PROPOSTA DI LAVORO SCIENTIFICO AL GIROC

Nome e Cognome Del *Principal Investigator* (P.I.): Vittoria Lodo
Affiliazione: AO Ordine Mauriziano di Torino
Telefono: 3475074912
E-mail: vittoria.lodo90@gmail.com
Età: 32
Socio SICCH In Regola:SI

Titolo dello studio: **Does prior percutaneous coronary revascularization negatively affect the outcomes of subsequent coronary artery bypass grafting?**

Tipo Di Studio:
1. Retrospettivo

Ho letto e approvo le regole di authorship del GIROC: SI

Sono consapevole che in caso di parere positivo del GIROC, mi occuperò personalmente dell'approvazione del C.E. presso il mio Centro: SI

Premessa con referenze:

The widespread use of PCI has resulted in an increasing number of patients who underwent previous PCI being referred for CABG. According to the STS 2018 Adult Cardiac Surgery Database, 28.9% of patients who underwent isolated CABG had prior histories of PCIs (1) and the number of patients with multiple prior PCI before CABG will be further increase in the future. Cumulating evidence, however, hypothesized that CABG after previous PCI might not achieve the same results as primary surgical revascularization. In their multicenter study, Massoudy and colleagues (2) found that history of PCI increased hospital mortality and MACE rate after subsequent CABG. Similar results were reported by Hakamada and collegues (3). The reasons for the adverse effects of prior PCIs on outcomes have not been clarified, but several possible influences of PCI have been considered. Presumably, the presence of a stent might activate local secondary inflammatory cascade causing microvascular thrombotic obstruction and distal microembolization with consequent myocardial damage (4). Furthermore, multiple prior PCI can cause side-branch obstruction, leading to compromised collateral blood flow and myocardial injury. In addition, the physical presence of the stent may induce more distal bypass grafting, compromising the results of the surgical procedure and the completeness of revascularization (5).

References:

1. O'Brien SM, Feng L, He X, Xian Y, Jacobs J, Badhwar V, et al. The Society of Thoracic Surgeons 2018 Adult Cardiac Surgery Risk Models: Part 2 – Statistical methods and results. *Ann Thorac Surg* 2018; 105: 1419 – 1428.
2. Massoudy P, Thielmann M, Lehmann N, et al. Impact of prior percutaneous coronary intervention on the outcome of coronary artery bypass surgery: a multicenter analysis. J Thorac Cardiovasc Surg 2009;137:840 –5.
3. Hakamada K, Sakaguchi G, Marui A, Arai Y, Nagasawa A, Tsumaru S, Hanyu M, Soga Y. Effect of Multiple Prior Percutaneous Coronary Interventions on Outcomes After Coronary Artery Bypass Grafting. Circ J. 2021 May 25;85(6):850-856. doi: 10.1253/circj.CJ-20-0421. Epub 2020 Dec 19. PMID: 33342917.
4. Lazar HL. Detrimental effects of coronary stenting on subsequent coronary artery bypass surgery: Is there another flag on the field? *J Thorac Cardiovasc Surg* 2009; 138: 276 – 277.
5. Thielmann M, Leyh R, Massoudy P, Neuhauser M, Aleksic I, Kamler M, et al. Prognostic significance of multiple previous percutaneous coronary interventions in patients undergoing elec- tive coronary artery bypass surgery. *Circulation* 2006; 114(Suppl I): I-441 – I-447.

Scopo Dello Studio:

We propose a retrospective multicenter study to investigate the impact of prior PCIs on short- and long-term outcomes after subsequent CABG.

Endpoint(s) Primari(o):

30-day mortality and early post operative outcomes

End-Points Secondari:

1-3-5-year follow up (any cause mortality, cardiac death, rate of major adverse cardiac and cerebrovascular events (MACCE), need for revascularization).

Tempi previsti di arruolamento (in mesi): 1 year

Cenni statistici:

- Retrospective multicenter study in Italian Centers recollecting data of patient treated in the last 5 years.
- Data were collected into a dedicated database.
- 3 study groups: no prior PCI, single prior PCI, multiple prior PCI.
- Exclusion criteria: previous cardiac surgery, need for concomitant surgical procedures, rescue PCI.
- Pre-operative patient characteristics will be collected including demographic data, comorbidities, surgical risk score (STS score and Euroscore II), pre PCI SYNTAX score (if available) and data about PCI such as number of previous PCI, number of target vessels, stent type (BMS/DES) and average time between PCI and CABG (more or less than 5 years)
- Intra-operative data will be required such as number of grafts, target vessels (with or without previous stenting), mean graft flow per patient, need for coronary endarterectomy, target vessel characteristics (including size, atherosclerosis degree, presence of stent driving the choice of the anastomosis site etc)
- Post operative outcomes and 1-3-5 years telephone follow up will be required.
- Differences between groups will be assessed using the Student's test for continuous variables and chi-square test or Fisher's exact test for categorical variables. Long-term survival will be assessed and reported using the Kaplan-Meier method.
- To minimize differences between the two groups a propensity score matching will be performed.

Punti di forza:
- large sample
- multicenter study

Eventuali limiti:
- Retrospective study

Fondi/Costi previsti: -

Eventuali sponsorizzazioni esterne (pubbliche o private): -

Eventuale numerosità del campione (se prospettico): -

Numero minimo di pazienti da arruolare per Centro per partecipare:
50 patients

Altri centri (oltre a quello proponente) che hanno giá dichiarato interesse nella partecipazione allo studio:

- AOU Città della Salute e della Scienza di Torino (Prof. Rinaldi)
- Ospedale Santa Croce e Carle di Cuneo (Dott. Roberto)
- Ospedale Santi Antonio e Biagio di Alessandria (Dott. Audo)
- Ospedale Maggiore della Carità di Novara (Dott. Casali)
- Ospedale San Giovanni Bosco di Torino (Dott. Attisani)