

Studying the New Trends of Pharmaceutical Secondary Child Resistant Packaging

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Abstract:

The development of packaging is one of the complex decisions and an integral part within the modern packaging system. There are a number of basic requirements for Pharmaceutical packaging. the pharmaceutical packaging must have the feature of child-resistant in a way that does not conflict with the ease of opening by the elderly and must be The packaging is sealed, and tamper-resistant packaging has been developed by children (sometimes called special packaging) in order to prevent young children from accessing a number of products that are dangerous to the child in any dose. As it is responsible for hundreds of thousands of accidents every year. the practical study of the research paper relied on the survey study to monitor recorded cases of drug poisoning, which was made available for study in some governorates within Egypt (Poisons Unit, Faculty of Medicine, Zagazig - Poison Center, Ain Shams University - Banha Poisoning Center - Poison Control Centers in Central Delta), and it also included a descriptive and analytical study of Pharmaceutical packages secured against opening by children, which relied on modern techniques and methodology to secure Pharmaceutical packages. Secondary, and the result of this analytical study of a number of packages was that these packages depended on the techniques of securing against opening by children by integrating two movements together in the design of the carton package to control the closing and opening system with consecutive intended movements in a specific synchronization, and these techniques were also able to provide a simplified mechanism for the process Opening a child under seven years old cannot perceive it in a short period of time.

Key words:

Pharmaceutical packaging - child resistant packaging - blister packaging.

Introduction :

The development of packaging is one of the complex decisions and an integral part within the modern packaging system, as packaging is more comprehensive than simply “putting a wrapper around a product”, according to the definition given by Paine Frank Albert in 1981 AD through his book Fundamental of Packaging that was published in London Daniel Hellström

(Associate Professor of Packaging Logistics in the Department of Design Science at the LTH Faculty of Engineering, Lund University, Sweden, introduced the definition through His book "Managing Packaging Design for Sustainable Development: A Compass for Strategic Directions" in 2017, which is summarized as follows: (7)

(1) Packaging is a consistent system consisting of any material of any kind, for use in preparing products for the purpose of containment, protection, transportation, handling, distribution, delivery and display.

(2) Packaging is a means of ensuring safe delivery of the product to the final user in safe and secure conditions.

(iii) Encapsulation is the technical and economical function which aims at making delivery efficient while maximizing effectiveness.

The forms of pharmaceutical packages vary in terms of material, shape, and the product itself, where the colored tablets inside the bubble and strip packages represent a strong attraction factor for children, especially under the age of seven, so they can open the pharmaceutical packages easily, as the traditional opening and closing methods of the primary and secondary packaging do not present any obstacle in front of the child to reduce poisoning pharmacological.

The Child-Safe Packaging Group (CSPG) was formed eleven years ago and its goal is to promote the specification and success of child-safe packaging systems for all products that could prove likely to be swallowed or other contact could cause pain Child(14) In the early 1970s, child-safe packaging was introduced to the UK and was described by the World Health Organization (WHO) in 2008 as: "the best documented cause of child poisoning reduction in the developed world." (21)

Research Problem:

The research problem lies in the increase in drug poisoning cases among children as a result of:

- Ease of opening secondary carton drug packages by children and eating what is inside.
- The absence of insurance means against opening by children on the secondary pharmaceutical packages, as well as most of the primary packages.

Search Goal:

This research aims to:

1- Monitoring drug poisoning cases registered in Egyptian hospitals available for study in some Egyptian governorates (Poisons Unit, Faculty of Medicine, Zagazig - Poison Center, Ain Shams University - Banha Poisoning Center - Poison Control Centers in the Central Delta).

2- Showcasing the various aspects of insurance for secondary carton packages against opening by children and the advanced technologies provided at the global level by some foreign countries, with an analysis of the insurance methods used that make it difficult for children to open the package to reach the developed methodology for designing secondary pharmaceutical packages.

Research Importance:

The importance of research lies in:

□ Reducing the accidental accidents that occur as a result of the wrong ingestion of medicine by children through the development of a modern methodology to secure the Egyptian secondary carton drug packages against opening by children.

Research Hypotheses :

□ The increase in drug poisoning cases among the younger age groups in Egypt confirms the necessity of securing drug packages.

□ Developing the design of secondary drug packages and securing them against opening by children reduces cases of drug poisoning for children under the age of 7 years.

□ Adding safety features for opening packages by children gives added value to the pharmaceutical package.

Search Limits:

□ Spatial boundaries: Some governorates within the Arab Republic of Egypt available for study (Poisons Unit, Faculty of Medicine, Zagazig - Poison Center, Ain Shams University - Banha Poisoning Center - Poison Control Centers in the Middle Delta).

□ Objective limits: The study was conducted on the means of insurance of the secondary packagings of bubble and tape packagings.

□ Time limits: from 2011 to 2021

Research Methodology:

This research relies on the researchers' use of the descriptive analytical method of modern techniques used to secure secondary packaging against opening by children, and the survey to monitor and evaluate cases of drug poisoning in some governorates of the Arab Republic of Egypt.

Conclusions and recommendations:

First, the results: A number of results were drawn from this research, namely:

1. The importance of adding the safety feature to the pharmaceutical packages against opening by children in all types of medicines in the primary and secondary packages.

2. It is not necessary to rely on securing the primary packaging only through vial caps for pharmaceutical products, but it should also be directed to use innovative securing techniques for the secondary packaging.

3. In order to insure pharmaceutical packages against opening by children of bubble-packed pharmaceutical packages, one must:

- A change in the material used in the drug packaging.

- A change in the adhesive used.

4. Accidental poisoning is more common among children and continues to be a significant problem for this age group.

5. Pre-school children (less than 7 years old) are more than any other age group exposed to drug poisoning incidents, and this can be due to:

The special behavior of that age group, such as curiosity.

- Their inability to distinguish and taste.

Second: Recommendations:

Based on the results, the researchers recommend the following:

1. Guidance for the use of innovative technologies to secure secondary pharmaceutical packages against opening by children.
2. Taking into account the determination of the failure value of highly toxic pharmaceutical products and educating users of these medicines.
3. Taking into account the application of the five main ideal requirements for pharmaceutical packaging when designing and producing pharmaceutical packages.
4. Packaging secured against opening by children has become one of the requirements for designing and producing pharmaceutical packages in the United States of America and Europe. Therefore, we recommend activating these standards for pharmaceutical packages in the Arab Republic of Egypt, especially after presenting statistics on the percentage of children with drug poisoning in a number of different poison centers in governmental university hospitals. .

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