



: Pharmacologists in Therapeutics – Need of the Hour Authors

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Abstract

Clinical pharmacologists have not been strikingly successful in advancing their knowledge to therapeutics. There remain areas of activity where the influence of the discipline has been less impressive, and where there are real opportunities for the future of the subject. We as pharmacologists, fail to translate the in-depth knowledge of pharmacology of the drugs into clinical practice. The influence of clinical pharmacologists to correct the deficiencies in clinical practice within their own institutions appears to be minimal. Pharmacologist can promote and ensure the safe, economic and efficient use of medicines to improve patient care. Pharmacology promotes the rational use of medications in humans by studying their restorative effect to amplify the drugs effect and reduce the side effects.

Keywords: Pharmacology, therapeutic, medicine

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As a pharmacologist, I always felt importance of application of knowledge of pharmacology in clinical practice. In day-to-day life, while interacting with clinicians, we realize how important it is for the clinicians to have in depth knowledge of pharmacology while treating patients. It could be related to pharmacokinetics of the drugs, their contraindications, drug interactions and last but not the least adverse drug reaction profile of the drugs. Currently the contribution of pharmacologists to therapeutics is near to negligible and this harsh reality needs to be addressed.

Let us take an example to back this up. A 25 years old boy was diagnosed with hypertension. A physician started him on tablet metoprolol 50 mg after which he started complaining of disturbed sleep and nightmares. This continued for almost a week and his parents were worried. After consultation, tablet zolpidem was given which gave no relief. The physician advised Obstructive Sleep Apnoea (OSA) study. Patient was preparing for the competitive exams, so he was under stress. He had also put on some weight and his BMI was 27 kg/m². On OSA, he was found to have mild apnoea. So Continuous Positive Airway Pressure (CPAP) was advised. But even after that there was not much improvement. Parents even thought of consulting a psychiatrist for nightmares as they thought exam stress was the reason. Me, being a pharmacologist, suspected metoprolol as

the culprit. After literature search, I realized β blockers, especially propranolol and metoprolol, being lipophilic are the most common cause for disturbed sleep and hence nightmares.^[1] There are many reviews by patients about suffering from this side effect when on metoprolol.^[2] On dechallenge, this patient got classical relief and telmisartan was started as a substitute. We do know and teach about central side effects of lipophilic β blockers but not much emphasis is given on the same. Even, in textbooks these are mentioned at end of the list of side effects. What was more surprising that the physician, the pulmonologist and many other physicians to whom I talked to were not at all aware of this side effect and were shocked to know this. They were modest enough to accept that this may have been reported by their patients in the past, but they failed to correlate due to their unawareness of the same.

Vivid and bizarre dreams, hallucinations, sleep disturbances and psychosis have all been described following treatment with beta-blockers. It has been suggested that these central nervous system (CNS) side-effects are related to the degree of lipophilicity of the beta-blocker. A randomized double-blind crossover study was performed to compare the incidence of CNS side-effects with atenolol and metoprolol in hypertensive patients who had reported CNS side-effects with lipophilic beta-blockers.^[3]

Another randomized double-blind crossover study compared the incidence of CNS side-effects with atenolol and metoprolol in hypertensive patients who had reported CNS side-effects with lipophilic beta-blockers. Metoprolol was associated with a significantly higher incidence of restless and disturbed nights in comparison to atenolol (p less than 0.05). Blood pressure control was identical for both beta-blockers. This study appears to confirm the association between CNS-related side-effects and the lipophilicity of beta-blockers.^[4]

This compelled me to think about the necessity of active involvement of pharmacologists in therapeutics. What would have happened if I had not done literature search and read patients' reviews about the drug? He might have landed up taking a psychiatric treatment or pulmonologist might have suggested to buy CPAP instrument which is quite expensive. What is the solution to this? We all pharmacologists feel that we can play significant role in therapeutics but it has never materialized, at least not in most of the medical institutes. Can we have a regular ward round once a day and go through the treatment patients are receiving, talk to the patients to check if they have any contraindication to a drug that has been prescribed or if they suffer from any side effect? If there is something suspicious, it can be discussed with the treating clinician. Purpose is not to criticize someone's treatment plan but to offer whatever best we can give to the patient as a medical unit.

The role of pharmacologists will be more important in the patients who may have complex health problems. Pharmacologist is in a unique position to help and advice about the correct medicines and dosages especially in patients with complex conditions that affect multiple organ systems and therefore need several different medicines. There are increased chances of drug interactions and adverse reactions with this patient group, who are often elderly. We can also ensure the cost-effectiveness of new treatments and make recommendations on medicine usage. Initially, there may be resistance from the clinicians, but slowly with our valuable inputs based on the knowledge of pharmacology and literature search, they will not only be open to our suggestions but also

welcome this initiative of having a pharmacologist with them during regular ward rounds. As pharmacologists, we have to make our presence felt and contribute to patient's management in the best possible way we can. Pharmacology is a volatile subject. Every day some new drug is added to the list or old drugs are getting updated with new information. It is practically not feasible for the clinicians to keep themselves updated with such a huge information due to their hectic schedules. We as pharmacologists can bridge this gap by providing our services to the hospital. This will also increase importance of pharmacology in medical community and among undergraduates too, as all these cases from the hospital can be discussed in the practical sessions. This will also enhance ADR reporting. This will enable healthcare professionals to achieve the main goal of improving patient care through the safe, economic and effective use of medicines, by working together as a cohesive unit.

Various strategies need to be conceived and planned to facilitate the transition from mainstream medicine to the personalized medicine, which will enable patients to be treated more accurately, with significant advantages in terms of safety and effectiveness of treatments. The future requires an evolved approach for management of patients' needs by bringing together different multidisciplinary skills among health professionals. Pharmacologists could be the one of the important drivers of this strategy because of the in-depth knowledge of the drugs including dynamics, kinetics, interactions and recent knowledge of the safety profile of the drugs.

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