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Letter to the Editor

Physiological reaction following contrast medium administration: What kind of reaction is this?

To the Editor

Although adverse reactions following contrast medium (CM) application occur regularly in routine, radiologists are in most cases not familiar with the clinical reaction patterns. Therefore, the documentation in the patients' records is often inadequate. Moreover, papers dealing with contrast medium induced side effects also reflect the poor knowledge in this field. For example, the unspecific term “adverse CM reaction” sometimes remains unclassified in the literature [1]. Furthermore, in the literature risks are mentioned which do not increase the risk for an adverse reaction, and vice versa [2,3]. Beside the description of clinical symptoms, the reactions are often classified. Due to the pathological nature, we can differentiate between type A and type B drug induced reactions [4]. Type A reactions are predictable, common, and related to the pharmacological properties of the drug. Type B reactions are hypersensitivity reactions (allergy and non-allergy) that are unpredictable, uncommon, and usually not related to the pharmacological properties of the drug. Adverse CM reactions are in more than 80% type A, and in less than 20% type B reactions [5].

Rawlins and Thompson called the relatedness to the pharmacological properties of the drug as “physiological” reaction [4]. This seems to be the reason why radiologists simply called type A reactions “physiological” ones, and type B reactions “allergy-like” [6]. Over time, possibly the origin has been forgotten. Therefore, we can find contradictory explanations such as “physiological” reactions, are toxic or chemotoxic reactions [7,8]. We agree with the authors of both papers [7,8] and believe that the term “physiological reaction” sounds strange or incorrect. One should take into account that neither iodinated non-ionic contrast materials nor gadolinium-based contrast agents (GBCAs) are physiological substances (except of CO_2, and air). Their application, on which route ever, also is no physiological process at all. Consequently, we wonder whether non-physiological substances may lead to a physiological reaction.

Another hint for the assumption that the initial meaning has been forgotten is that term “physiological reaction” is often used for mild reactions such as erythema, nausea, vomiting, and head ache, for example [9]. We have the impression that the intention of the authors who use “physiological” is to point to the harmless character of the reaction. “Physiological” is far away from its initial meaning and has become a kind of euphemism. The term should appease both radiologists and patients.

In reality, the so-called “physiological” reactions are mainly mild toxic reactions. And, here you can see and hear the difference: it sounds much better if you tell the patient that she/he acquired a “physiological” than a “mild toxic” or “mild allergy” reaction, does it not? Therefore, the reason why radiologists aware of the facts use this incorrect term could be that the patient accepts a belittlement much better than a real formulation.

Interestingly, only CM-related adverse reaction are called “physiological” ones, and not adverse drug reactions induced by other drugs. There is no reason why CM should be an exception.

Taken together, the widely used term “physiological reaction” for type A reactions induced by CM sounds strange. Especially, in the context of clinical scientific publications the term “physiological” reaction confuses. Therefore, we should omit it. In the context of the patient talk, the term “physiological” reaction also is not necessary. In order to use a uniform terminology (for all adverse drug reactions as well as for CM-induced adverse reactions), we should reclaim its origin, and we should go back to the roots and call them type A reactions.

Competing interests

The authors have no competing interests.

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