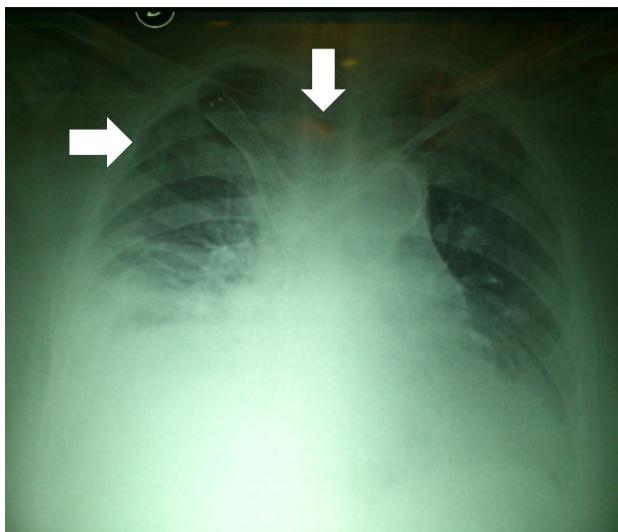


### Perforation of the innominate trunk with a hemodialysis catheter.

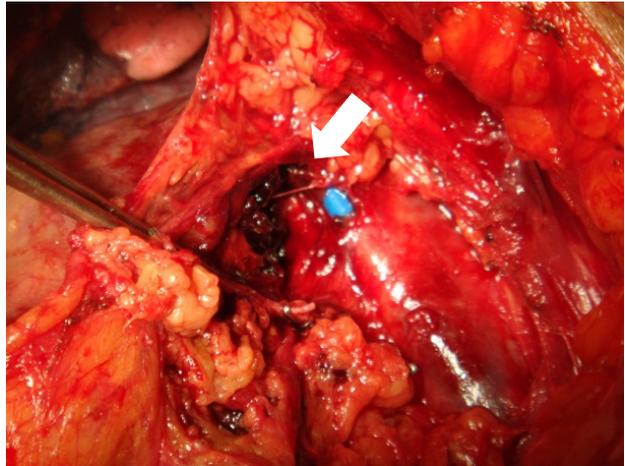
#### To the Director

A 55 year old female, in chronic hemodialysis, who after Cook catheter insertion through the left subclavian vein and subsequent attempt of dialysis had presented sudden chest pain and shock was admitted to our service. The chest X-ray revealed the rectilinear position of the catheter at the level of the innominate trunk (vertical arrow in the image) with its distal end making contact with the lateral surface of the superior vena cava, associated with right pleural effusion extending medially.



The same image showed the presence of a stent in the right subclavian vein (horizontal arrow), inserted previously to treat a subclavian vein stenosis. Also, a CT scan demonstrated a mediastinal hematoma with no pericardial effusion. Given the urgent clinical condition and presence of contralateral pleural effusion, traumatic perforation of the great mediastinal vessels was presumed, and surgical exploration was performed. The antero-superior mediastinum was approached via proximal minimal sternotomy, revealing the presence of an hematoma in front of the pericardium and right pleural blood effusion of approximately 2.000 ml. The dissection of the great venous vessels exposed the perforation of the innominate venous trunk from which the tip of the catheter protruded. After removing the catheter, placement of a prosthetic patch (watch the online video) repaired the defect with the patient's favorable outcome.

In the surgical image the catheter tip protruding from the innominate trunk is observed. (arrow)



The retrospective interpretation of the case report, based on the patient's previous history and a more detailed anamnesis, highlights the following points:

- The patient had a previously implanted stent in the right subclavian vein protruding into the superior vena cava
- According to the patient, the catheter implant was laborious and was at a point associated with precordial chest pain (probable perforation)
- Only during the attempt of initiating hemodialysis, the antegrade flow generated by the pump through the distal end of the catheter completed the perforation at the venous confluence, resulting in extravasation and shock

It is assumed that stent protrusion into the vena cava fixed the venous confluence and at the same time encumbered normal catheter positioning, which in its anomalous route resulted in the accidental perforation of the innominate trunk.

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### The association of antiplatelet aggregation effect of aspirin and platelet count. Possible dosage implications.

#### To the Director

The subject of Cohen Arazi et al.'s study, (1) though not new, is relevant to decide the treatment of patients submitted to coronary revascularization surgery as well as other cardiopulmonary interventions. The convenience of administering aspirin in divided doses has been suggested by various authors in different circumstances, (2-4) and although resistance to aspirin is controversial in clinical patients, (5) it is evident that as shown in this study, surgery induces platelet hyperactivity that would demand a different

therapeutic approach.

Despite its interesting findings, the present research has some important limitations. The number of patients is not the greatest limitation, as the significant differences among groups would indicate the need to modify the decision of administering a single daily dose of aspirin in the conditions described in this work.

I would briefly like to mention some methodological errors. First, it is necessary to identify the methods used in the different determinations. For example, the reason for preserving platelet-rich plasma (blood centrifuged at 160xg) is not clear, as its purpose is not explained. Sodium citrate concentration is not stated, nor its relationship with the withdrawn blood volume. Although the whole-blood impedance method is well known, it should be briefly described in Methods. The authors claim that the impedance method "used in this study is currently considered as the gold standard (reference 26)". The cited author does not mention that it was the gold standard at that moment nor is the method used in comparisons made by other authors in recent studies. (6)

Was platelet count performed with an optical microscope or a particle counter? If it was performed with a particle counter, which also provides platelet size, this data could be of interest when compared with platelet reactivity.

The method of IL-6 dosage is not described.

What are the force, impact and significance of normal subject determinations that might establish a serious deviation in a sample of only 50 patients divided into three groups? Platelet turnover is mentioned but not the methodology employed to assess it, and if this method were original, a detailed explanation as well as its validation would be essential.

It is not common to order surgery in patients under aspirin treatment, since its intake in the immediate preoperative period increases the risk of bleeding.

In conclusion, the results are interesting but cannot be validated due to serious methodological and design deficiencies.

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## REFERENCES

1. Cohen Arazi H, Carnevalini M, Falconi E, Ovejero R, Giorgi M, Caroli C y col. Relación entre el efecto antiagregante de la aspirina y el recuento plaquetario. Posibles implicaciones en la dosificación. *Rev Argent Cardiol* 2012;80:114-20.
2. Santos MT, Valles J, Lago A, Tembl J, Sánchez E, Moscardo A, et al. Residual platelet thromboxane A2 and prothrombotic effects of erythrocytes are important determinants of aspirin resistance in patients with vascular disease. *J Thromb Haemost* 2008;6:615-21.
3. Santos MT, Vallés J, Aznar J, Lago A, Sánchez E, Cosin J, et al. Aspirin therapy for inhibition of platelet reactivity in the presence of erythrocytes in patients with vascular disease. *J Lab Clin Med* 2006;147:220-7.
4. Grove EL, Hvas AM, Mortensen SB, Larsen SB, Kristensen SD. Effect of platelet turnover on whole blood platelet aggregation

in patients with coronary artery disease. *J Thromb Haemost* 2011;9:185-91.

5. Altman R, Luciarci HL, Muntaner J, Herrera RN. The antithrombotic profile of aspirin. Aspirin resistance, or simply failure? *Thromb J* 2004;2:1.

6. Breet NJ, van Werkum JW, Bouman HJ, Kelder JC, Ruven HJ, Bal ET, et al. Comparison of platelet function tests in predicting clinical outcome in patients undergoing coronary stent implantation. *JAMA* 2010;303:754-62.

## Author's response

First of all, we would like to thank Dr. Altman, who has a vast knowledge on this field for his interest in our article. As he refers, aspirin treatment (ASA) is of great importance during the perioperative period of myocardial revascularization surgery (MRS), since it increases the permeability ratio of aortocoronary bypass and reduces the risk of myocardial infarction. (1) Also, a 34% to 45% reduction in the relative risk (RR) of hospital mortality has been described among patients continuing ASA treatment during the week prior to surgery. (2, 3) On the other hand, although international guidelines prefer to discontinue ASA before scheduled MRS, Sun et al.'s meta-analysis demonstrates that the increase in bleeding risk in patients who continue ASA therapy 5 days before surgery, is apparently limited to those receiving 325 mg/day. (4) Moreover, we have recently submitted for publication in this Journal, a retrospective study in which no statistically significant differences were found in total bleeding volume during the first 2, 6 and 24 hours in 71 patients treated with ASA 100mg/day up to the moment of elective MRS with extracorporeal circulation (ECC), compared to 30 patients who discontinued treatment at least 5 days prior to surgery. Neither were there major requirements of hemoderivatives transfusions.

Therefore, and because studies comparing divided dose ASA treatments have used higher doses, (5) we decided to compare this type of dosage which inhibits platelet TXA2 production without affecting endothelial PGI2 production. With reference to platelet aggregation methods, there are numerous publications that underline absence of an ideal method, but point out that the one employed in our study is the most reliable of all the available methods.

With regard to the methodology used for sample analysis, only general aspects are mentioned due to limitations in the space for publication. However, they were performed by a high standard laboratory, and as indicated in the Material and Methods section, IL-6 levels were measured by ELISA.

Finally, the scarce number of patients included is a clear limitation since, considering that the group with a daily dose will present 28% ASA resistance, the necessary number to demonstrate 30% ASA resistance reduction with a power of 80% is 426 patients per group. It would be interesting to join important researchers as Dr. Altman, with the required knowledge and equipment, to perform larger

studies and hence obtain more definite conclusions.

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#### REFERENCES

1. Goldman S, Copeland J, Moritz T, Henderson W, Zadina K, Ovitt T, et al. Improvement in early saphenous vein graft patency after coronary artery bypass surgery with antiplatelet therapy. Results of a Veterans Administration Cooperative Study. *Circulation* 1988;77:1324-32.
2. Dacey L, Munoz J, Johnson E, Leavitt B, Maloney C, Morton J, et al. Effect of preoperative aspirin on mortality in coronary artery bypass grafting patients. *Ann Thorac Surg* 2000;70:1986-90.
3. Bybee K, Powell B, Valenti U, Rodales G, Kopecky S, Mullany Ch, et al. Preoperative aspirin therapy is associated with improved postoperative outcomes in patients undergoing coronary artery bypass grafting. *Circulation* 2005;112:286-92.
4. Sun JC, Whitlock R, Cheng J, Eikelboom JW, Thabane L, Crowther MA, et al. The effect of pre-operative aspirin on bleeding transfusion, myocardial infarction, and mortality in coronary artery bypass surgery: a systematic review of randomized and observational studies. *Eur Heart J* 2008;29:1057-71.
5. Zimmermann N, Gams E, Hohlfeld T. Aspirin in coronary artery bypass surgery: new aspects of an alternatives for an old antithrombotic agent. *Eur J Cardiothorac Surg* 2008;34:93-108.

### National Register of Hypertension. Awareness, Treatment and Control of Hypertension. The RENATA Study

#### To the Director

The data reported by the RENATA study (1) contribute to the epidemiological understanding of arterial hypertension (HT) in Argentina. As in all studies, we can differentiate strengths and weaknesses. The methodological design, including a wide age range and use of digital tensiometers (to print and reproduce registers) stands out as one of its strengths. On the other hand, although not specifically a weakness of this study but a limitation of population pressure evaluation, the individual HT diagnosis with measurements reported from a single episode may be considered imprecise, indicating the need of accomplishing further steps to obtain an accurate diagnosis. As a result, it would be of great interest to analyze the evolution of subjects with previously unknown HT in the RENATA study. As suggested by the authors, a follow-up survey applying the same methodology every 4-5 years will probably revalidate its epidemiological potential, already acknowledged by the excellent present population sample.

The prevalence of HT has increased from 25% in the REDIFA study to a third of the population in this study. Transporting the present analysis to the National 2010 Census, the increase in the number of new hypertensive subjects might reach 3 million in Argentina. Nevertheless, it is also surprising that approximately 50% middle age men are unaware of their hypertensive condition, taking into account that almost 80% of them have private or employment health insurance coverage (although this should be considered within the afore mentioned diagnostic

limitation of a single measurement in this type of registers). Social stratification, which may be acquired from the population's health assistance data (80% with complete secondary studies, 40% with tertiary or university level studies), might be considered a weakness, though it is an incentive to extend the samples to other more representative strata. It would also be interesting to know whether the difference in sex-related arterial pressure is maintained considering separately premenopausal women. Another call of attention refers to the number of hypertensive subjects less than 35 years old, which using a representative sample would yield more than one million persons of the total population.

Although the ratio of arterial pressure monitoring in hypertensive subjects is higher than before, it is far from optimal, making us contemplate the efficacy of current treatment strategies. In this regard, more than two thirds of the hypertensive population is in monotherapy treatment and only one fourth in combination therapy.

The RENATA study is a survey model developed with a first class pilot design, and its progress both in sample size and follow-up, may provide considerable help for the management of hypertension in our country.

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#### REFERENCES

1. Marin MJ, Fábregues G, Rodríguez PD, Díaz M, Paez O, Alfie J y col. Registro Nacional de Hipertensión Arterial. Conocimiento, tratamiento y control de la hipertensión arterial. Estudio RENATA. *Rev Argent Cardiol* 2012;80:121-9.

### Economic –financial crisis in Argentina: A new risk factor of cardiovascular mortality?

#### To the Director

I congratulate Dr Sosa Lipardi et al. for her original epidemiological and public health article. (1) It has been shown that infant mortality rates are not only associated to sanitary factors but also to the regional level of development. Sanitary Regions (SR) 1 and 2 from the south and southwest districts of Buenos Aires city hold greater mortality rates than northern and central RS 3 and 4. Thus, living in RS 1 and 2 represents a higher infant and adult mortality variable regardless of medical care and educational level. The behavior of biological variables across time, even in a descending slope curve, has a "seesaw" shape, with possible annual variations between peaks and valleys (+2/+4 to -2/-4 per thousand alive births). Variable performance is not linked to a crisis or loss of tendency, but to biological variations. In this setting, curve analysis during a 3 to 5 year period would be more significant to consider a tendency loss. The importance of Dr Sosa Lipardi et.al's study is supported by several circumstances: our country

has clearly entered into an epidemiological transition and as a result, transmissible diseases have deferred mortality leadership in favor of degenerative diseases. The prolongation of this work, using multivariate analyses, will finally prove whether the modifications in these tendencies are linked to economic crises or to other biological factors which alter the declining curve with a certain periodicity. The study also confirms and encourages work in non-traditional epidemiological topics because it impacts on life quality and survival of large populations similarly to physiopathological discoveries, new and efficient treatments and even vaccines. Regarding physiopathological discussions, we agree that endothelial dysfunction (ED) has established itself as an early and reversible mechanism responsible for cardiovascular events. We have published ED incidence (18%) in a population of 400 asymptomatic patients with moderate Framingham risk, without cardiovascular events and normal perfusion on exertion. Follow up of this population revealed significantly greater events and mortality. (2, 3)

The information provided by the authors is a call of attention to those with political, technical, financial and management responsibilities, as we understand that the speculation and decision making which generate greater social inequity have devastating effects on the population's health similar to wars, environmental catastrophes or large epidemics. Thus, as medical research has to comply with strict protocols, an economic decision should also follow protocols that guarantee health safety. Virchow pointed out that working in politics is working in health in a large scale.

**Dr. Néstor A. Pérez Baliño**<sup>MTSAC,FAFC</sup>

## REFERENCES

1. Sosa Liprandi MI, Racki M, Khoury M, Villarreal R, Cestari G, Mele E, Sosa Liprandi A. Crisis económico-financieras en la Argentina: ¿un nuevo factor de riesgo de mortalidad cardiovascular? *Rev Argent Cardiol* 2012;80;137-44.
2. Pérez Baliño N, Masoli O. *Epidemia cardiovascular - De la disfunción endotelial a la prevención primaria*. EUDEBA; 2005.
3. Pérez Baliño N, Grynberg L, Traverso S. Abnormal responses to sympathetic stimulation during myocardial perfusion SPECT imaging are associated with the risk of developing cardiovascular events: PARADIGMA Study. *JACC Imaging* (en prensa).

## Author's response

First of all, we thank Dr. Néstor Pérez Baliño for his comments, which enhance our publication.

With reference to economic-financial crises, it is worth mentioning that unemployment, with the loss of socio-economical status and social benefits, seems to trigger cardiovascular events in addition to life quality deterioration and mortality increase, thus interrupting the expected descending curve resulting from science and technological progress. Endothelial dysfunction, as mentioned by Dr. Pérez Baliño, appears to be the final endpoint, especially in the most exposed populations owing to risk factors and age. It is our purpose to further extend a topic which opens a new epidemiological perspective with respect to cardiovascular mortality. Our findings support the hypothesis of a possible causal relationship between this kind of mortality and periods of financial crisis. Therefore, in future studies we will continue working with a design that may confirm this association, using specific analyses for temporal series.

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