

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 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

AgeFrom **15 years** old to **35 years** old**Gender**

Both

Phase

3

Groups that have been masked

- Participant
- Outcome assessor

Sample sizeTarget 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

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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

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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

Isfahan

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Phone

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Email

Ha.Mohammadi@Biosunpharmed.com

Other areas of specialty/work

Medical Pharmacy

Street address

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Tehran

Postal code

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Phone

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Fax

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Email

taqavian@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

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Province

Tehran

Postal code

1585737311

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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.

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