

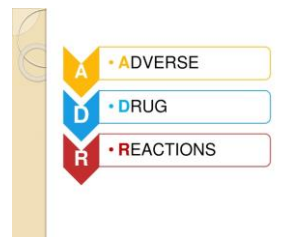


University "Goce Delchev" – Shtip
Faculty of Medical science

Adverse drug interactions in dental practice

Assistant professor

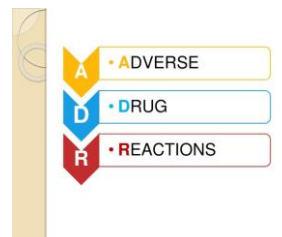
Marija Darkovska-Serafimovska

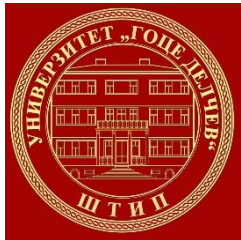




INTERACTION

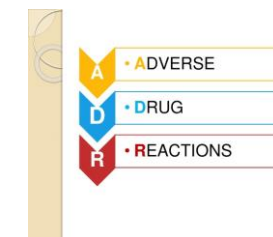
- **interaction is a situation in which one substance affects the activity of another substance**
- **interactions may exist between:**
 - ✓ **drugs and foods (drug-food interactions),**
 - ✓ **drug and drug (drug-drug interactions), as well as**
 - ✓ **drugs and medicinal plants or herbs (drug-plant interactions)**

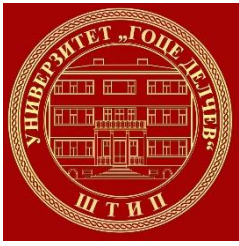




DRUG INTERACTION

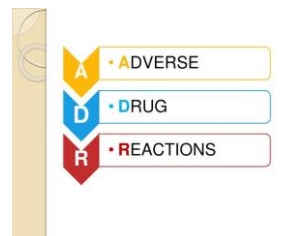
- **A drug interaction is a situation in which a substance (usually another drug) affects the activity of a drug when both are administered together**
- **This action can be:**
 - ✓ **synergistic (when the drug's effect is increased) or**
 - ✓ **antagonistic (when the drug's effect is decreased)**





Why drug interactions are important?

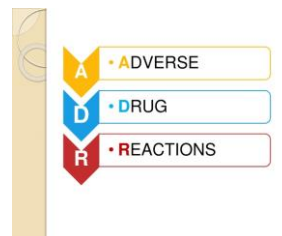
- ✓ if a patient is taking two drugs and one of them increases the effect of the other it is possible that an **OVERDOSE** may occur
- ✓ the interaction of the two drugs may also increase the risk that **SIDE EFFECTS** will occur OR
- ✓ if the action of a drug is reduced it may have **NO THERAPEUTIC** use because of under dosage





Adverse drug interactions

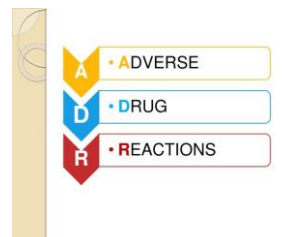
The pharmaceutical interactions that are of special interest to the practice of medicine are primarily those that have negative effects for an organism





Adverse drug interactions in dental practise

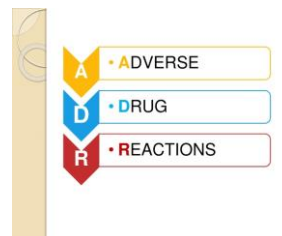
Rapid advancement in dental pharmacotherapy requires clinicians constantly to update their knowledge of drug-interactions





Examples

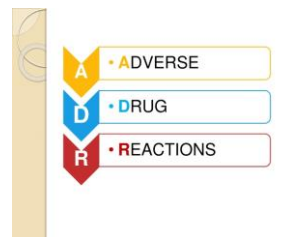
- ✓ **adrenergic vasoconstrictors are used by dentists to increase the activity of local anesthetics and to control local bleeding**
- ✓ **although commonly considered safe for these applications, vasoconstrictors can participate in drug interactions that potentially are harmful to patients**





Examples

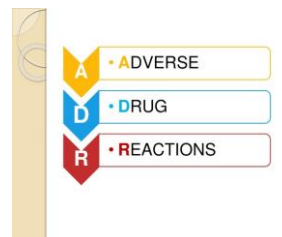
- ✓ **use of antibiotics is an integral part of dental practice**
- ✓ **while these agents are generally considered safe in the dental setting, their use may result in interactions with other drugs that patients are taking for various medical conditions**





Adverse drug interactions in dental practise

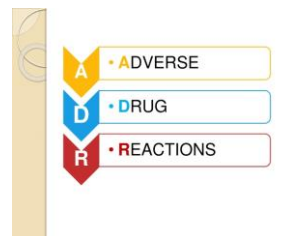
- ✓ the use of local anesthetics, sedatives or anxiolytic drugs in combination with other central nervous system depressants or in combination with drugs that inhibit their metabolism can be associated with serious adverse drug interactions

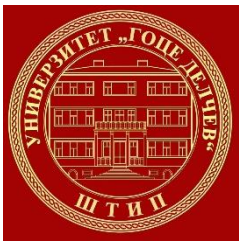




Methods

An electronic search of all literature published until December 2017, was made in Medline/Pubmed and specific web pages devoted to dentistry





Adverse drug interactions in dental practise

Wiley Online Library

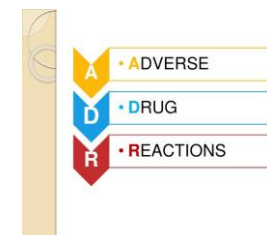


EPIDEMIOLOGY (COHORT STUDY OR CASE-CONTROL STUDY)

Gingival bleeding, a possible “serious” adverse drug reaction: An observational study in the French Pharmacovigilance Database

Emmanuelle Bondon-Guitton ✉, Thibaut Mourgues, Vanessa Rousseau, Sarah Cousty, Judith Cottin, Guillaume Drablier, Joëlle Micallef, Jean-Louis Montastruc

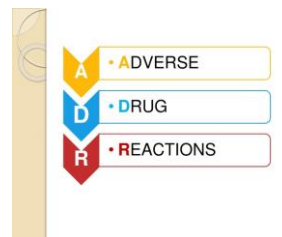
First published: 1 July 2017 | <https://doi.org/10.1111/jcpe.12770>





Adverse drug interactions in dental practise

- **They selected reports of “gingival bleeding” from 1 January 1985 to 30 September 2014 in the French Pharmacovigilance Database**

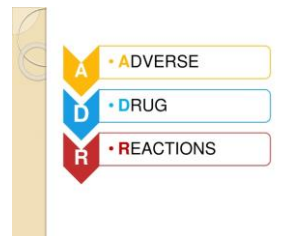




Adverse drug interactions in dental practise

Results:

- Among 523,808 reports of adverse drug reactions, they identified 454 reports of gingival bleeding (0.09%)
- Most of them were “serious” (58.4%) and occurred in females (54.6%)
- The most frequently “suspected” drugs were antithrombotics (67.8%), particularly fluindione
- Other drugs frequently involved were furosemide followed by paracetamol, amiodarone, amoxicillin, paroxetine, ketoprofen, zolpidem, enalapril and Ramipril
- Thirty-nine reports involved a drug–drug interaction with antithrombotics, mainly with anti-infectives.

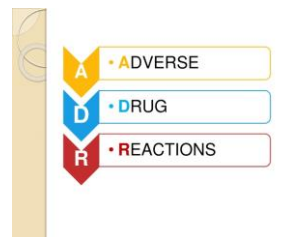




Adverse drug interactions in dental practise

Conclusion:

- **Gingival bleeding can be an adverse drug reaction, often “serious” and rarely fatal.**
- **Patients older than 50 years and women are particularly at risk.**





Adverse drug interactions in dental practise

Adrenergic vasoconstrictors are commonly used by dentists to enhance the pain-relieving action of local anesthetics and to control local bleeding

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed | Advanced

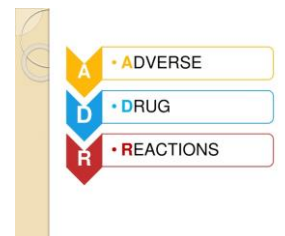
Format: Abstract ▾

[J Am Dent Assoc.](#) 1999 May;130(5):701-9.

Adverse drug interactions in dental practice: interactions associated with vasoconstrictors. Part V of a series.

[Yagiela JA](#)¹.

The author of this article focused on the adrenergic vasoconstrictors epinephrine and levonordefrin

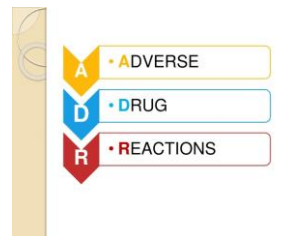




Adverse drug interactions in dental practise

Results:

- **Vasoconstrictor drug interactions involving tricyclic antidepressants, nonselective β -adrenergic blocking drugs, certain general anesthetics and cocaine are well-documented in both humans and animals as having the potential for causing serious morbidity or death**
- **Evidence for adverse interactions involving adrenergic neuronal blocking drugs, drugs with α -adrenergic blocking activity, local anesthetics and thyroid hormones is much less compelling, suggesting for the most part that clinically significant reactions may occur only when both the vasoconstrictor and the interacting drug are used in excessive doses**
- **In the case of monoamine oxidase inhibitors, there is no credible evidence of a significant interaction with epinephrine or levonordefrin.**

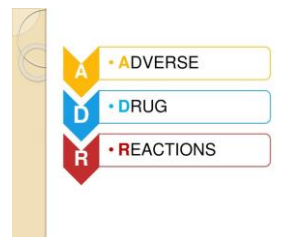




Adverse drug interactions in dental practise

Conclusion:

- **careful administration of small doses of vasoconstrictors will permit these drugs to be used with no risk**





Adverse drug interactions in dental practise

Drug interactions with analgesics are often reported, but only a small number have clinical relevance in dentistry

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed [dropdown] [input field] Advanced

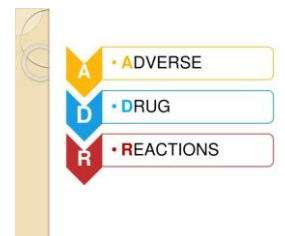
Format: Abstract

[J Am Dent Assoc.](#) 1999 Mar;130(3):397-407.

Adverse drug interactions in dental practice: interactions associated with analgesics, Part III in a series.

[Haas DA](#)¹.

This article provides an overview of drug interactions with analgesics and identifies those that are clinically relevant

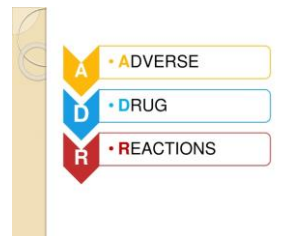




Adverse drug interactions in dental practise

Results and Conclusions:

- **NSAIDs should not be taken by patients taking high-dose methotrexate, or anticoagulants**
- **It is possible that NSAIDs should not be given to patients taking lithium, but future studies should be conducted to confirm this**
- **Aspirin should not be given to patients taking oral hypoglycemics, valproic acid or carbonic anhydrase inhibitors**
- **Meperidine must be avoided in the patient who has taken monoamine oxidase inhibitors in the previous 14 days**





Adverse drug interactions in dental practise

The prudent use of antibiotics is an integral part of dental practice

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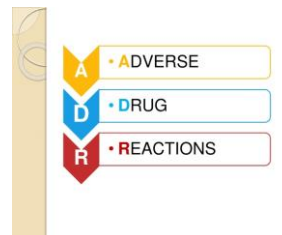
[February 1999](#) Volume 130, Issue 2, Pages 236–251

Next Article >

ADVERSE DRUG INTERACTIONS IN DENTAL PRACTICE

INTERACTIONS INVOLVING ANTIBIOTICS: PART II OF A SERIES

[ELLIOT V. HERSH](#), D.M.D., M.S., PH.D.¹

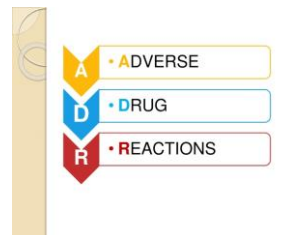




Adverse drug interactions in dental practise

Results and Conclusions:

- **Potentially serious adverse drug interactions can occur between antimicrobial agents used in dental practice and other drugs patients are taking for a variety of medical conditions**
- **It is particularly important dentists to be aware of the potentially serious interactions of the antibiotics erythromycin, clarithromycin and metronidazole with other drugs whose metabolism is impaired by these antibiotics**
- **Most of the reported drug interactions discussed in this article are well-documented by clinical studies**





Adverse drug interactions in dental practise

Local anesthesia and preoperative oral sedative/anxiolytic therapy often are indicated for routine oral surgery and restorative dentistry

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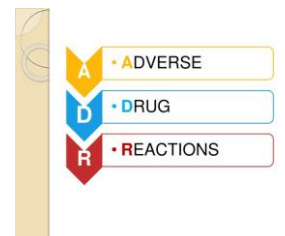
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< Previous Article [April 1999](#) Volume 130, Issue 4, Pages 541–554 Next Article >

ADVERSE DRUG INTERACTIONS IN DENTAL PRACTICE: INTERACTIONS ASSOCIATED WITH LOCAL ANESTHETICS, SEDATIVES AND ANXIOLYTICS

PART IV OF A SERIES

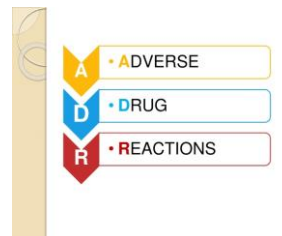




Adverse drug interactions in dental practise

Results and Conclusions:

- **The use of local anesthetics, sedatives or anxiolytic agents in combination with other central nervous system depressant agents or in combination with drugs that inhibit their metabolism was associated with a few serious adverse drug interactions or complications**
- **The adverse drug interactions associated with the use of local anesthetics and oral sedative/anxiolytic agents in general practice vary in significance**





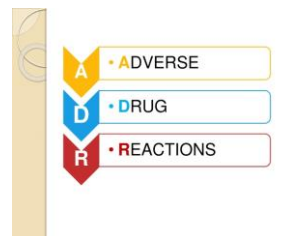
Adverse drug interactions in dental practise

CONTINUING EDUCATION 2

DRUG INTERACTIONS

Three Serious Drug Interactions that Every Dentist Should Know About

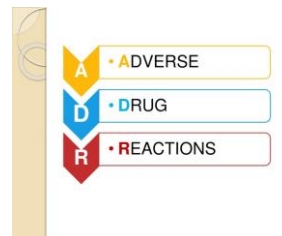
Elliot V. Hersh, DMD, MS, PhD; and Paul A. Moore, DMD, PhD, MPH





Adverse drug interactions in dental practise

- **NSAIDS, which are highly effective in the treatment of postoperative pain, should be avoided or used cautiously in lithium-treated patients**
- **Prescribing either metronidazole, an effective drug against anaerobic bacteria, or the antifungal agent fluconazole should be avoided in patients who are on concomitant warfarin therapy**
- **For patients on propranolol, epinephrine-containing local anesthetics should be avoided in patients undergoing restorative procedures of short duration and used cautiously (no more than 0.034 mg) in patients requiring hemostasis or longer duration dental procedures**





Adverse drug interactions in dental practise

RECOMMENDATION FOR EVERY DENTIST TO READ THIS ARTICLE

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed Advanced

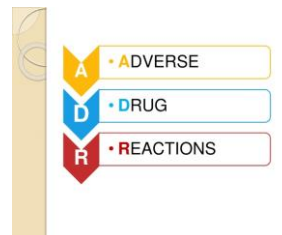
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[Dent Clin North Am.](#) 2016 Apr;60(2):421-34. doi: 10.1016/j.cden.2015.11.005.

Review of Top 10 Prescribed Drugs and Their Interaction with Dental Treatment.

[Weinstock RJ¹](#), [Johnson MP²](#).

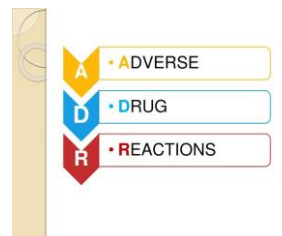
The medications reviewed include levothyroxine, acetaminophen/hydrocodone, lisinopril, metoprolol, atorvastatin, amlodipine, metformin, omeprazole, simvastatin, and albuterol.

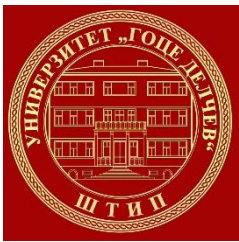




Adverse drug interactions in dental practise

An understanding of possible adverse drug interactions in dentistry may help practitioners avoid and prevent complications





THANK YOU

