Directing Drugs to the Spot of Infection

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MAJOR drug companies are developing a way of "targetting" drugs to the site of an infection or tumour. The new technique, pioneered at the Liverpool School of Tropical Medicine in northwest England, involves mixing the drugs into tiny fatty droplets or liposomes. They are broken down naturally in the human liver where the parasites causing the tropical disease, leishmaniasis, congregate.

Several years ago medical researchers at the Nuffield Research Institute in London realised that liposomes offered a unique means of directing drugs at leishmaniasis. The problem of treating this disease, which in its various forms affects millions in Africa, India, Latin America and the Middle East, is that drugs effective in killing the microscopic, single cell parasites causing the disease are also highly toxic to human tissues.

The parasites congregate in the liver macrophages (the scavenging cells lining narrow blood vessels), whose function is to remove debris, including fatty droplets, from the blood. By mixing the toxic drugs used to treat leishmaniasis into liposomes and injecting this into the human bloodstream, the drug is automatically absorbed into the macrophages. At the same time, other tissues are protected from the drugs, which are trapped in the liposomes.

Long Life Drugs

This property of selective targetting should either permit a given concentration of a drug to work more effectively or allow a lower concentration to be used to obtain the same effect as was previously possible.

Before this natural targetting effect could be utilised, liposomes that could be stored for long periods like other drug formulations had to be developed. Progress has been made in solving this problem by Dr Michael Chance and Dr Roger New at the Liverpool School of Tropical Medicine. They have freeze dried liposomes so that they can be kept indefinitely and then be prepared for use by simply adding water.

The two doctors have obtained good results using such liposomes in drug delivery systems to treat animal forms of leishmaniasis. Two types of drugs were employed—the toxic antimony based compounds and a fairly new type based on an antibiotic that appears to be highly effective but is also toxic to human tissues.

The technique is now being considered for large scale development and has been taken up by at least two major drug companies. Clinical trials in humans are antic ipated in the near future.

Potential For Cancer

The remarkable properties of liposomes are of potential value for other medical purposes, including the treatment of cancer.

Recently, the Liverpool team has shown that liposomes can be used to enclose control lymphokines —substances, produced naturally by the human body, which stimulate both the liver macrophages and the white blood cells (another part of the body's immune system) to be more active.

Lymphokines can now be made outside the body by genetic engineering techniques. Dr Chance has already shown that lymphokines delivered to macrophages in liposomes considerably increase the resistance of animals to leishmaniasis parasites. The technique may prove valuable in increasing resistance to other infections and perphaps to cancer.

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TNAI Guest Rooms

We plan to renovate our single room tenements at the TNAI Headquarters and convert these into guest rooms. The Executive Committee in its recent meeting considered the matter and decided to appeal to members for finding financial resources for this purpose. It was also agreed that guest rooms could be named after the person who contributed a major portion of the expenses on renovation as a whole or for one room. The estimated expenditure at present is Rs. 50,000 (fifty thousand) for the three rooms.

The members are requested to help us in collecting this amount.

Secretary, TNAI

Incentives for Increase in Membership

The branches showing maximum net increase in the membership during the year 1984 would be given incentives. It has also been suggested by the Executive Committee of TNAI to consider one Life Member equivalent to 10 ordinary members. The kind and number of incentives to be given will be declared at the time of the SNA Conference in October 1984. However, the awards would be given to the qualifying branches in the beginning of 1985.

Secretary, TNAI