

# Dual antiplatelet treatment in patients candidates for abdominal surgery



Ann. Ital. Chir., 2013 84: 291-294

Published online 29 October 2012

pii: S0003469X12020568

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## Dual antiplatelet treatment in patients candidates for abdominal surgery

*With the increasing diffusion of percutaneous interventions (PCI), surgeons are often faced with the problem of operating on patients under dual antiplatelet treatment. Replacing dual antiplatelet regimen with low molecular weight heparin may expose to the abrupt thrombosis of coronary stent and massive myocardial infarction. The purpose of this study was to test the hypothesis that abdominal operations can be safely performed under dual antiplatelet treatment. Eleven patients underwent 5 colectomies, 3 nefrectomies, 2 gastrectomies and 1 hysterectomy under aspirin and plavix without any significant perioperative hemorrhage.*

*These preliminary results show that abdominal operations can be safely performed under dual antiplatelet regimen.*

KEY WORDS: Abdominal surgery, Dual antiplatelet treatment

## Introduction

With the broad diffusion of coronary angiography and percutaneous intervention (PCI) with drug-eluting stents, for the treatment of coronary disease, an increasing number of patients is referred for the surgical treatment of an abdominal disease while under oral, dual antiplatelet regimen, usually consisting of 100 mg acetylsalicylic acid and 75 mg of clopidogrel per day. This regimen is essen-

tial during the time of endothelization of the coronary stent, about 6 months, in order to prevent acute stent thrombosis. It may happen that the indication of an abdominal operation arises when the interruption of antiplatelet regimen is not yet advised, and the treatment of the abdominal disease cannot be delayed for oncologic reasons. In this setting one possible strategy is to stop the antiplatelet drugs 7 – 10 days before the operation, replacing them with low-molecular weight heparin, but exposing the patient to the risk of stent thrombosis. The alternative is to perform the operation without stopping the antiplatelet regimen, with the risk of perioperative bleeding. Since a few years we began to systematically operate under dual antiplatelet treatment patients undergoing recent PCI, in particular clinical settings, without observing a rising need of reoperations for hemostasis<sup>1</sup>. Encouraged by these results, we extended this practice to patients candidate for different abdominal operations. The purpose of this study is to retrospectively evaluate the preliminary results of this treatment strategy.

*Pervenuto in Redazione Settembre 2012. Accettato per la pubblicazione Ottobre 2012*

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## Material and methods

From January 2005 to December 2011, 11 patients undergoing a recent PCI ( $\leq 6$  months) were admitted for the surgical treatment of abdominal neoplasms. Eight patients were men and 3 were women of a mean age of 73 years (range 55 – 78). All the patients were under medical treatment for arterial hypertension, 6 patients were former smokers and 5 were taking oral diabetic drugs. The patients assumed their dual antiplatelet treatment up to the evening before the operation. The neoplastic diseases consisted of 5 colonic cancers, 3 carcinomas of the kidney, 2 gastric cancers, and 1 cancer of the uterus. Operations consisted of 2 gastrectomies (1 total, 1 subtotal), 3 nephrectomies with lomboaortic lymphadenectomy, 5 colectomies (2 right, 1 left, 2 sigmoidectomies), and one hysterectomy. All the intestinal sutures were hand sewn and surgical sites were drained in a standard fashion. In the postoperative period the patients were put under low molecular weight heparine and, starting from the evening of operation, under 250 mg intravenous acetylsalicylic acid per day. Continuous ECG monitoring together with assessment of serum troponin T every 8 hours was performed for the first 72 hours. As soon as the patients could resume oral liquid

intake, intravenous salicilate and low molecular weight heparin were stopped and the dual antiplatelet treatment was resumed. The primary endpoint of the study were operative mortality and the occurrence of an abdominal bleeding requiring either reoperation, or multiple transfusions together with mandatory discontinuation of antiplatelet or anticoagulant treatment. As primary endpoint the occurrence of a postoperative myocardial ischemia was also considered. Myocardial ischemia was defined as any electrical modification suggestive of ischemia (ST-segment elevation or depression, T wave inversion, arrhythmias) coupled with an elevation of serum troponin level. Operative morbidity, defined as any postoperative complication other than the former ones, requiring either reoperation or prolonging the postoperative hospital stay of more than 12 days.

## Results

Operative mortality was nil, and no patient sustained either a postoperative abdominal bleeding or a myocardial ischemia. Two patients operated on of, respectively, total gastrectomy and left colectomy sustained a postoperative respiratory insufficiency which required a pro-

TABLE 1 - Baseline characteristics, risk factors and essential clinical data of the patients' population.

P.t #	Sex	Age	Disease	Diabetes	Former Smoker	HTA	Operation	Post-operative outcome
1	M	66	Gastric Cancer	NO	NO	YES	Gastrectomy (total)	Transient Respiratory Insufficiency Recover
2	F	73	Gastric Cancer	YES	YES	YES	Gastrectomy(subtotal) Nephrectomy+	Favourable
3	M	61	Kidney(L) Adenoc	NO	YES	YES	Lomboaortic Lymphectomy Nephrectomy+	Favourable
4	M	57	Kidney(R) Adenoc	YES	NO	YES	Lomboaortic Lymphectomy Nephrectomy+	Favourable
5	M	63	Kidney(L) Adenoc	NO	NO	YES	Lomboaortic Lymphectomy	Favourable
6	F	77	Colon(R) Adenoca	YES	YES	YES	Colectomy(right)	Transient Respiratory Insufficiency Recover
7	M	69	Colon(R) Adenoca	NO	NO	YES	Colectomy(right)	Favourable
8	M	55	Colon(L) Adenoca	NO	YES	YES	Colectomy (left)	Favourable
9	M	76	Colon(S) Adenoca	YES	YES	YES	Sigmoidectomy	Favourable
10	M	78	Colon(S) Adenoca	NO	NO	YES	Sigmoidectomy	Favourable
11	F	59	Uterus Carcinoma	NO	NO	YES	Hysterectomy	Favourable

longed stay in the intensive care unit, but eventually regressed. One patient presented a transitory rise of serum creatinine level > 150 mmol/l after a left nephrectomy, which could be managed with appropriate intravenous fluid administration. The essential clinical details of the patients' series are summarized in Table I.

## Discussion

The best perioperative medical management of surgical patients undergoing recent PCI with drug-eluting stents and currently under dual antiplatelet treatment, is a debated contemporary issue<sup>2-7</sup>. Beside the general consensus on Beta-blockers and statins<sup>8-10</sup>, the attitude concerning eventual replacement of the dual antiplatelet regimen is not univocal. The use of low-molecular weight heparins alone seems the most logical choice and the safest one for what concerns the risks of intra and post-operative bleeding. However, it is universally known that low molecular weight heparins are not as effective as antiplatelet agents in protecting recently deployed coronary stents, especially drug-eluting ones<sup>7</sup>. The discontinuation of antiplatelet treatment coupled with the hypercoagulable states enhanced by any major abdominal operation is a condition at high risk of acute stent thrombosis and massive myocardial infarction<sup>2,5,11,12</sup>. Maintaining the dual antiplatelet regimen during the whole perioperative period would probably be the ideal choice. In this case, however, concern exists on the possibly increased risks of hemorrhage in the perioperative period, given that the antiplatelet effect is usually prolonged for several days after discontinuation of the treatment<sup>13</sup>. The risk of perioperative bleeding may be particularly significant during intracavitary operations, such as major abdominal surgery. Nonetheless, recent reports, including our own initial experience on carotid artery revascularization under dual antiplatelet treatment, have shown that the risks of significant bleeding are actually fairly low, thus seem to encourage to perform even major operations under dual antiplatelet regimen, when its discontinuation is particularly hazardous<sup>1,7</sup>. The present report, although preliminary and limited to a very small number of patients, seems to support this assumption with extension to some of the most currently performed intraabdominal operations. One corollary of this statement is obviously that surgical technique needs to be very accurate, as well as intraoperative control of hemostasis. Concerning the technique, we prefer hand sewn anastomoses over mechanical ones whenever possible, when operating under antiplatelet regimen. The risk of prolonged bleeding between the metallic staples of mechanical sutures may actually be significant in this setting. The correct positioning of a suitable number of drains, in order to minimize the possibility of hematomas formation seems also wise. Finally, the reported strategy can be applied to only to not advanced abdominal neo-

plasms, resectable under standard conditions. Large, potentially bleeding tumors or infiltrating adjacent structures, as may be anticipated at preoperative patient's workup and CT-scan, are not fit for this strategy and should be managed differently. For this reason the decision of operating under dual antiplatelet regimen should be taken on an individual basis after a thorough evaluation of the patient's general condition and of all the technical aspects of the operation.

In conclusion the results of this study seem to show that, limited to a small and selected patients' population, performing intraabdominal operations under dual antiplatelet regimen is safe and does not expose to hazardous risks of major bleeding. Nonetheless, these preliminary results need to be confirmed by studies based on larger patients' series. Maintaining the dual antiplatelet regimen through the perioperative period should be indicated on an individual basis.

## Riassunto

Con l'aumento della diffusione del trattamento endovascolare percutaneo delle stenosi coronariche è sempre più frequente dover operare pazienti sotto doppia antiaggregazione piastrinica. La sostituzione di questa con eparine a basso peso molecolare espone al rischio di una trombosi acuta dello stent coronarico con un infarto miocardico massivo. Lo scopo di questo studio è quello di verificare se interventi di chirurgia addominale possano essere eseguiti con sicurezza senza interrompere la doppia antiaggregazione piastrinica. Undici pazienti sono stati sottoposti a 5 resezioni del colon, 3 nefrectomie, 2 gastrectomie, e una isterectomia sotto cardioaspirin e plavix, senza alcun sanguinamento perioperatorio significativo. Questi risultati preliminari sembrano mostrare che interventi di chirurgia addominale possono essere eseguiti con relativa sicurezza anche sotto doppia antiaggregazione piastrinica.

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