Introduction

The use of stable isotopes has long been considered to be a promising tool in biomedical diagnosis. Despite the fact that stable isotope methodology has been known for decades, the application in clinical daily routine is limited. There are various reasons to explain this discrepancy:

- Expensive instruments to analyse isotopic enrichments and technical knowledge are restricted to a limited number of centres
- A gap exists in interaction between specialised stable isotope centres and potentially interested clinicians
- Lack of standardisation of diagnostic protocols
- Limited availability of new substrates to develop new diagnostic tests.

Funding of the BIOMED group, Stable Isotopes in Gastroenterology and Nutrition (SIGN), aimed to coordinate efforts to tackle these problems. A group of 25 stable isotope centres and interested clinicians throughout Europe constructed a number of working parties in which detailed discussions of clinical problems, clinical protocols, and research results took place. The outcome of these discussions led to the following results:

- A standardised protocol in the case of the urea breath test for the diagnosis of Helicobacter pylori
- Concept protocols for (a) lipolysis breath test diagnosing fat malabsorption; (b) gastric emptying breath test; and (c) protein digestion breath test
- Continuing discussions about factors influencing the carbohydrate breath tests (leading to better insight into the experimental conditions of the clinical tests of malabsorption syndromes) and liver function tests.

Detailed information can be found in this supplement.

Another step in standardising clinical protocols was the comparison of the analytical performance of the various centres involved in isotope ratio mass spectrometry (IRMS) in a number of ring tests. The outcome is represented in the final section of this supplement.

The BIOMED SIGN group focused on the use of stable isotopes in breath tests. This area will be further developed within the existing group. Furthermore, attention is also being paid to the developments in the field of chromatography combustion IRMS, as this analytical technique has the potency to lead to new and simple clinical tests. For an efficient development of analytical techniques, new substrates, and suitable clinical protocols a European network fulfils an eminent role.

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