are likely to be of limited utility. Use of a CD criterion suggests that a minimum difference of 1.0 ng/L between serial samples might be nonstochastic in nature. Estimation of the individual-specific mean F2-isoprostane concentration within 5%, 10%, or 20% of the actual mean value will require 13.8, 3.5, or 0.9 simultaneously assayed samples, respectively.

The number of participants in this study was small; however, studies on biological variation have demonstrated that estimates of intraindividual and interindividual variation are similar regardless of the number of individuals studied (5). Our estimates of variation agree with those of other studies that did not span the menstrual cycle and suggest that plasma F2-isoprostanes are sufficiently reliable for use as a biomarker of oxidative damage in epidemiologic studies of women.

**References**


**Author Contributions:** All authors confirmed they have contributed to the intellectual content of this paper and have met the following 3 requirements: (a) significant contributions to the conception and design, acquisition of data, or analysis and interpretation of data; (b) drafting or revising the article for intellectual content; and (c) final approval of the published article.

**Authors’ Disclosures of Potential Conflicts of Interest:** Upon manuscript submission, all authors completed the Disclosures of Potential Conflict of Interest form. Potential conflicts of interest:

- **Employment or Leadership:** None declared.
- **Consultant or Advisory Role:** M. Trevisan, Johnson & Johnson.
- **Stock Ownership:** None declared.
- **Honoraria:** M. Trevisan, Johnson & Johnson.

**Research Funding:** National Institute of Child Health and Human Development (Contract no. ADB-N01-HD-4-3394).

**Expert Testimony:** None declared.

**Role of Sponsor:** The funding organizations played a direct role in the design of the study, the choice of enrolled patients, in the review and interpretation of data, and in the preparation and final approval of the manuscript.
porting our own experience in France, where surveys performed in our units found that approximately 10%–15% of adult patients treated with vitamin D receive vitamin D2.

As individuals working in university reference laboratories, we receive several telephone calls each week from physicians who are puzzled by the fact that the serum 25-OH-D concentration for their patients has not increased, or has even decreased, during treatment with vitamin D (sometimes large doses). These patients invariably received vitamin D2 and were monitored for their 25-OH-D concentration with the Roche assay. Every time a verification measurement was done in our laboratories with the DiaSorin RIA, the concentration was typical (>75 nmol/L) and sometimes quite high (>200 nmol/L). As we recently reported (2), this situation not only generates useless and costly exploration of results but also produces a certain degree of anxiety in the patients. We are even aware of 2 patients in whom a malabsorption syndrome was suspected and an upper gastrointestinal endoscopy procedure was planned. Fortunately, the procedures were not performed after we explained to the physician that the absence of an increase in the serum 25-OH-D concentration was due to an analytical problem. Furthermore, a low 25-OH-D concentration measured with the Roche assay in a patient treated with vitamin D2 may prompt a physician to prescribe large doses of vitamin D in a patient already replete with vitamin D, thus potentially causing toxic 25-OH-D concentrations to be attained. Finally, after discussing this issue with physicians, we came to realize that many physicians prescribing vitamin D are unaware of whether they have prescribed a drug containing vitamin D2 or vitamin D3. We also realized that many of these physicians thought that vitamin D2 was in fact 1,25-dihydroxyvitamin D. This confusion highlights the urgent need for providing clear and simple information about vitamin D immunoassays to the medical community.

Because some 25-OH-D assays do not measure 25-OH-D2, one can argue that vitamin D3 should be the only vitamin D compound to use in clinical practice. Because other commercial assays, such as the DiaSorin assay and, to a lesser extent, the Immunodiagnostic Systems kit (50%–75% cross-reactivity with 25-OH-D2), measure both 25-OH-D2 and 25-OH-D3, our opinion is that this recommendation would be valid only if vitamin D2 is clearly demonstrated to be less effective that vitamin D3. To our knowledge, apart from a shorter half-life for 25-OH-D2, which must be taken into account when vitamin D is prescribed in large, spaced-out doses (3), vitamin D2 seems as potent as vitamin D3 when prescribed as daily doses (4). We thus believe that in countries where vitamin D2 is prescribed (even in a low proportion of patients, as in France), 25-OH-D assays should measure both 25-OH-D2 and 25-OH-D3 and that the only interesting information to be provided to physicians in clinical practice is the sum of the 25-OH-D2 and 25-OH-D3 concentrations. Separating the reporting of the 2 compounds may be misleading, as previously reported in this journal (5). This rationale is why, on behalf of the French Society of Clinical Biology and the Group of Specialized Biology (GBS) of the French Society of Nuclear Medicine, we recommend the use of a 25-OH-D assay that measures both 25-OH-D2 and 25-OH-D3.

Author Contributions: All authors confirmed they have contributed to the intellectual content of this paper and have met the following 3 requirements: (a) significant contributions to the conception and design, acquisition of data, or analysis and interpretation of data; (b) drafting or revising the article for intellectual content; and (c) final approval of the published article.

Authors’ Disclosures of Potential Conflicts of Interest: No authors declared any potential conflicts of interest.

Role of Sponsor: The funding organizations played no role in the design of study, choice of enrolled patients, review and interpretation of data, or preparation or approval of manuscript.

References


Catherine Massart1,2,3*, Jean-Claude Souberbielle4

1 Unite´ Fonctionnelle d’Hormonologie
2 Unité Fonctionnelle d’Hormonologie
3 INSERM 0203 Centre d’Investigation Clinique
4 Laboratoire d’Explorations Fonctionnelles

CHU de Rennes
Chu de Pontchaillou
Univ de Rennes 1
Rennes, France
Rennes, France
Rennes, France
Paris, France

* Address correspondence to this author at: Unité Fonctionnelle d’Hormonologie CHU de Pontchaillou Rennes, France E-mail catherine.massart@chu-rennes.fr

Previously published online at DOI: 10.1373/clinchem.2008.122952