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Effect of ticagrelor versus clopidogrel plus aspirin in aging patients with unstable angina after elective percutaneous coronary intervention

Submission date
01/04/2021

Recruitment status
No longer recruiting

Registration date
07/04/2021

Overall study status
Completed

Last Edited
18/06/2021

Condition category
Circulatory System

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

Plain English summary of protocol

Background and study aims

The incidence of non-ST-elevation acute coronary syndrome (NSTE-ACS) is increasing year by year. At present, the most effective treatment for NSTE-ACS is percutaneous coronary intervention (PCI). However, due to various clinical conditions (such as diabetes and dyslipidemia) or complications related to coronary vascular disease (such as complex coronary artery disease and unstable plaques) the risk of ischemic events remains high after PCI. Antiplatelet aggregation therapy has become the focus of current treatment following PCI. For NSTE-ACS patients undergoing PCI postoperative antiplatelet therapy, the current guidelines recommend dual antiplatelet therapy (DAPT) for at least 12 months. However, NSTE-ACS ischemic or bleeding events after PCI are more frequent in elderly patients than in normal patients, and while dual antiplatelet therapy reduces the risk of ischemia, it also increases bleeding. Patients with unstable angina pectoris (UAP) fall into the ACS category but have a relatively low risk of ischemia compared to NSTEMI, so it is still difficult to optimize the post-PCI antiplatelet regimen of elderly UAP patients. The latest guidelines suggest that clopidogrel can be used instead of ticagrelor in patients with high bleeding risk or other contraindications. A number of studies have shown that in patients receiving DAPT, the value of stopping aspirin 3–6 months after stent implantation depends on a balance between ischemia and bleeding risk. If DAPT is discontinued 3 or 6 months after PCI, there is an increased risk of stent thrombosis and myocardial infarction. Although such short-term DAPT is associated with an increased risk of myocardial infarction (heart attack) and stent thrombosis (blood clotting) after PCI, long-term DAPT increases the risk of bleeding, thus offsetting its advantage for reducing recurrent ischemic events. Therefore, whether long- or short-term DAPT followed by aspirin or other treatments such as P2Y12 inhibitor monotherapy are used after PCI, the results are not completely satisfactory for elderly UAP patients.

In order to reduce the risk of bleeding while not increasing the incidence of ischemic events, a recent study proposed changing the duration of dual antiplatelet therapy without increasing the incidence of ischemic events. Ticagrelor may increase the risk of bleeding in elderly NSTE-ACS patients, but is more effective than clopidogrel in reducing ischemic events. However, the above

study is aimed at patients with high ischemic risk. The antiplatelet regimen of elderly UAP patients who have both low ischemic risk and high bleeding risk is unclear. Therefore, the aim of this study is to compare bleeding events and the incidence of major adverse cardiovascular and cerebrovascular events (MACCE) between short-term (ticagrelor 90 mg bid (twice daily) + aspirin 100 mg qd (once daily)) and long-term (clopidogrel 75 mg qd + aspirin 100 mg qd) DAPT after elective PCI in elderly patients with UAP.

Who can participate?
Adults aged older than 65 years with unstable angina pectoris who successfully underwent a elective PCI operation with no complications during the perioperative period.

What does the study involve?
The patients successfully complete the PCI procedure, which is performed in accordance with current guidelines, during the period of hospitalization. Heparin is used during the procedure for an activated clotting time >250 seconds. If the procedure lasts more than an hour, an additional 2,000 IU of heparin is administered. Before admission, all patients are advised to take aspirin (300 mg) and clopidogrel (300 mg) / ticagrelor (180 mg) at least 2 hours before the PCI.
The patients are divided according to preprocedural antiplatelet therapy into two groups, a ticagrelor group and a clopidogrel group after PCI. In the ticagrelor group, patients are first treated with ticagrelor 90 mg bid and aspirin 100 mg qd for up to 3 months unless there is major bleeding or MACCE, then aspirin is discontinued during the remainder of the 12-month course of treatment. The clopidogrel group receive clopidogrel 75 mg qd and aspirin 100 mg qd for the entire 12 months. Patients who also present with hypertension, diabetes or other diseases continue to receive treatment.
At 1, 3 and 6 months after treatment, all patients are followed up by telephone, outpatient service and hospitalization. Laboratory examinations, electrocardiography, and coronary artery CT or angiography are performed at 12 months after the procedure.

What are the possible benefits and risks of participating?
There is no significant benefit to those involved in the study. They will have the opportunity to learn about research in this field. This information may ultimately be important in the long run to help develop more effective antiplatelet regimens, especially for elderly patients with unstable angina pectoris. Because being older is a high-risk factor for bleeding and ischemia, the current NSTE-ACS guidelines recommend aspirin combined with ticagrelor for 12 months after PCI. Nevertheless, UAP compared with the low risk of NSTEMI ischemia, all routine dual antiplatelet therapy may not benefit from reducing the risk of ischemia. Conversely, for elderly patients, long-term DAPT treatment may increase the risk of bleeding. This study, in order to compare two different antiplatelet regimens, provides valuable experience for the future treatment of elderly UAP patients after PCI. Elderly patients have a high relative risk of bleeding. The 2020 ESC guidelines point out that NSTE-ACS patients with high bleeding risk can be downgraded or reduced dual antiplatelet term, and the treatment options do not pose a risk to the subjects.

Where is the study run from?
Taicang Hospital affiliated to Suzhou University (Taicang First People's Hospital) (China)

When is the study starting and how long is t expected to run for?
February 2018 to March 2021

Who is funding the study?
Science and Technology Program of Taicang City (China)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
No.TC2018JCYL25

Study information

Scientific Title
To compare ticagrelor monotherapy following ticagrelor dual antiplatelet therapy (DAPT) (ticagrelor + aspirin) with clopidogrel DAPT (clopidogrel + aspirin) in elderly patients with unstable angina pectoris after elective percutaneous coronary intervention

Study objectives
Ticagrelor monotherapy reduces the risk of bleeding than clopidogrel dual antiplatelet therapy (DAPT) (clopidogrel + aspirin) in elderly patients with unstable angina pectoris (UAP) after elective percutaneous coronary intervention (PCI).

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 20/03/2018, Institutional Ethics Committee of Taicang First People's Hospital (The Affiliated Taicang Hospital of Suzhou University, No. 58 Changsheng Road, 215400 Taicang, China; +86 (0)512 53101356; tyykjk@163.com, tyybgs001@126.com), ref: TCKJJ-13/2018

Primary study design
Observational

Study design
Single-center observational cohort study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Unstable angina pectoris (UAP) after elective percutaneous coronary intervention (PCI)

Interventions
The patients are divided according to preprocedural antiplatelet therapy into two groups, a ticagrelor group and a clopidogrel group after PCI. In the ticagrelor group, patients are first treated with ticagrelor 90 mg bid and aspirin 100 mg qd for up to 3 months unless there is major bleeding or major adverse cardiovascular and cerebrovascular events (MACCE), then aspirin is discontinued during the remainder of the 12-month course of treatment. The clopidogrel group receive clopidogrel 75 mg qd and aspirin 100 mg qd for the entire 12 months. Patients who also present with hypertension, diabetes or other diseases continue to receive treatment.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Ticagrelor, aspirin, clopidogrel

Primary outcome(s)
Fatal bleeding events and MACCE: major bleeding defined as Bleeding Academic Research Consortium (BARC) type 3 to 5 bleeding, MACCE defined as an endpoint that could include cardiac death, non-fatal myocardial infarction, stroke, and target lesion revascularization (TLR) at 1 year after PCI

Key secondary outcome(s)
Incidence of bleeding defined as BARC ≥ grade 2 during 1 year after PCI

Completion date
01/03/2021

Eligibility

Key inclusion criteria
1. Elderly UAP patients admitted to the Department of Cardiology of Taicang Hospital affiliated to Suzhou University (Taicang First People's Hospital) from May 2018 to May 2020
2. Successfully underwent an elective PCI operation with no complications during the perioperative period
3. Patients informed and agreed to participate in the study before and after inclusion

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
196

Key exclusion criteria
1. Fatal or persistent bleeding diseases in the past 3 months
2. Severe liver and kidney insufficiency
3. New York Heart Association (NYHA) class III-IV heart failure
4. Patients who could not tolerate antiplatelet drug therapy
5. Patients who did not comply with the treatment regimen

Date of first enrolment
01/04/2018

Date of final enrolment
30/04/2020

Locations

Countries of recruitment
China

Study participating centre
Taicang City First People's Hospital
Changsheng nan Road 58
Taicang
China
215400

Sponsor information

Organisation
First People's Hospital of Taicang

Funder(s)

Funder type
Government

Funder Name
Science and Technology Program of Taicang City, China

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 Lu Shu (lu.shoo@hotmail.com).

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Basic results		06/05/2021	06/05/2021	No	No
Basic results		18/06/2021	18/06/2021	No	No
Protocol file			04/05/2021	No	No