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“Monday Morning Pearls of Practice by Bobby Baig”

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Medications and Dental Erosion:

By Bobby Baig

Indirect Association and Erosion:

The medications that have the potential to cause erosion of the dental hard tissue secondary to their side effects are mentioned below:

A) Drug Induced Hyposalivation:

1. Saliva plays an essential role in preserving the surface integrity of dental hard tissues.
2. The protective role of saliva against dental erosion can be attributed to the following factors:
3. Dilution and clearance of erosive agents from the oral cavity.
4. Buffering and neutralization of acids
5. Reduction of demineralization and enhancement of remineralization by the presence of calcium, phosphate, and fluoride ions.
5. Formation of a protective diffusion barrier (acquired pellicle) on the tooth surface . Therefore, the medications that cause reduced salivary flow can put the patient at risk of tooth erosion by reducing the protective function of saliva against extrinsic as well as intrinsic acids.

Drugs associated with reduced salivation are:

- A. Alphareceptor antagonists;
- B. Anticholinergics;
- C. Antidepressants (eg, serotonin agonists or noradrenaline and/or serotonin re-up- take blockers);
- D. Antipsychotics such as phenothiazines; atropinics; muscarinic receptor antagonists;
- E. HIV protease inhibitors;
- F. Anti-asthmatic agents (beta-2 adrenoceptor agonists).

An article on drug-induced dry mouth by Scully is a useful resource for additional details.

B) Drug Induced gastro esophageal reflux:

Drugs likely to cause gastro esophageal reflux disease can cause the intrinsic gastric acid to reach the oral cavity and thus increase the risk for dental erosion.

Drugs List:

- A. Anti-spasmodic drugs (theophylline),
- B. Anti-asthmatic medications,
- C. Anti-cholinergics,
- D. Progesterone,
- E. Calcium channel blockers.

For more information, refer to the article by Bartlett and Smith.

C) Drug Induced Vomiting:

1. Drugs that induce vomiting can also be considered an indirect cause of dental erosion. For example abuse of ipecac syrup (an over-the-counter emetic) by bulimics can result in dental erosion.
2. Similarly, patients undergoing cytotoxic chemotherapeutic drug treatment for malignancies may suffer from frequent vomiting, resulting in erosion.
3. Thus, extended use of such drugs can cause dental erosion as a secondary side effect.

D) The 9 Rs in the Management of Dental Erosion:

By: Manuel Thomas et al: *Compendium*; Oct 2015; Vol 36.

9 Rs	EROSIVE PROTECTION MEASURES
1. Recognize early	<ul style="list-style-type: none"> • Early detection and monitoring should be emphasized.
2. Reduce acid contact	<ul style="list-style-type: none"> • Chewable and effervescent formulations should be avoided, especially when experiencing drug-induced xerostomia. • Acidic mouthwashes should be avoided, especially by individuals with hyposalivation. • A spacer device should be used to deliver inhaled drugs directly to the airway. • A protective mouth guard should be used.
3. Remove the acidic challenge	<ul style="list-style-type: none"> • Acidity can be neutralized directly with the use of fluoride mouth rinse/sodium bicarbonate solution/milk or food such as cheese or sugar-free yogurt. • If none of the above is feasible, the mouth should be rinsed with water. • Salivary flow can be stimulated with non-acidic lozenges.
4. Resist acid dissolution	<ul style="list-style-type: none"> • Tooth surfaces can be made resistant to acid impact either by applying dentin adhesive or fluoride or by using amorphous calcium phosphate-casein phosphopeptide.
5. Recommend healthy behavior	<ul style="list-style-type: none"> • Low-pH mouth rinse should not be used beyond the short-term and should never be used before brushing. • Use of a soft toothbrush and low-abrasion fluoridated toothpaste is recommended.

	<ul style="list-style-type: none"> • Brushing should be postponed for at least 1 hour after the consumption of acidic/erosive food. • An acid challenge immediately after brushing should also be avoided. • Acidic liquid medications should not be sipped, held in the mouth, or swished in the mouth. • When possible, tablets should be chosen over liquid medications. • Patients should be urged to drink water frequently to counteract dry mouth.
6. Refer if needed	<ul style="list-style-type: none"> • Refer to a gastroenterologist to exclude gastrointestinal disease. • Dentists should be aware of the drugs that can cause dental erosion and educate colleagues and medical practitioners to take the necessary precaution when prescribing these medications.
7. Regulate formulations	<ul style="list-style-type: none"> • Manufacturers can modify formulations by increasing the calcium, phosphate, and mineral content in the medication and, if possible, use formulations with low titratable acidity as substitutes. • Manufacturers should provide consumers with sufficient information regarding the erosive potential of various medications.
8. Regular checkups	<ul style="list-style-type: none"> • Dentists should encourage regular dental checkups. • Dentists should educate patients taking medications that can induce erosion directly or indirectly about their susceptibility to oral health problems.
9. Rehabilitate	<ul style="list-style-type: none"> • Dentin hypersensitivity should be managed appropriately. • Esthetic rehabilitation should be addressed. • Functional rehabilitation should be addressed.

Conclusion:

1. Various medications can directly be implicated as causative factors in the etio-pathogenesis of tooth erosion.
2. It is the responsibility of dental professionals to educate patients and medical practitioners about the different precautions that can be taken to prevent and control therapeutic medication-related dental erosion.

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