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## **Possible Adverse Drug Reactions of Ayurvedic Drugs W.S.R. to Side Effects of *Kanchanar Guggulu* and their Management**

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**Abstract:** Drug safety is an inherent principle in clinical practice, and adverse drug reactions (ADRs) are important in determining the safety of patients in every manner of medical system. Ayurveda has elaborately mentioned drug-induced effects and of several natural drugs along with preventive measures. However, this information needs to understand precisely along with contemporary concepts of drug safety. The major reasons of ADRs include drug interactions, overdosing, and administration of incorrect drugs, iatrogenic effects and *Panchakarma* therapy related complications. Inappropriately prepared mineral-based medicines also causes severe side effects if not administered with great precaution and care. There are many Ayurvedic formulations and herbal medicines which are utilized for therapeutic purposes, but sometimes create adverse effects if used inappropriately and *Kanchanar guggulu* is one such drug. Moderate daily consumption of *Kanchanar* is well tolerated, but it is not advisable for those with damaged kidneys and liver conditions, etc. Pregnant and lactating women must also avoid *Kanchanar guggulu* because of its hormone-modulating effects. This article highlights possible adverse drug reactions of Ayurvedic drugs W.S.R. to side effects of *Kanchanar Guggulu* and their management.

**Keywords:** Ayurveda, *Kanchanar Guggulu*, Adverse drug reactions, Interactions, Over Dose, Iatrogenic

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## **Introduction**

Ancient Indian Ayurveda strongly focuses on therapeutic efficacy and safety of the patient, emphasizing the prime principle of drug safety which is a fundamental component of the practice of medicine. One of the growing issues in the practice of alternative medicine, including

Ayurveda, is the number of adverse drug reactions associated with herbal medicines. This increase is probably a result of more individuals taking herbal products either as medicines or dietary supplements. These reports tend to ignore important considerations that Ayurveda has taken for

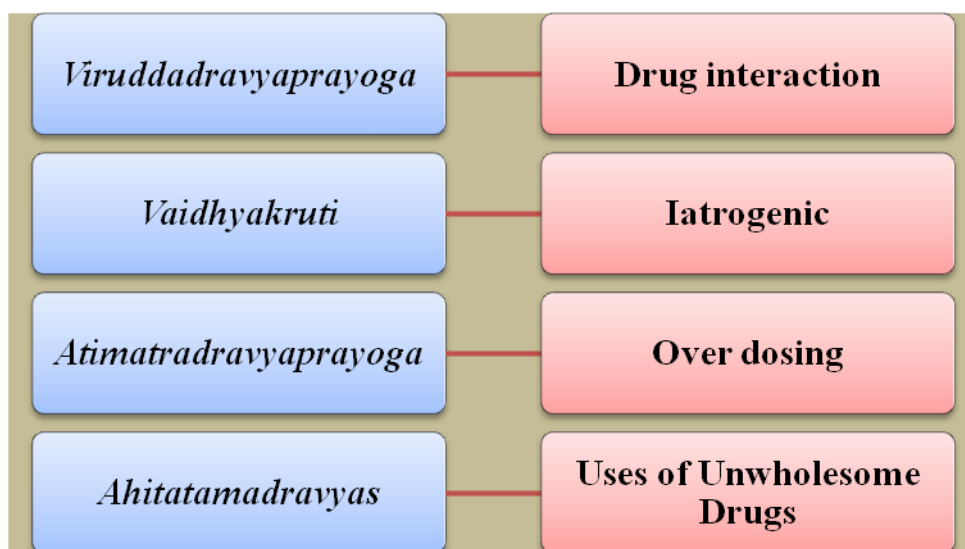


Fig. 1: Various types of ADRs Mentioned in Ayurveda and Contemporary Science.

centuries but are sometimes forgotten because of lack of attention (Ambikadatta, 1995; Acharya, 2006; Ajanal *et al.*, 2012).

Ayurveda has always been concerned with safe treatment by ensuring that a remedy cures disease without producing another. To accomplish this, Ayurvedic *Samhitas* contains detailed advice on the selection of drugs, caution, and contra-indication and administration rules of herbal medicines. This proves that the ancient Ayurvedic researchers understood drug safety well enough. But data on drug safety and ADRs in Ayurveda are scattered throughout traditional texts. There is an urgent requirement to collate and evaluate this information together with contemporary principles of drug safety (Ambikadatta, 1995; Acharya, 2006; Thatte and Bhalerao, 2008; Chaudhary *et al.*, 2010).

#### *Causes of ADR as Described in Ayurveda*

Ayurvedic literature has defined various reasons behind ADRs which includes undue drug effect, intolerance, idiosyncratic reactions, drug allergy and drug-drug interaction, etc. However, Ayurveda gives a major priority to ensuring patient safety throughout all phases of treatment. These involve the right choice of raw material, appropriate methods of collection and utilization of specialized processes of preparations. The various causes of

ADRs mentioned in Ayurveda are depicted in Figure 1. Some other types includes procedural complications in therapy (*Panchakarmavyapad*) and faulty use of *Rasaushadi* which can also cause side effects and thus precise formulation and administration is required (Ambikadatta, 1995; Thatte and Bhalerao, 2008; Chaudhary *et al.*, 2010; Quereshi *et al.*, 2012).

The actions of some herbs are modified by physical activities like exertion, sun exposure, and anger, which are prohibited when taking some specific drug like *Commiphora mukul* gum. Likewise, drug-disease interactions produce unforeseen results; for instance, *Terminalia chebula* is contraindicated for pregnant women, malnourished patients or anorexics. Overdose is a critical causative factor of ADRs; Ayurveda divides overdose into three forms; *Dravyataha*, *Gunataha* and *Karmataha*. Quantitative overdose, occurring due to overuse, leads to symptoms like dry mouth, impotence, diarrhea, especially due to excessive intake of substances like *Piper longum* and alkalis. Qualitative overdose refers to the excess use of drugs with similar properties, like drugs with *Ushna* or *Guru* potencies can exacerbate certain qualities of the body. Functional overdose results from the combined use of drugs with similar action (Ambikadatta, 1995; Acharya, 2006; Thatte and Bhalerao, 2008).

The administration of *Ahitatama dravyas* is likely to end in treatment failure or side effects. Moreover, the drug administration has to be practiced following pathological phases since mistaken prescriptions are more likely to clash with disease situations in a contrary manner. Ayurveda takes into account *Prakriti*, *Kaala*, *Vaya* and *Agni* before prescribing any medicine. These include contraindications due to season, constitution and disease of the patient. For example, *Kashaya rasa* is contraindicated during the beginning of fever, curd must not be taken at night and new ginger must not be used during summer. Idiosyncratic reactions can occur as a result of metabolic polymorphism and allergy, etc. The Ayurvedic principle of *Prakriti* is important for drug safety since different individuals have different constitutions and metabolize drugs at different rates. Genetic variations of drug-metabolizing enzymes correlate with *Prakriti* and influence drug response. *Datura metel* is not suitable for *Vata* disorders owing to its *Vata*-vitiating nature (Thatte and Bhalerao, 2008; Chaudhary *et al.*, 2010; Ajanal *et al.*, 2012; Qureshi *et al.*, 2012).

### *Kanchanar Guggulu:*

*Kanchanar Guggulu* is an Ayurvedic herbal formulation that consists of natural substances, mostly the bark of the *Kanchanar* tree. The formulation is commonly employed to treat several ailments, such as tumors, ovarian cysts, hormonal disorders and hypothyroidism, etc. *Kanchanar Guggulu* regulates the function of the thyroid by maintaining proper hormone generation from the gland. This helps with metabolism, equilibrates hormone balance and supports body functions. *Kanchanar Guggulu* promotes lymphatic well-being by assisting in detoxification and cleansing of this system. It reduces lymphatic congestion and fluid accumulation that can cause infection and other health issues. *Kanchanar Guggulu* corrects immune system and averts complications arising from lymphatic obstructions (Banothe *et al.*, 2018; Tomar *et al.*, 2018).

*Kanchanar Guggulu* helps in weight control by its capacity to balance thyroid function and increase metabolism. *Kanchanar Guggulu* is an important herb in cleansing the blood, which in turn enhances skin health. It prevents inflammatory skin diseases like eczema, psoriasis and acne, etc. *Kanchanar Guggulu* is especially useful for women's reproductive health, particularly in the treatment of conditions such as uterine fibroids. *Kanchanar Guggulu* restores balance and relieves symptoms of PCOS and fibroids. *Kanchanar Guggulu* relieves joint pain, stiffness, inflammation and enhances joint flexibility. *Kanchanar Guggulu* should be consumed with lukewarm water, which facilitates digestion and helps in better assimilation of its herbal constituents (Banothe *et al.*, 2018; Ghosh *et al.*, 2024).

### *Possible ADRs of Kanchanar Guggulu*

*Kanchanar Guggulu* is usually well tolerated, but inappropriate use or hypersensitivity to its components can cause some side effects which include headaches, mild nausea, belching, hiccups and skin rashes. Other side effects include stomach discomfort, indigestion, constipation, allergic reactions, itching and swelling, etc. Long-term use of *Kanchanar Guggulu* can cause strain on the liver, leading to increased levels of liver enzymes. Table 1 depicts specific ADRs of *Kanchanar Guggulu* (Dalal *et al.*, 2017; Karousatos *et al.*, 2021).

### *Management and Precautions*

*Kanchanar Guggulu* affects hormonal balance or lead to minor gastrointestinal disturbances in pregnant and lactating women. It is best avoided during pregnancy and lactation unless specifically advised by a healthcare practitioner. It should be used cautiously in individuals with gastritis, GERD or ulcers. Patients with liver disorders should use this drug with great precaution since overdosing may cause severe ADRs which may damage liver functions. Some published cases highlight potential hepatotoxicity associated with Ayurvedic formulations and *Kanchanar Guggulu* as mentioned in Table 2. These studies also suggested

Table 1: Specific Side Effects or ADRs of *Kanchanar Guggulu*

| Category                         | Potential Adverse Effects                                                                                                                                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gastrointestinal Side Effects    | <ul style="list-style-type: none"> <li>➤ <i>Amla Pitta</i> due to the <i>Ushna</i> and <i>Tikshna</i> nature of <i>Guggulu</i></li> <li>➤ Nausea or vomiting in individuals with a sensitive stomach</li> <li>➤ Abdominal pain or diarrhea sometimes</li> </ul>                                  |
| Dermatological Reactions         | <ul style="list-style-type: none"> <li>➤ Itching due to possible allergic reactions.</li> <li>➤ Increased body temperature, excessive sweating and burning sensation, etc.</li> </ul>                                                                                                            |
| Mild Hepatotoxicity (Rare cases) | <ul style="list-style-type: none"> <li>➤ Liver stress in individuals with pre-existing liver disorders.</li> </ul>                                                                                                                                                                               |
| Menstrual Irregularities         | <ul style="list-style-type: none"> <li>➤ It may cause menstrual cycle disturbances in sensitive individuals</li> </ul>                                                                                                                                                                           |
| Drug Interactions                | <ul style="list-style-type: none"> <li>➤ May increase the risk of bleeding due to its blood-thinning properties</li> <li>➤ May enhance or reduce the effects of synthetic thyroid hormones</li> <li>➤ May lower blood sugar levels, requiring dose adjustments for diabetic patients.</li> </ul> |

Table 2: Reported Cases of ADRs Associated with *Kanchanar Guggulu*

| Case   | Patient Details    | Symptoms                         | Outcome of Preventive Measures                                  |
|--------|--------------------|----------------------------------|-----------------------------------------------------------------|
| Case 1 | 46-year-old female | Jaundice, abnormal liver enzymes | Liver function normalized 8 weeks after discontinuation         |
| Case 2 | 68-year-old female | Elevated liver enzymes, jaundice | Liver tests normalized after 8 weeks of stopping the supplement |

preventive measures that can protect from the ADRs of *Kanchanar Guggulu* (Dalal *et al.*, 2017; Karousatos *et al.*, 2021).

## Conclusion

Ayurveda focuses on safety of the patient by taking into account various parameters that cause adverse drug reactions (ADRs) such as undue drug effects, idiosyncratic reaction, intolerance, drug-drug interactions and drug allergy, etc. Proper procurement of raw material, accurate methods of administration and appropriate method of processing are critical in order to reduce such effects. Misapplication of *Rasaushadhis* may also result in adverse effects, further pointing towards correct formulation and administration. *Kanchanar Guggulu* is an Ayurvedic preparation commonly found in use that offers numerous benefits to health. Despite this, caution with regards to its possible side effects promotes safer

usage. *Kanchanar Guggulu*, is endowed with numerous health advantages, particularly for thyroid disease, lymphatic detox, hormonal disturbances and fertility issues. Yet its misuse or hypersensitivity can create side effects such as gastrointestinal irritation, hepatotoxicity, allergic hypersensitivity and menstrual abnormality, etc. Thus, stringent administration and dose regulation must be followed in order to remain safe and efficacious therapeutically while using *Kanchanar Guggulu*. Additionally, considerations such as *Prakriti*, *Kaala*, *Vaya* and *Agni* play an important role in drug response and safety.

## Ethical Statement

This is a review article hence no Ethical Approval needed.

## Author Contributions

Each author has equally contributed in planning

the study, performing the analysis, writing and editing the manuscript. All authors have read and agreed to the published version of the manuscript.

### Conflict of Interest

The authors declare no conflicts of interest.

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