

Erosive And Cariogenicity Potential Of Pediatric Drugs

Dental caries is a dynamic disease involving the calcified tissues of the teeth and requires the presence of bacterial plaque, a dietary fermentable carbohydrate like sugar which results in acid production and subsequent demineralization of the tooth surface.

Medications increase the risk of caries. The use of liquid pharmaceutical preparations frequently used for children with conditions such as congenital heart disease, asthma, juvenile idiopathic arthritis (JIA) and other immuno-compromised conditions, and they are called as “high caries risk” children.

To improve palatability and perhaps patient’s compliance, many liquid medicines are sweetened with sucrose.

Sucrose acts as a preservative, an antioxidant, a solvent, a demulcent and a bulking agent. It is widely used because it is cheap, nonhygroscopic and easy to process.

In vitro studies showed drop in pH of dental plaque produced by different sucrose-sweetened medicines like iron containing syrups and antitussive syrups. Also medicines usually have low endogenous pH, high titratable acidity, and absence or low concentrations of ions including those of calcium, fluoride, and phosphate in their composition. The risk of dental erosion is increased when medications are used for treatment of chronic diseases with a high frequency of ingestion (two or more times per day), at bedtime, or when they have side effects such as reduction of salivary flow rate, which happens with antihistamines.

The following guidelines suggested to reduce liquid medicine related dental caries:

1. Inform parents and children about cariogenic potential of medicines and also the importance of toothbrushing after taking these medicines.
2. General practitioners, pediatricians and dentists should preferably prescribe non-cariogenic forms of medicines e.g. tablets or capsules. If they prescribe sugar containing medicine then they should give advice for proper oral hygiene.
3. All medicine should be labelled with the type of sweetener, whether sugar containing or sugar free. If it is a sugar containing medicine, it should be labelled with a warning for tooth decay.
4. Pharmaceutical companies should be urged to either reduce the sugar content in medicine or replace it with alternative sweetener agent.