ABSTRACT

Introduction: The Satisfaction with Iron Chelation Therapy (SICT) instrument was developed based on a literature review, in-depth patient and clinician interviews, and cognitive debriefing interviews. An, open-label, single arm, multicenter trial evaluating the efficacy and safety of deferasirox in patients diagnosed with transfusion-dependent iron overload, provided an opportunity to assess the psychometric measurement properties of the instrument.

Methods: Psychometric analyses were performed using data at baseline from 273 patients with a range of transfusion-dependent iron overload conditions who were participating in a multinational study. Responsiveness was further evaluated for all patients who also had subsequent satisfaction domain scores collected at week 4.

Results: Baseline SICT domain scores had acceptable floor and ceiling effects and internal consistency reliability (Cronbach’s alpha: 0.75-0.85). Item discriminant and item convergent validity were both excellent although one item in each analysis did not meet the specified criterion. Small to moderate correlations were observed between SICT and Short Form 36 Health Survey (SF-36) domain scores. Patients with the highest levels of serum ferritin at baseline (>3100 ng/mL) were the least satisfied about the Perceived Effectiveness of ICT and vice versa. Satisfaction improved in all patients, although there were no clear differences observed between groups of patients defined according to changes in serum ferritin levels from baseline to week 4 (stable, improved, or worsened).

Conclusions: The SICT domains are reliable and valid. Further testing using a more specific criterion (such as assessing patient global ratings of change in satisfaction domains that correspond to the SICT domains) could help to establish with greater confidence the responsiveness of the instrument.

Keywords: iron overload; satisfaction; instrument; oral iron chelation therapy
INTRODUCTION

Patients with transfusion-dependent iron overload conditions such as thalassemia, sickle cell disease (SCD), and myelodysplastic syndromes (MDS) require frequent blood transfusions. This can result in iron overload (also known as hemosiderosis or secondary hemochromatosis), accumulating primarily in the liver, spleen, numerous endocrine organs and the myocardium, causing tissue damage and fibrosis. Unfortunately, no physiological mechanism is able to naturally excrete iron excess from the body. Ultimately, without treatment, this may result in severe morbidity (such as cardiac complications) and even death. Thus, lifelong adherence to iron chelation therapy (ICT) is essential for the increased survival of patients.

Current iron chelation therapy options includes deferoxamine (DFO; Desferal®, Novartis Pharma Stein AG, Stein, Switzerland), a subcutaneous continuous infusion administered over 8 to 10 hours, three to five times a week and deferasirox (Exjade®, Novartis Pharma Stein AG), a once daily oral tablet. Although DFO is clinically effective at removing excess iron, the regimen is quite burdensome and can significantly affect patient’s health-related quality of life (HRQoL) as evaluated by physical, psychological (including emotional and cognitive) and social functioning domains. Furthermore, the administration method of DFO is associated with unwanted side effects that negatively impact on patients’ persistence and adherence to therapy. Side effects reported include local site reactions, neutropenia, hematological toxicity, shortness of breath, headaches and dizziness. Deferasirox is an effective alternative to DFO that has proven efficacy in reducing iron burden. Current data indicate that deferasirox exhibits good tolerability and potency in mobilizing tissue iron and promoting iron excretion.

To understand the potential impact of novel treatments for iron overload, it is important to assess the impact of ICT from the patients’ perspective. A literature review revealed no adequate measures available to quantify patient satisfaction with ICT. Consequently, a new Satisfaction with ICT (SICT) instrument was developed based on in-depth patient interviews (n=4), as well as cognitive debriefing interviews (patients: n=9; clinicians: n=3) designed to assess the face and content validity of the instrument. The internal consistency and item convergent/discriminant validity, concurrent validity and discriminant validity of this instrument were previously reported based on findings from a small-scale observational study (n=107). The purpose of the present study is to provide additional evidence demonstrating the clinical validity and responsiveness of the SICT using data from an open-label, single arm, multicenter trial. This study also provided an opportunity to reassess the previously reported psychometric properties of the SICT in a larger cohort of patients. Re-evaluation of these psychometric properties is expected to result in greater confidence that the SICT is a valid and reliable instrument, appropriate for assessing satisfaction with ICT. Additional information concerning the measurement properties of the SICT will also aid the interpretation of SICT data derived from future clinical trials.

METHODS

Study Design and Sample

This validation study was conducted as part of an open-label, single arm, multicenter...