Clinical Trial Protocol
Iranian Registry of Clinical Trials

12 Sep 2026

Clinical study of immunogenicity and safety of human papilloma virus vaccine (quadrivalent, reference product, produced by Biosun pharmed Co.) compared to Gardasil vaccine (quadrivalent, produced by Merck Co.) in healthy adults aged 15-35 years: A phase 3, randomized, double-blinded, parallel, active-controlled, non-inferiority clinical trial

Protocol summary

Study aim

Assessing immunogenicity and safety of human papilloma virus vaccine (quadrivalent, Biosun pharmed Co.) compared to gardasil vaccine (quadrivalent, Merck Co.) in healthy adults aged 15-35 years.

Design

Phase 3, randomized, double-blinded, parallel arms, active-controlled clinical trial on 450 healthy volunteers.

Settings and conduct

This double-blind (volunteers and outcome assessors) phase 3 trial will be conducted at Tehran hospital in Tehran. After random assignment to receive quadrivalent HPV vaccine (Biosun pharmed or Merck) on days 0, 60 and 180, participants will be followed up for immunogenicity and safety.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age 15-35 years, ability to understand the conduct process of the study and signing the informed consent, general health, not having infection in uterus or genital area, not having fever or acute infectious disease, not having a plan to inject other vaccines in the study period, not using vaginal products or sexual intercourse 48 hours before each visit, Seronegative for Anti HPV 6,11,16,18, Not pregnant, agreement to use contraception method for 7 months. Exclusion criteria: history of abnormal pap smear or biopsy, genital wart, history or HPV infection, prior HPV vaccination, history of any vaccine injection in the preceding 21 days, history of severe allergic reactions to vaccine, receiving immunoglobulins or blood products, chronic diseases, Immunodeficiency, thrombocytopenia or coagulation disorder, history of drug or alcohol abuse, intention for pregnancy in 7 months.

Intervention groups

Intervention group: intramuscular injection of 0.5ml of quadrivalent HPV vaccine (Biosun pharmed Co.) in days 0, 60 and 180. Control group: intramuscular injection of 0.5ml of quadrivalent HPV vaccine (Merck Co.) in days 0, 60 and 180.

Main outcome variables

Human papilloma virus type 6, 11, 16 and 18 antibody titer, GMT

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230508058114N1**
Registration date: **2023-05-17, 1402/02/27**
Registration timing: **prospective**

Last update: **2023-05-17, 1402/02/27**
Update count: **0**

Registration date

2023-05-17, 1402/02/27

Registrant information

Name
Mohammad Taqavian
Name of organization / entity
BioSun Pharmed
Country
Iran (Islamic Republic of)
Phone
+98 21 8821 9500
Email address
taqavian@biosunpharmed.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date
2023-06-05, 1402/03/15

Expected recruitment end date
2023-10-07, 1402/07/15

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Clinical study of immunogenicity and safety of human papilloma virus vaccine (quadrivalent, reference product, produced by Biosun pharmed Co.) compared to Gardasil vaccine (quadrivalent, produced by Merck Co.) in healthy adults aged 15-35 years: A phase 3, randomized, double-blinded, parallel, active-controlled, non-inferiority clinical trial

Public title
Clinical study of immunogenicity and safety of human papilloma virus vaccine (quadrivalent, produced by Biosun pharmed Co.) compared to Gardasil vaccine (quadrivalent, produced by Merck Co.) in healthy adults aged 15-35 years

Purpose
Prevention

Inclusion/Exclusion criteria

Inclusion criteria:
Age 15-35 years, Both genders The volunteer and/or their guardian have the ability to understand the conduct process of the study and the willingness to attend visits, injections, and other processes in the protocol. The volunteer and/or their guardian have the ability to fully understand the contents of the informed consent form and sign it before entering the study. General health confirmed by medical history and physical examination by physician. Not having infection and inflammation in uterus or genital area based on physician examination. Not having fever (Temperature >37.5 C) or an acute infectious disease in the last 24 hours before injection Not having a plan to inject other vaccines in the study period (meningococcus, hepatitis B, Inactive influenza, Covid-19 and dT containing vaccines are allowed until 8 days before HPV vaccine) Not using vaginal products or having sexual intercourse 48 hours before each visit Using Contraception method (other than emergency pills) in case of sexual intercourse in two weeks before study entry Seronegative for Anti HPV 6,11,16,18 Not being pregnant (Blood beta hCG) and agree to use contraception method for 7 months.

Exclusion criteria:
History of abnormal pap smear or biopsy Having or the history of having genital wart History or active HPV infection Prior HPV vaccination History of any vaccine injection in the last 21 days before study entry History of severe allergic reactions to vaccine which needs treatment. History of hypersensitivity to vaccine ingredients Receiving immunoglobulins or blood products in the six months prior to study entry or having a plan to use them in the seven months following study entry. Chronic diseases such as liver, renal, uncontrolled hypertension, diabetes mellites type 1 or 2, gestational diabetes, chronic pulmonary diseases, heart failure, thyroid diseases, neurologic diseases and malignancies Immunodeficiency or immune related disorders Thrombocytopenia or any coagulation disorder with contraindication for IM injection History of drug or alcohol abuse in the 12 months prior to study entry. Severe psychiatric diseases affecting the study participatin Intention for pregnancy in the following 7 months Concurrent participation in other studies Any other conditions that make the volunteer unsuitable for the study (Investigator opinion) For second and third injection: Severe adverse events related to the previous injections

Age
From **15 years** old to **35 years** old

Gender
Both

Phase
3

Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **450**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization will be stratified block randomization, with stratification based on sex. Two strata will be defined, and within each stratum, permuted block randomization will be performed. Permuted randomized blocks with a size of four and a ratio of 1:1 will be created.

Blinding (investigator's opinion)
Double blinded

Blinding description
Due to the different shapes of the vials, the preparation and filling of syringes takes place in a different location than the injection site. The nurse responsible for preparing the vaccines uses identical syringes for all vaccine groups and delivers them to the injection nurse, who is unaware of the vaccine group being administered to the patient. The nurse who evaluates adverse events after vaccination is also blinded to the intervention group.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
National research ethics committee
Street address
13th floor, Block A, Ministry of health, Simaye Iran street, Shahrake ghods(qarb)
City
Tehran
Province
Tehran
Postal code
1417993337
Approval date
2023-05-06, 1402/02/16
Ethics committee reference number
IR.NREC.1402.001

Health conditions studied

1

Description of health condition studied
Cervical cancer
ICD-10 code
C53
ICD-10 code description
Malignant neoplasm of cervix uteri

Primary outcomes

1

Description
Human papilloma virus type 16 antibody titer, GMT
Timepoint
Seven months after first injection
Method of measurement
ELISA method

2

Description
Human papilloma virus type 18 antibody titer, GMT
Timepoint
Seven months after first injection
Method of measurement
ELISA method

3

Description
Human papilloma virus type 6 antibody titer, GMT
Timepoint
Seven months after first injection
Method of measurement
ELISA method

4

Description
Human papilloma virus type 11 antibody titer, GMT
Timepoint
Seven months after first injection
Method of measurement
ELISA method

Secondary outcomes

1

Description
Seroconversion in human papilloma virus antibody types 6, 11, 16 and 18
Timepoint
Days 60, 180 and 210 after first injection
Method of measurement
Four-fold increase in antibody titer

2

Description
Human papilloma virus type 16 antibody titer, GMT
Timepoint
Days 60 and 180 after first injection
Method of measurement
ELISA method

3

Description
Human papilloma virus type 18 antibody titer, GMT
Timepoint
Days 60 and 180 after first injection
Method of measurement
ELISA method

4

Description
Human papilloma virus type 6 antibody titer, GMT
Timepoint
Days 60 and 180 after first injection
Method of measurement
ELISA method

5

Description
Human papilloma virus type 11 antibody titer, GMT
Timepoint
Days 60 and 180 after first injection
Method of measurement
ELISA method

6

Description
Any solicited local or systemic acute or allergic adverse event
Timepoint

During the first 30 minutes after each vaccine injection

Method of measurement

Direct observation and reporting

7

Description

Any solicited local or systemic adverse event

Timepoint

During the first 7 days after each vaccine injection

Method of measurement

Direct observation and reporting

8

Description

Any unsolicited adverse events

Timepoint

During the first 30 days after each vaccine injection

Method of measurement

Direct observation and reporting

9

Description

Any serious adverse event

Timepoint

During the first 30 days after each vaccine injection

Method of measurement

Direct observation and reporting

Intervention groups

1

Description

Intervention group: intramuscular injection of 0.5ml of quadrivalent papilloma virus vaccine (Biosun pharmed Co.) in days 0, 60 and 180

Category

Prevention

2

Description

Control group: Intervention group: intramuscular injection of 0.5ml of quadrivalent gardasil vaccine (Merck Co.) in days 0, 60 and 180

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Tehran hospital

Full name of responsible person

Minoo Mohraz

Street address

Sanayi square, Hoseini St. Karimkhan st, 7-tir square

City

Tehran

Province

Tehran

Postal code

1585737311

Phone

+98 21 8882 1021

Email

minoomohraz@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Biosun pharmed pharmaceutical company

Full name of responsible person

Mohammad Taghavian

Street address

Unit 204, No 14- Golestan alley, Aghaalikhani st., South Sheikhbahaei Blvd.

City

Tehran

Province

Tehran

Postal code

1436935366

Phone

+98 21 8821 9500

Email

taqavian@biosunpharmed.com

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Biosun pharmed pharmaceutical company

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Other

Person responsible for general inquiries

Contact

Name of organization / entity

Biosun pharmed pharmaceutical Co.

Full name of responsible person

Hajar Mohamadi

Position

PhD. not academic staff

Latest degree

Ph.D.

Other areas of specialty/work
Microbiology

Street address
Biosun pharmed production site, Kermani st., Moalem st., Yaftabad.

City
Tehran

Province
Isfehan

Postal code
1111111111

Phone
+98 912 546 8094

Email
Ha.Mohammadi@Biosunpharmed.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Tehran University of Medical Sciences

Full name of responsible person
Minoo Mohraz

Position
Professor

Latest degree
Specialist

Other areas of specialty/work
Infectious diseases

Street address
Tehran Hospital, Sanayi square, Hoseini St. Karimkhan st, 7-tir square

City
Tehran

Province
Tehran

Postal code
1585737311

Phone
009888821021

Fax
+98 21 8884 6420

Email
minoomohraz@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
BioSun Pharmed

Full name of responsible person
Mohammad Taqavian

Position
Board Member and Managing Director

Latest degree
Ph.D.

Other areas of specialty/work
Medical Pharmacy

Street address
Unit 204, No 14, Golestani Alley, Agha-Alikhani st., Sheikh Bahaei Blvd

City
Tehran

Province
Tehran

Postal code
1436935366

Phone
+98 21 8821 9500

Fax
+98 21 8860 3354

Email
taqavian@biosunpharmed.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol
No - There is not a plan to make this available

Statistical Analysis Plan
No - There is not a plan to make this available

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
Yes - There is a plan to make this available

Analytic Code
No - There is not a plan to make this available

Data Dictionary
No - There is not a plan to make this available

Title and more details about the data/document
Participants' data will be available for regulatory and ethics committee to make decisions.

When the data will become available and for how long
Documents including study protocol and the results will be available to the public after the study ends.

To whom data/document is available
The regulatory body and the ethics committee will have access to the study data. The monitoring team will have access to the study data during the conduct. DSMB will have access to the study data and results in predefined timelines and decides about the continuation of the study.

Under which criteria data/document could be used
With the permission of the sponsor and the approval of regulatory

From where data/document is obtainable
The study sponsor is responding to this request

What processes are involved for a request to access data/document
After contacting the principal investigator and obtaining permission from the sponsor

Comments