Subjective perceptions of patients undergoing radioiodine therapy: why should we know about them?

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Published online: 13 June 2009
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There may be many reasons for patients to decline radionuclide therapy. Some are understandable to us who are used to working professionally with radioactive materials, others, especially those related to fear of radiation, seem completely alien or totally absurd. This is not new: since the end of the 1970s it has been known from the studies of Slovic et al. [8] that there are substantial differences between experts and lay persons regarding the perception of ionizing radiation—an incongruity between “subjective lay persons’ knowledge” and “objective expertise”. However, since the subjective perceptions of the layperson deeply colour their perception of reality, it is completely irrelevant for the patients whether their interpretation remains within the framework of natural sciences. Therefore, this incongruity cannot be resolved by providing science-based explanations [7].

As so often, a glance over the fence will reveal new insights. We are moving into the realm of the social and cultural sciences, whose theories and methods provide fascinating inspirations and solutions. In contrast to natural science research which is based on hypothesis-driven quantitative methods, the social sciences offer a broader, methodological approach, specifically the methods of qualitative research. The quantitative approach is based on measurable, “objective” observations which allow for mathematical analysis and lead to reproducibility of results. It is open to criticism as it often remains superficial due to various social and cultural factors which are not amenable to a quantitative description and cannot be considered when formulating research hypotheses. This reduces the practical

relevance of quantitative research in these contexts [5]. The qualitative approach of cultural anthropology aims to investigate and understand the field of interest with an open approach. It applies several validated methodologies, such as e.g. open dialogue interview techniques, content analysis or participant observation.

Content analysis—as an example—aims to illuminate the immanent argumentative and practical structure of phenomena or perceptions [1]. This is important as cultural science always addresses realities which are already interpreted through the perspective of the affected individuals.

This implies that important determinants of the perception and acceptance of nuclear medicine can be better investigated using the “softer” qualitative research methodology. We could demonstrate using an approach from cultural sciences that there is a broad spectrum of perceptions of and attitudes towards radioactivity, which are incongruent to natural science based or medical explanations. The results reflect a distrust towards radiation, which is often expressed as fear of contamination. The worries about contamination are experienced so massively because radiation cannot be experienced with our senses.

This fundamentally negative perception of radioactivity is substantially modulated if an individual can recognize an immediate benefit, e.g. from radioiodine therapy. It is interesting to note that the perception of radioiodine therapy is significantly more favourable after treatment; however, the attitude towards radioactivity in general remains unchanged, i.e. the negative tenor persists [4]. This implies that the immediate benefit for the person is dissociated from the general attitude. Similar observations were reported in several studies in the field of medicine [e.g. 3, 10] which showed e.g. that the acceptance of treatments in reproductive medicine depends on the context, i.e. it increased

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significantly with the urgency of the desire to have children.

What does this imply for nuclear physicians?

The knowledge of a patient's perceptions enables us to improve the communication for obtaining informed consent. A patient's metaphors or jokes may be more than mere expressions of underlying fears but rather the basis for the decision in favour or against therapy. It does not appear to be advisable, however, to integrate the patient's metaphors into the dialogue in an attempt to individualize the information exchange. Although there are as of yet no investigations about explaining the realm of radioactivity, there are a few studies about conveying information about the innocuousness of electromagnetic radiation. These found that the subjective perception of the risks was significantly higher than before; therefore, an approach which prophylactically attempts to address potential fears may be counterproductive. This may be further supported by a general distrust in institutions, which was found in several studies [9]. Moreover, the acceptance by patients is much higher if the information primarily addresses the benefits of a treatment rather than the risks [6].

A further consideration is differing risk perception within the heterogeneous group of physicians. One indicator for this may be an investigation by Dietlein and co-workers who showed that specialists in nuclear medicine or endocrinology recommended radioiodine significantly more often for the treatment of functional thyroid autonomy than general practitioners [2].

In summary, the methodology of cultural anthropology may provide important insights into the dynamics of the information exchange during the acquisition of informed consent. This may be pivotal for a better understanding of patients' statements as well as for developing strategies to cope with the mismatch between the professional world of the physician, which is based on objective natural science,

and the subjective perceptions of the patients, which is better assessed with the tools from the cultural sciences. The complexities of this situation do not lend themselves to a standardized approach; on the contrary, an individual access to the patient's mindset appears to be required. The results from qualitative investigations help to reflect one's own position in the light of a patient's perceptions which would lead to less fear-inducing information exchange and better acceptance of our methods. Approaches from the cultural sciences may well benefit nuclear medicine itself, a specialty which is firmly grounded in quantitative natural sciences.

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