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A multi-centre, multinational clinical study to investigate the safety and effectiveness of intravenous infusions of VIT-45 (Ferinject) in patients with iron deficiency anaemia (IDA) caused by chronic inflammatory bowel disease (IBD) in comparison with oral iron capsules

Submission date
15/05/2015

Recruitment status
No longer recruiting

Registration date
26/05/2015

Overall study status
Completed

Last Edited
14/07/2015

Condition category
Signs and Symptoms

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims

Iron deficiency remains the most common cause of anaemia (lower-than-normal number of red blood cells that carry oxygen). The World Health Organization (WHO) estimates 700 to 800 million people world-wide are suffering from iron deficiency anaemia (IDA). Therapy consists of the replacement of reduced iron stores in the body through the oral or intravenous (through the veins) administration of iron therapies and treatment of the underlying disease. The aim of treatment is to return both haemoglobin (Hb) and iron stores to target levels. IDA is a common complication in patients with inflammatory bowel disease (IBD) such as Crohn's disease or ulcerative colitis. IDA occurs in one third of patients with Crohn's disease or ulcerative colitis and has a significant impact on symptoms and quality of life (QoL). In this situation anaemia results from intestinal blood loss and resulting iron deficiency. Reduced iron absorption also contributes to anaemia in patients with Crohn's disease. Oral iron treatment is usually the first choice because it works well, is safe and is cost effective. Most patients with IDA can be treated with oral iron medicines. However, in patients with IBD, intestinal blood loss and/or poor absorption can prevent oral therapy from working as well as it should. Additionally, oral iron preparations are frequently associated with gastrointestinal side effects preventing patients from taking these medicines leading to a reduced effect of oral iron in these patients. Vifor (International) Inc. has developed a new type of intravenous iron called VIT-45. To be successful, treatment of IDA in patients with IBD should increase Hb levels quickly (especially during periods of heavy blood loss from the stomach or intestines and before operations). Reduced iron stores (measured by a chemical in the blood called ferritin) should be corrected, otherwise there is a risk that IDA will return. Oral iron therapy is the standard treatment for most patients with iron deficiency in IBD, but intravenous iron treatment is also used, for example, in situations when oral iron therapy is not tolerated due to side effects. In patients with more severe anaemia,

intravenous iron treatment is preferred by some physicians to ensure there is an adequate response to iron treatment. Iron given intravenously goes directly into the blood stream and is therefore taken up into blood cells for conversion into Hb more quickly than with oral iron. The aim of this study was to evaluate the safety and effectiveness of VIT-45, an intravenous iron preparation, as compared with oral iron capsules to treat anaemia caused by iron deficiency caused by a bowel disorder (IBD) resulting in the anaemia. The time-course of changes in iron and iron storage levels and the effect on red blood cells and haemoglobin were analysed over a 12 week period. This was done to see how VIT-45 compared with oral iron capsules in supplying sufficient iron to correct the anaemia and restore the body's iron stores.

Who can participate?
Adults (aged 18-80) diagnosed with IDA due to chronic IBD.

What does the study involve?
Participants are randomly allocated into one of two groups. Those in group 1 (experimental arm) are given intravenous VIT-45 once a week for 12 weeks. Those in group 2 (control arm) are given oral iron capsules for the same time period. Blood haemoglobin levels are assessed to see whether there is a change at the start of the study and then after 2, 4, 8 and 12 weeks into the study for all participants.

What are the possible benefits and risks of participating?
Not provided at time of registration

Where is the study run from?
A number of study centres in Poland, Belgium, Argentina, Mexico, Ukraine, Russian Federation, Austria and Bulgaria. The Central Scientific Institute of Gastroenterology, Moscow is the co-ordinating center.

When is the study starting and how long is it expected to run for?
December 2003 to October 2005.

Who is funding the study?
Vifor (International) Inc.

Who is the main contact?
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Contact information

Type(s)
Public

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Additional identifiers

Protocol serial number
VIT-IV-CL-008

Study information

Scientific Title
A multi-centre, randomised, controlled, phase iii study to investigate the safety and efficacy of intravenous infusions of VIT-45 in patients with iron deficiency anaemia secondary to chronic inflammatory bowel disease

Study objectives
1. Primary Objective: To evaluate the non-inferiority in efficacy in reducing iron deficiency anaemia (IDA) of infusions of VIT-45 compared to oral ferrous sulfate capsules in patients with IDA secondary to chronic inflammatory bowel disease (IBD).
2. Secondary Objectives:
2.1.To assess the safety of infusions of VIT-45 in patients with IDA secondary to chronic IBD.
2.2. To evaluate the Quality of Life (QoL) of patients with IDA secondary to chronic IBD treated with infusions versus oral ferrous sulfate capsule

Ethics approval required
Old ethics approval format

Ethics approval(s)
To be added

Study design
Multi-centre open-label randomised controlled, phase III study

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Iron deficiency anaemia secondary to chronic inflammatory bowel disease

Interventions
1. Patients in the experimental arm received VIT-45 as an infusion on Day 1, with subsequent infusions at weekly intervals up to a maximum of 1000 mg iron per dose. The doses were continued until the patient received the cumulative dose based on their individual requirement for iron. A maximum of three infusions were permitted in a single treatment cycle
2. Patients in the control arm of the study received ferrous sulfate capsules (100 mg iron), one to be taken BID for 12 weeks (total daily dose 200 mg iron)

Intervention Type
Drug

Phase
Phase III

Drug/device/biological/vaccine name(s)
1. VIT-45 (Ferinject; iron(III)-hydroxide 4(R)-(poly-(14)-O-α-D-glucopyranosyl)-oxy-2(R),3(S),5(R),6-tetrahydroxy-hexanoate) 2. Ferrous sulfate (Plastufer)

Primary outcome(s)
1. Efficacy was assessed through the change from baseline levels of hemoglobin (Hb) to Week 12.
2. The following variables were used to assess the safety of the drug:
2.1. Adverse Events (AEs) (including discontinuation of treatment due to AEs)
2.2. Vital signs
2.3. 12-lead electrocardiogram (ECG)
2.4. Physical examinations and clinical laboratory panels

Key secondary outcome(s))
1. Change from baseline levels of Hb at weeks 2, 4 and 8 and serum ferritin and transferrin saturation (TSAT) at weeks 2, 4, 8 and 12
2. Maximum increase in Hb, serum ferritin and TSAT
3. The number and proportion of patients who, at weeks 2, 4, 8 and 12, achieved: Hb levels of 135 to 180 g/L for males and 120 to 160 g/L for females
4. Serum ferritin levels of 100 to 800 µg/L
5. TSAT levels of 20 to 50%; the number and proportion of patients who had, at weeks 2, 4, 8 and 12, Hb levels >20 g/L higher than their baseline level, and whether the patient discontinued due to lack of response
6. SF-36v1 questionnaire - change from baseline to weeks 4, 8 and 12

Completion date
31/10/2005

Eligibility

Key inclusion criteria
1. Male and female, inpatient or outpatient, aged 18 to 80 years (inclusive).
2. Have IDA secondary to chronic IBD (Crohn’s disease or ulcerative colitis).
3. IDA defined as: - Hb ≤ 110 g/L and at least one of the following:
3.1. Serum transferrin saturation (TSAT) < 20%.
3.2. Serum ferritin < 100 µg/L
Hb concentration was defined for inclusion purposes as the mean of 2 qualifying values drawn on different days during the screening period. These 2 days were no more than 14 days an no less than 5 days before baseline. For eligibility, both values had to be ≤110 g/L or, if one of the two Hb values was greater than 110 g/L, the average of both Hb values had to be ≤110 g/L and the difference between the two samples was not >10 g/L. Patients who met all criteria, except the last condition were re-screened (i.e., two further Hb assessments on separate days). Also, patients who were previously screened and failed because of the Hb values being >100 g/L, were eligible for re-screening. (changed according to amendment 3, dated 13 October 2004).
4. Required treatment with at least 1000 mg total iron, based on individual assessment of iron

deficiency
5. Females of child-bearing potential that have had a negative urine pregnancy test at screening and practised an acceptable method of birth control during the study and for up to 1 month after the last dose of the study medication. Acceptable methods of birth control included:
5.1. Barrier methods (including male and female condoms)
5.2. Diaphragms (cervical caps) with intravaginal spermicide (including jellies, foams and suppositories)
5.3. Intra-uterine devices or hormonal contraceptives
6. Non child-bearing potential including:
6.1. Being surgically sterilised at least 6 months prior to the study
6.2. Postmenopausal with no menstrual bleeding for at least 2 years prior to the study
7. Fertile males that used adequate contraception during the study
8. Demonstrated the ability to understand the requirements of the study, provided written informed consent, abide by the study restrictions, and agreed to undergo the required assessments

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
80 years

Sex
All

Key exclusion criteria
1. Blood transfusion or oral or parenteral iron treatment within 30 days prior to enrolment, or anticipated need for a blood transfusion during the study
2. Erythropoietin (EPO) treatment within the 8 weeks prior to enrolment
3. Documented hypersensitivity to components of VIT-45
4. Other types of anaemia (especially haemolytic, macrocytic, hypoplastic, or sideroblastic anaemia).
5. Haemochromatosis or other iron-storage disorders
6. Untreated vitamin B12 or folic acid deficiency (deficiency defined as below the NR)
7. Allergy to acetylsalicylic acid
8. Treatment with an investigational drug within the 30 days prior to enrolment
9. History of addiction to drugs or chronic alcohol abuse
10. Immunosuppressive therapy causing myelosuppression, or need for surgery. For medications permitted see Section 9.4.8
11. Active severe infection or malignancy other than carcinoma in situ of the cervix and non-melanoma skin cancer
12. Active or chronic liver or kidney disease. Serum albumin <25 g/L or serum creatinine >20 mg/L

13. Significant cardiovascular disease, including myocardial infarction within 12 months prior to study inclusion, congestive heart failure NYHA (New York Heart Association) grade III or IV, or poorly controlled hypertension according to the judgement of the investigator
14. Positive for anti-HIV 1 and 2.
15. Positive for HbsAg, anti-HCV and evidence for active hepatitis, i.e., abnormal liver function test (LFT) results.
16. Pregnant women or nursing mothers.
17. Endocrinologic or metabolic disorders that are not controlled.
18. Prior use of VIT-45 or prior participation in other studies of VIT-45

Date of first enrolment
30/06/2004

Date of final enrolment
16/05/2005

Locations

Countries of recruitment
Argentina

Austria

Belgium

Bulgaria

Mexico

Poland

Russian Federation

Ukraine

Study participating centre
Central Scientific Institute of Gastroenterology (Co-ordinating Center)
86 Entuziastov sh.,
Moscow
Russian Federation
111123

Study participating centre
Hospital de Gastroenterologia "Dr Carlos Bonorino Udaondo",
Capital Federal
Argentina
-

Study participating centre
Universitätsklinik für Innere Medizin IV
Wien
Austria
-

Study participating centre
Imeldaziekenhuis
Bonheiden
Belgium
-

Study participating centre
Multi-Profile Hospital for Active Treatment "St. Ivan Rilski,
Sofia
Bulgaria
-

Study participating centre
Ins. Nacional de Cienicas Medicas y Nutricion
Tlalpan
Mexico
-

Study participating centre
Klinika Chorob Przewodu Pokarmowego
Lodz
Poland
-

Study participating centre
Medical Academy, 9, Dzerzhinsky str.,
Dnipropetrovsk
Ukraine
-

Sponsor information

Organisation
Vifor (International) Inc.

ROR
https://ror.org/0185z7g17

Funder(s)

Funder type
Industry

Funder Name
Vifor (International) Inc.

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes