Comparing Routes of IgG Administration for Primary Immunodeficiency Disorders

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Introduction/Editorial

Among the many inherited disorders that affect the cells and proteins of the immune system and cause primary immunodeficiency disease (PIDD), the most common type is antibody deficiency. Comprising about 60 % of PIDD encountered in clinical practice, patients with antibody deficiency lack the ability to make functional immunoglobulin G (IgG). As such, they require lifelong IgG replacement therapy to prevent serious bacterial infections.

Currently, one of the key issues in treating PIDD with IgG replacement therapy is how to determine the best route of delivery for a given patient. Two main routes of delivery have emerged over the years due to their tolerability in chronic, ongoing therapy—intravenous immunoglobulin (IVIG) and subcutaneous immunoglobulin (SCIG). Determining which route is optimal for any given patient is part art and part science. The science involves being familiar with data regarding associations between IgG dose, IgG serum level, and clinical outcomes as well as data suggesting that some patients may require altered dosing regimens to achieve the biological effect of reduced infections. The art is more difficult to quantify but involves good communication between physician and patient to understand how such things as employment or school demands, family situation, and lifestyle choices may contribute to a preferred route of delivery.

The articles in this supplement are geared toward helping physicians wade through the issues involved in deciding on

the best route of IgG therapy for a given patient. The articles are based on presentations given at a CME symposium at the Clinical Immunology Society (CIS) Second Annual Meeting in Chicago in May 2011, at which immunology experts gathered to discuss the latest evidence and clinical experience on the delivery of IgG replacement therapy for patients with PIDDs. This supplement is sponsored by an educational grant from Baxter Healthcare Corporation.

In the first article, “Overview of Routes of IgG Administration,” Troy R. Torgerson, MD, PhD, provides a brief introduction on the evolution of the use of IgG to treat PIDD to help physicians better understand the issues and complexities involved in deciding which route of IgG administration may be best for a particular patient. The article traces the development of the different routes of administration, problems encountered along the way, and the emergence of both IVIG and SCIG as viable modes of delivery that allow healthcare providers and patients significant flexibility to develop treatment tailored to the needs of each individual patient [1, 2].

In “Why I Use Intravenous Immunoglobulin (IVIG),” Vincent R. Bonagura, MD, discusses situations in which IVIG may be the preferred route of administration, such as for acutely ill patients for whom rapid achievement of peak IgG levels is needed to prevent serious infections or in patients who cannot deliver self infusions. A key issue presented is the importance of accurately measuring the optimal dose of IgG necessary for each patient to avoid serious infections. Rather than using a particular IgG trough level as a measure of optimal IgG therapy for all patients, Dr Bonagura proposes the use of a “biological trough level” for each person that more accurately represents the amount of IgG required to remain healthy. Identification of each patient’s biological IgG trough level, and adjusting the IgG dose to maintain this individualized trough level, is critical

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to keeping the patient asymptomatic. Dr Bonagura supports this view with data that show altering IgG dose according to each patient's biological trough level is associated with reducing and preventing serious and recurrent infections [3–5]. As such, he emphasizes that the goal of IgG replacement therapy for patients with PIDD should be to reduce breakthrough infections and not to achieve a particular IgG trough level.

In the third article, “Why I Use Subcutaneous Immunoglobulin (SCIG),” Ralph S. Shapiro, MD, focuses on the use of SCIG in patients with PIDD and the indications when this mode of delivery may be preferred over IVIG. Advantages of SCIG over IVIG include situations in which patients do not want to rely on hospital- or home-based infusion settings, patients with poor venous access, patients who are not able to tolerate IVIG due to side effects, and patients who want more flexible dosing and ease of administration [6]. Other advantages include its lower adverse effects compared with IVIG and intramuscular immunoglobulin [7]. Dr Shapiro emphasizes the importance of addressing the particular needs of each patient when recommending SCIG or any other mode of delivery. This requires flexibility on the part of the physician to tailor treatment choices for each patient.

The final article, “Clinical Ambiguities—Ongoing Questions,” provides answers to a number of questions posed to the presenters during the symposium. The article attempts to provide some answers and clarification for clinical situations in which the choice of IVIG or SCIG may be unclear.

We hope that the issues raised and discussed in this supplement will help physicians and their patients as they

navigate the many issues related to the optimal treatment of PIDD.

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