healthcare services.

As part of INHP, CARE-WB is undertaking operational research activities in the field of community health financing in the Sainthia Block of Birbhum District of West Bengal. A need assessment study was carried out in 5 Anganwadi Centers in this block which showed that, for the majority of households residing in the locality, the principal healthcare-related expenditure pertained to drugs. Thus, a need for a community drug depot run by local women’s group was realized.

CDMU was invited to conduct this program, as basic preparatory training prior to establishment of a drug depot operating and managed at the local community level. The objectives were twofold. Firstly, to build the capacity of healthworkers from government and NGO sectors to recognize common disorders, conduct their basic management and refer cases when necessary to medical personnel for further care. Secondly, to sensitize the healthworkers to the concepts of essential drugs, drug selection, inventory and dispensing so that in future they can appropriately transfer this knowledge to the women’s groups managing community drug depots.

Participants and structure

There were 22 participants. These included volunteers of the Ikra Palli Mangal Samity working in collaboration with CARE-WB, and Anganwadi workers, Auxiliary nurse-midwives and ICDS supervisors from the governmental health care sector. The program was structured into 8 modules as shown in the table.

Each session was of 1 to 1½ hours duration. The medium of instruction was Bengali. Resource persons used overhead transparencies and color

Day 1: April 14, 2001	Day 2: April 15, 2001
<ul style="list-style-type: none"> • Concept of rational drug use – 1 • Immunization and child health • Malaria • Infection & infection control 	<ul style="list-style-type: none"> • Concept of rational drug use – 2 • Diarrhea • Acute respiratory infections & TB • Contraception & family planning

slides where relevant. A short video film on recognizing dehydration in diarrhea was also presented on the second day. Every participant was presented with a folder containing handouts on the topics discussed. Participants were free to interact with the resource persons during the sessions but some issues were relegated to a free discussion session on the last day.

Sessions

The program commenced following a brief introduction of the goals and activities of the two organizations. In the opening session, the concept of rational drug use was eloquently introduced to the participants by Dr. Santanu Kumar Tripathi.. The pros and cons of drug use, the basic knowledge expected of the consumer regarding drugs and the handling of common dosage forms was discussed. Dr. Akhil Biswas presented the session on child health and immunization. The allotted time of 1½ hours was really too short to do justice to this session. Nevertheless, the principal causes of childhood morbidity and mortality, the importance of breast-feeding and the national immunization schedule, were discussed. Malaria, although not a burning problem in the locality, held the audience attention closely as the session was made highly interactive by Dr. Amitava Sen.

The second day’s program unfolded with a lively discussion on infection modalities and their control. This session, presented by Dr. Avijit Hazra, had to be carried over from the first day because of want of time. The concluding part of Rational Drug Use was presented by Shri Amitava Guha. In his usual erudite fashion he sketched the evolution of drug policies in India, drug pricing, the state of the pharmaceutical market in India and the problem of spurious drugs. Following this, Dr. Biswas took center-stage again with interactive discussions on diarrhea, acute respiratory infection and the contraceptive aspects of family planning. In between, Dr. Sen presented a brief sketch on the raging problem of tuberculosis and the healthworker’s role in its control. The program concluded with the presentation of certificates of appreciation to the participants and a plenary on the logistics of a community drug depot.

Hospitality

Flawless arrangements for hospitality were made by CARE-WB for the participants and the resource persons alike. CDMU would like to extend special thanks to the volunteers of Ikra Palli Mangal Samity

for taking care of the hospitality during lunch hours on the program days.

Conclusion

CDMU's program in collaboration with CARE-WB was the first such joint program. It was striking that participants of both government and NGO sectors were involved. This was something unique for CDMU. The interactive discussions conducted in the pleasant rural ambience of the Ahmadpur Primary Health Center went on smoothly and made a deep impression on the resource persons and, hopefully, on the participants too. Although the program time frame was hectic, the participants remained enthusiastic throughout. In the ultimate analysis, this training program can be considered a success if the participants, already knowledgeable, make use of



A view of the audience at CDMU-CARE joint training program 'Health and Drugs'.

the further knowledge gained, in their day-to-day work and succeed in establishing the community drug depot they aspire to.

NEWS & VIEWS

Counterfeit medicines in India – the list grows

The sordid saga of counterfeit drugs under the very nose of authority continues unabated in India. Recent newspaper reports add a new name to the list – the undeclared use of disulfiram as 'herbal' remedy to quit alcohol. If one goes to the interior rural and semi-urban areas of West Bengal one is likely to find notices with the enticing words 'quit alcohol secretly here' in vernacular. Advertisements in the local press are also not uncommon. The so-called 'doctors' who man these clinics dole out the 'herbal' medicine to help the unfortunate alcoholic kick the deadly habit. It transpires that the medicine handed out as pills in small packets or as a granular powder in small sachets contains liberal doses of disulfiram. Disulfiram is a synthetic drug used as an aid to giving up alcohol. If alcohol is taken while on disulfiram therapy, metabolic interactions between the two drugs generates acetaldehyde in the body, causing extremely unpleasant, and at times dangerous, reactions. This leads to aversion to alcohol and, hopefully, abstinence in the long run. However, the most important caveat to the use of disulfiram is that it must be restricted to individuals highly motivated to quit alcohol and who have been well informed of the possible severe reactions. There is no question of clandestine use.

What is happening is exactly the opposite. The drug is being mixed with herbal ingredients and handed over to the hapless alcoholics who, more often than not, visit such 'doctors' in the hope of a quick-fix solution to their drinking problem and on the belief that herbal remedies are safe. Counseling is being dispensed with altogether. Oftentimes well-meaning family members purchase the drug and secretly mix it with the subject's food or drink. The extent of serious ill-health from such counterfeit use and the source of disulfiram for this purpose are open questions. The drug control authority in the State has been alerted by concerned practitioners and the Indian Medical Association. The authority is pleading helplessness in view of the weaknesses in the drug control laws. To some extent this is true. The police too are washing their hands off the matter saying that they can act only if they receive definite complaints. This ignore the simple fact that it is impossible for the layman to prove that the medicine they have taken contained disulfiram.

As consumers, we cannot change this state of affairs on our own. However, let us be aware of the situation and reject such harmful quackery realizing that, as of now, medical science cannot provide an instant solution to the problem of chronic alcoholism.

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