

# Perception of risk of adverse drug reactions with non-opioid analgesics by medical students

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## Introduction

Education about adverse drug reactions (ADRs) for public, healthcare professionals and medical students is the most important for reducing of drug-induced patient harm.

Some studies have already investigated patient's knowledge about prescribed medicines (Cullen et al., 2006). Bongard et al. (2002) have shown major differences in the perception of risk of ADRs between health and non-health professionals. In this particular study, non-health professionals and pharmacists did not rank high non-steroidal anti-inflammatory drugs (NSAIDs) for perceived risk of ADRs compared to general practitioners and pharmacovigilance professional. Montastruc et al. (2003) found differences in the perception of risks of gastrointestinal ADRs with NSAIDs, including coxibs among physicians according to their medical specialization. Rheumatologists systematically considered NSAIDs as less harmful than general practitioners and gastroenterologists. This result may indicate that these physicians are involved more frequently in NSAID-induced ADRs than rheumatologists.

Differences in ADR risk perception has been illustrated in a study of French medical students

(Durrieu et al., 2007). The study assessed the effect of education on students' perception of ADR risks factors. Before taking a pharmacology course the students ranked NSAIDs in eight position, aspirin in twelfth position. After the course the order of risk perceptions changed to NSAIDs to fifth position and aspirin to fourth position. These results indicate significance of education on improving medication prescribing.

The aim of the study was to evaluate perceived risk of ADRs with non-opioid analgesics in young medical students and to investigate the impact of medical education on their perception of risk.

## Materials and methods

A cross-sectional, questionnaire-based study was conducted among medical students of first and sixth year of study on Faculty of Medicine, University of Priština – Kosovska Mitrovica. The approval from Ethics Committee of the institution was obtained before the start of the study.

The study was conducted for the period of 2 months from April through May, 2019.

The total number of respondents was 205, of whom 45 were excluded because of incomplete data. The paper-based questionnaire was designed so that

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the respondents could select more than one answer, or enter the appropriate data.

The questionnaire was divided into 3 sections. The first section included demographic information about students. The second section investigated the respondents' perception of risk of ADRs next classes of non-opioid analgesics: paracetamol, aspirin, indomethacin for indolic derivatives NSAIDs, piroxicam for oxicam derivatives NSAIDs, diclofenac for arylcarboxylic derivatives NSAIDs and rofecocib for coxibs. The third section investigated the risk of ulcerogenic activity, gastrointestinal bleeding, liver and kidney damage, bronchospasm and thromboembolism associated with the use of each class of non-opioid analgesics.

A visual-analogue scale (VAS) was used to define a score for the perceived risk of ADRs. The scores were compared using Mann-Whitney U test. Differences were considered to be significant if the p value was less than 0.05.

## Results and discussion

A total of 78 medical students of the first (MS1) and 81 medical students of the sixth (MS6) year of study completed the questionnaire giving the response rate of 78%. 63% of respondents were female and 37% were male. There was a significant age difference between the groups (19.6 vs. 23.6,  $p < 0.001$ ).

Both group of students ranked indolic derivatives of NSAIDs and coxibs as the most dangerous classes of non-opioid analgesics with high potentials for ADRs. Also, they considered that paracetamol was the least dangerous non-opioid analgesic. When NSAIDs and coxibs were considered together, the global median score of perceived risk of ADRs was 4.5 vs. 4.7 (MS1 vs. MS6), which was a statistically very significant difference ( $p < 0.001$ ). Clearly, at the end of their study, medical students become more cautious in the perception of risk of ADRs. Earlier studies have shown that NSAIDs were the pharmacological class most frequently involved in hospital admissions due to an adverse effect of a prescribed drug (Pouyanne et al., 2000).

For NSAIDs, MS6 gave significantly higher median scores of perceived "digestive risk" than MS1 (6.1 vs. 5.1,  $p = 0.020$ ). But unexpected, the perceived "thromboembolism risk" associated with the use of NSAIDs (including coxibs) was higher in MS1 than MS6 (5.8 vs. 4.8,  $p = 0.007$ ).

## Conclusion

These results indicate that medical education gives young medical students a better understanding of the risks of potential ADRs. However, their perception of risk indicates the need for further education. Besides the influence of medical education, other important factors, like information in the various media, have to be considered to explain the difference in the perception of risks related to drugs.

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