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CLINICAL RESEARCH

Is bilateral internal thoracic artery grafting a safe option for chronic dialysis patients?

Intérêt des pontages tout artériel avec les deux artères mammaires internes chez les patients dialysés chroniques

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Quality
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Summary

Background. – The use of bilateral internal thoracic artery (BITA) grafting has been proposed for dialysis patients with multivessel coronary artery disease, primarily because of hypothetical long-term survival benefits.

Aims. – To investigate the outcome of BITA grafting in dialysis patients.

Methods. – This was a retrospective analysis of the use of BITA grafting in 105 consecutive patients with end-stage renal failure on chronic dialysis in three European centres with extensive experience in BITA. Baseline patient characteristics, operative data, early postoperative complications and late survival were reviewed. Outcomes of patients from one of the three centres who underwent either BITA ($n=40$) or single internal thoracic artery (SITA) grafting ($n=19$) were also analysed; a one-to-one propensity score (PS)-matched analysis was performed.

Abbreviations: BITA, bilateral internal thoracic artery; CI, confidence interval; EuroSCORE II, European System for Cardiac Operative Risk Evaluation II; HR, hazard ratio; ITA, internal thoracic artery; OR, odds ratio; PS, propensity score; SITA, single internal thoracic artery.

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Results. – There were 19 (18.1%) hospital deaths. Despite differences in preoperative patient characteristics and surgical features, in each centre, hospital mortality was greater than the 75th percentile of expected operative risk (EuroSCORE II). Diseased ascending aorta and extracardiac arteriopathy were found to be predictors of hospital death (odds ratio 9.7; $P=0.006$) and complicated hospital course (odds ratio 2.54; $P=0.035$), respectively. The 7-year non-parametric estimates of freedom from all-cause death and cardiac or cerebrovascular death were 59% (95% confidence interval: 52.3–65.7%) and 75.6% (95% confidence interval: 71.2–80%), respectively. There were no significant differences in early and late outcomes between BITA and SITA PS-matched groups.

Conclusions. – BITA grafting remains a risky operation for chronic dialysis patients, even when performed routinely. No long-term survival benefits for the use of BITA versus SITA were proven.

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MOTS CLÉS

Greffons artériels ;
Pontage
aorto-coronaire ;
Dialyse

Résumé

Contexte. – L'utilisation de deux artères mammaires interne (BITA) a été proposée pour revasculariser les patients dialysés atteints d'une maladie coronarienne avec atteinte bi- ou tri-tronculaire, principalement en raison des avantages supposés de survie à long terme.

Objectifs. – Évaluer le résultat de l'utilisation des 2 artères mammaires internes chez les patients dialysés chronique.

Méthodes. – Étude rétrospective de l'utilisation des deux artères mammaire internes chez 105 patients consécutifs dialysés chronique dans trois centres européens ayant une importante expérience des BITA. Les caractéristiques de base des patients, les données peropératoires, les complications postopératoires et la survie ont été examinées. Les résultats des patients provenant de l'un des trois centres qui ont bénéficié soit d'un BITA ($n=40$), soit des pontages avec une seule artère mammaire interne (SITA) ($n=19$) ont également été analysés ; une analyse de score de propension (SP) a été effectuée.

Résultats. – Il y a eu 19 décès intrahospitaliers (18,1 %). Malgré les différences dans les caractéristiques préopératoires des patients et les différentes techniques chirurgicales utilisées dans chaque centre, la mortalité hospitalière était supérieure au 75^e percentile du risque opérationnel attendu (EuroSCORE II). La présence d'une aorte ascendante calcifiée et l'artériopathie périphérique étaient des prédicteurs de la mortalité hospitalière (Odds Ratio 9,7 ; $p=0,006$) et des complications postopératoire (Odds Ratio 2,54 ; $p=0,035$). Les estimations non paramétriques à 7 ans de l'absence de toutes causes de décès, et des décès cardiaques ou cérébrovasculaires étaient de 59 % (52,3–65,7 %) et de 75,6 % (71,2–80 %), respectivement. Il n'y avait pas de différence significative entre les résultats à court et à long termes entre les groupes BITA et SITA SP-appariés.

Conclusions. – L'utilisation de BITA reste une option risquée pour les patients atteints de dialyse chronique, même lorsqu'ils sont exécutés de façon routinière. Aucun bénéfice de survie à long terme pour l'utilisation de BITA par rapport à SITA n'a été prouvé.

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Background

The use of arterial grafts, primarily the internal thoracic artery (ITA), has been recommended for patients with end-stage renal failure on chronic dialysis [1–4]. At least on a speculative basis, higher long-term patency rates of arterial versus venous coronary grafts could give survival benefits to these patients with high early operative risk and poor late outcomes. To date, however, there is no clear evidence that the use of two or more arterial grafts might improve survival in dialysis patients, despite a number of authors having shown best outcomes, with respect to

the use of venous grafts alone, when an in situ ITA was adopted to bypass the left anterior descending coronary artery [1].

Over the past few years, several investigators have emphasized that the use of bilateral ITA (BITA) grafting for coronary revascularization may give survival benefits even in difficult subsets of patients, such as insulin-dependent patients with diabetes [5,6], octogenarians [7] and patients with severe renal impairment [3]. There are only a few reports on the use of BITA grafting in dialysis patients [2–4]. Consequently, any hypothetical benefit from BITA use remains a controversial issue.

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