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Safety and effectiveness of tocilizumab followed by cisplatin/docetaxel in advanced triple-negative breast cancer

Submission date
18/03/2025

Recruitment status
No longer recruiting

Registration date
19/03/2025

Overall study status
Completed

Last Edited
04/02/2026

Condition category
Cancer

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Triple-negative breast cancer (TNBC) is a particularly aggressive form of breast cancer that lacks the three common receptors (estrogen, progesterone, and HER2) that are targeted by many breast cancer treatments. This makes TNBC harder to treat and often leads to poorer outcomes. The study aims to explore a new treatment approach by combining tocilizumab, an anti-inflammatory drug, with standard chemotherapy (cisplatin and docetaxel) to improve treatment outcomes for patients with locally advanced TNBC.

Who can participate?
Women aged 18 to 65 years with histologically confirmed invasive ductal carcinoma of the breast, specifically the triple-negative subtype, are eligible to participate. Participants must have a clinical tumor size of at least 4 cm (T2-T4) and no evidence of metastatic disease. They should also have adequate hematologic, cardiac, hepatic, and renal function. Pregnant or lactating women, those with previous chemotherapy or radiotherapy for any malignancy, and those with certain serious medical conditions are excluded.

What does the study involve?
Participants will receive tocilizumab intravenously on day 1, followed by cisplatin and docetaxel on day 2, every 4 weeks for a total of 6 cycles. After completing the chemotherapy cycles, participants will undergo surgery to remove the tumor. Post-surgery, tocilizumab will be administered every 4 weeks for a total of 6 doses. The study will monitor the safety, tolerability, and efficacy of this treatment combination, focusing on the complete pathological response rate in both the breast and axilla.

What are the possible benefits and risks of participating?
Benefits:
Participants may experience improved treatment outcomes due to the novel combination of tocilizumab with chemotherapy. The study aims to achieve a higher rate of complete pathological response, potentially leading to better long-term survival rates.
Risks:

Common side effects of tocilizumab include infections, elevated liver enzymes, and increased cholesterol levels. Chemotherapy can cause side effects such as nausea, vomiting, hair loss, and fatigue. There may be risks associated with the surgery and the combination of treatments.

Where is the study run from?
The King Faisal Specialist Hospital & Research Centre in Riyadh, Saudi Arabia

When is the study starting and how long is it expected to run for?
July 2018 to September 2022. The recruitment of patients is anticipated to take up to 18-24 months.

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
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Additional identifiers

Protocol serial number
SCTR 19111002 (Saudi Food and Drug Authority)

Study information

Scientific Title
Single arm phase I/II study of the safety, tolerability and efficacy of the tocilizumab followed by cisplatin/docetaxel in patients with triple negative locally advanced breast cancer

Acronym
TACTIC-TNBC

Study objectives
The inhibition of the IL-6 signaling pathway with tocilizumab, combined with chemotherapy (cisplatin/docetaxel) is expected to significantly improve the pathological complete response (pCR) in patients with triple-negative breast cancer (TNBC). This is because IL-6 inhibition could reduce inflammation and tumor growth, particularly in patients with BRCA1/2 mutations and high levels of tumor-infiltrating lymphocytes (TILs), potentially resulting in greater treatment efficacy and acceptable tolerability.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 17/04/2019, Research Ethics Committee at King Faisal Specialist Hospital and Research Centre (Attakhassoussi Road, PO BOX 3354, MBC 03, Riyadh, 11211, Saudi Arabia; +966 11 464 7272; ORA@kfshrc.edu.sa), ref: IRB RAC# 2181-156

Primary study design
Interventional

Study design
Prospective dose-escalation open-label non-randomized single-arm phase I/II clinical study

Study type(s)
Efficacy, Safety, Treatment

Health condition(s) or problem(s) studied
Improvement of pathological complete response in patients with triple-negative breast cancer through IL-6 pathway inhibition and chemotherapy.

Interventions
This investigator-initiated, prospective, open-label, non-randomized single-arm phase I/II clinical trial will evaluate the neoadjuvant sequential administration of tocilizumab followed by cisplatin /docetaxel for locally advanced triple-negative breast cancer. The study will consist of two phases: a dose-escalation phase and an expansion phase. The dose-escalation phase will follow a traditional 3+3 design, starting with an initial dose of tocilizumab at 8 mg/kg IV on day 1, followed by cisplatin and docetaxel on day 2 of a 4-week cycle for a total of six cycles. The dose

of cisplatin and docetaxel will be escalated by 10 mg/m² IV in each cohort. The escalation will begin with three patients receiving the recommended starting dose of 50 mg/m² for both drugs. If no unacceptable toxicities are observed, the dose will be increased to 60 mg/m² for the next cohort of three patients. If tolerability remains acceptable, the dose will be further escalated to 70 mg/m² in another cohort of three patients. Following the dose-escalation phase, the expansion phase will enrol an additional 21 patients who will receive the most tolerated dose identified in the previous phase.

Intervention Type
Drug

Phase
Phase I/II

Drug/device/biological/vaccine name(s)
Tocilizumab and cisplatin/docetaxel

Primary outcome(s)
Pathological complete response (pCR), both in breast and axilla, measured via the clinical response with a physical examination using a caliper at each follow up before each treatment cycle; results will be defined as complete response, partial response, and progressive disease. Once the patients will undergo surgery, pCR will be defined as a complete absence of viable invasive tumor cells in the breast and axillary nodes, including surgical margins without ductal carcinoma in situ (ypT0/ypN0) according to NSABP B-18.21 RCB will be scored for all patients using Symmans criteria.

Key secondary outcome(s)
1. Overall clinical response rate, including complete and partial response rates, will be measured using the RECIST criteria at the end of neoadjuvant treatment
2. Safety of the treatment, will be assessed using the CTCAE criteria at regular intervals throughout treatment and follow-up
3. The proportion of patients undergoing breast-conserving surgery, will be determined based on surgical reports at the time of surgery
4. Disease-free survival rate (loco-regional and distant), will be measured using clinical and radiological assessment over the follow-up period

Completion date
17/09/2023

Eligibility

Key inclusion criteria
1. Histologically confirmed invasive ductal carcinoma of the breast, triple negative in subtype
2. Age 18- 65 years old
3. ECOG performance status ≤ 1
4. Clinical tumor size: ≥ 4 cm, T2-4
5. Clinical Nodal status: N0-3
6. No evidence of metastatic disease
7. Triple negative breast cancer (estrogen receptor (ER) negative, progesterone receptor (PR)

negative and Her2/neu negative)
8. Adequate hematologic, cardiac, hepatic and renal function
9. Written informed consent

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
65 Years

Sex
Female

Total final enrolment
30

Key exclusion criteria
1. Pregnant or lactating women
2. Male breast cancer
3. Women of childbearing potential unless surgically sterile or using adequate measures of contraception
4. Evidence of metastasis
5. Previous treatment with chemotherapy
6. Pervious radiotherapy or major surgery for any malignancy
7. Previous or concomitant malignancy of any type, except adequately treated basal cell carcinoma of the skin or in situ cervix cancer
8. Any of the following abnormal baseline hematological values: ANC < 1.0 x109/L, or platelets < 100.000 x 109/L
9. Any of the following abnormal laboratory tests: total serum bilirubin >1.25 xULN (upper limit of normal), AST, ALT or ALP >1.25 x ULN (upper limit of normal)
10. Other serious illness or medical condition including:
10.1. History of documented congestive heart failure, angina requiring antianginal medication, evidence of transmural infarction on ECG, poorly controlled hypertension (systolic > 180 mmHg or diastolic >100mmHg, however patients with hypertension who is well controlled on medication are eligible), clinically significant valvular heart disease, or high risk uncontrolled arrhythmias
10.2. Patients with a history of uncontrolled seizures, central nervous system disorders or psychiatric disability judged by the investigators to be clinically significant precluding informed consent or adversely affecting the compliance to study drugs
10.3. Serious uncontrolled infections (bacterial, viral or fungal) or poorly controlled diabetes mellitus

Date of first enrolment
17/07/2019

Date of final enrolment
12/09/2022

Locations

Countries of recruitment
Saudi Arabia

Study participating centre
King Faisal Specialist Hospital & Research Centre
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Sponsor information

Organisation
King Faisal Specialist Hospital & Research Centre

ROR
https://ror.org/05n0wgt02

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Taher Al-Tweigeri, ttwegieri@kfshrc.edu.sa

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		03/02/2026	04/02/2026	Yes	No