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Is Radon Therapy in a Warm Radon Underground Gallery or in Warm Radon Baths Detrimental to a Patient's Health?

Many people suffer from chronic sicknesses associated with rheumatic pain. These sicknesses known as rheumatic disorders not only comprise inflammatory changes to joints and the spine, but also signs of wear in these parts of the body. Chronic polyarthritis (rheumatoid arthritis) is one of the most common types of inflammatory sicknesses of the joints; and Bechterew's disease (ankylosing spondylitis) is the main sickness in the spinal column. Sicknesses caused by wear to the spinal cord include damage to spinal discs (osteochondrosis) and sicknesses caused by wear to joints, including hip arthrosis and arthrosis of the knee and finger joints.

The preferred medical treatment for these sicknesses involves the use of what are known as non-steroid anti-rheumatics. At the same time radon, a radioactive inert gas that occurs naturally, has enjoyed a reputation for being particularly effective in treating these chronic rheumatic sicknesses at spas since ancient times.

However, non-steroid anti-rheumatics may damage the gastric mucous membrane to a greater or lesser degree (gastric ulcers, gastric bleeding, gastric perforation), or they can cause damage to a person's heart, blood vessels or kidneys.

Radon and its radioactive decay products are inhaled with air in underground galleries or warm baths during treatment or they enter the patient's body through the skin and provide beneficial effects, particularly with regard to the immune system. Due to preferential entrance of radon into the patient's body by inhalation, critics of radon treatment draw the conclusion that major detrimental health risk of patients is development of lung cancer similarly to that from inhalation of increased levels of residential radon concentrations.

This makes patients to feel insecure, who wish to be healed and not damaged by the treatment. A team of medical doctors, biophysicists and radiation protection experts (P. Deetjen, A. Falkenbach, D. Harder, H. Jöckel, A. Kaul, H. von Philipsborn) have recently devoted their attention to this matter on behalf of RADIZ. They published the findings of their research in a book entitled "Radon as Medicine – Therapeutic Effectiveness, Biological Effects and Comparative Assessment of Risks". This study was published by the Dr. Kovač publishing house in Hamburg in 2005.

Based on the scientific knowledge derived from this study the following answers can be given to patients' questions on possible health detriment of radon therapy :

Dear patient,

Medical treatment sometimes involves undesirable side-effects for patients. The medical doctor will take these into account when making a decision about what kind of diagnosis or therapy should be selected for an individual patient in order to provide information on the patient's illness or to carry out treatment. The pre-eminent issue in making a decision is always weighing up the benefit of the treatment to the patient against the risk of any undesirable side-effects.

This also applies to the pain-relieving and anti-inflammatory treatment of chronic rheumatic sicknesses, which are either treated with so-called non-steroid anti-rheumatics or in warm radon galleries or baths.

Non-steroid anti-rheumatics provide anti-inflammatory and analgetic effects by inhibiting the biosynthesis of so-called mediators of the inflammatory reaction and pain sense. When used long-term, undesirable side-effects cannot be ruled out, such as damage to the surface mucous membranes, bleeding ulcers in the gastrointestinal tract or even perforation. Even cardiovascular complications have been registered as side-effects.

Radon treatment in warm galleries or warm baths relies on the biological effects of the naturally occurring inert gas radon and its radioactive decay products on the immune system. Normally pain levels are eased for a sustained period and this could be proved by long-term clinical studies.

Despite the medical benefits of natural radioactivity, undesirable effects linked to radioactivity cannot be totally ruled out, but they are extremely unlikely. Radon has caused lung cancer in uranium miners and people who have lived all their lives in buildings with a high radon content due to the geology of the region, however, with a probability in the order of only a few percent. But when applying radon for purposes of treatment, the probability of such a detrimental health effect constitutes a minute percentage of the rate, if any exists at all. This is based on the following facts:

1. The radiation dose of radon treatment in a warm gallery or warm bath is at most as high as or significantly lower than the annual dose of natural radiation and its variation width. The amount of natural radiation dose is largely determined by the geological properties of the region where people live, e.g. by the uranium or radium content of the minerals in the soil.
2. The total radon dose from several spa treatments in the course of a person's life is at most a tenth of the average levels, to which people are exposed as a result of any radon exposure in their homes or ecological environment during an average life span of 75 years. This is because the time spent in the radon gallery or bath is comparatively short.

3. So far no scientific evidence has been provided to prove whether any such minor additional exposure to radon could lead to an increase in what is known as the spontaneous risk of lung cancer present in everybody when compared with the effects of radon in homes. For precautionary reasons, however, experts have carried out a deliberately pessimistic theoretical assessment: if all mean exposures to radon during a patient's whole life are taken into account and biological adaptation mechanisms are excluded from consideration, *in mathematical terms* the risk of induction of lung cancer is about one hundredth of the spontaneous lung cancer rate in our population. This is currently about 5%, a figure that includes non-smokers and smokers.

The real risk of mortality caused by so-called non-steroid anti-rheumatics and *observed* in statistical surveys is significantly higher than the theoretically calculated risk of lung cancer caused by radon treatment.

Taking into account the very low risk of radon treatment, if any exists at all, when compared to the real risks of treatment with drugs, the medical doctor will decide which kind of treatment is preferable on an individual basis to match the actual patient's health problem. That is to say, the medical doctor always seeks the maximum benefit for the patient with a view to minimising any undesirable side-effects. Even the hypothetical risk of lung cancer calculated on the basis of pessimistic assumptions regarding the use of radon to treat rheumatic disorders cannot be viewed as a restriction on the use of this treatment. On the contrary, when compared with the health risks of treatment involving drugs, the risks linked to radon treatment are comparatively low.

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