Switzerland reports "courant normal" in interventional cardiology, 30 years after inventing it

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In this issue, the Working Group of Interventional Cardiology of the Swiss Society of Cardiology reports about activities in interventional cardiology in the year 2007, 30 years after the world's first case of coronary angioplasty on September 16, 1977, at the University Hospital of Zurich (considered to be the starting point of interventional cardiology as a discipline).

The authors have to be congratulated on providing a succinct report regarding exciting, yet at the same time mundane activities. These activities are considered to be exciting because they turn severely handicapped patients and patients at life-threatening risk into normally functioning individuals within a matter of hours, but are also considered to be mundane because they have long become an integral part of daily medical life at all institutions that house a cardiology unit both in the country and around the world.

A nagging two-year delay has plagued these traditional annual reports from their initial one in 1989 [1] in spite of the introduction of the Internet, digital data analysis, and online publication production over the past 20 years. It has to be possible to publish such data no later than early in the year being reported on +2, preferably around the middle of the year being reported on +1. The Austrians lead the way. They, too, have not reached the goal of publishing data the subsequent year [2], however they do include on-site audits of the salient figures. This is not yet part of the Swiss reports. In fact, there is still even a black spot in the Swiss statistics, with the Lindenhof Spital in Bern providing no figures.

A dent in the ever growing number of catheter-based percutaneous coronary interventions (PCI) has reached Switzerland simultaneously, but to a lesser degree than the rest of the world. The factors for this are mentioned in the working group report. Randomised trials showing comparable results of conservative medical treatment in stable coronary artery disease to those of PCI have been published time and time again. The most prominent one (COURAGE trial) [3] was distributed and published that particular year. It blended in with the MASS-II trial [4], the PET trial [5], the FAME trial [6], and more recently the BARI-2D trial [7].

All these trials analyse groups of patients with stable coronary artery disease randomised to either invasive treatment or optimal medical therapy, but focus merely on hard clinical end points and the stability of the situation a few years after randomisation. Coronary artery disease is an uncontested killer. However, it kills insidiously and very slowly. While this is a blessing for people afflicted with it, it is a problem when it comes to assessing respective forms of treatment over a short period of time. The simple fact that a patient with a coronary artery lesion is alive and doing fairly well a few years after diagnosis, without having undergone revascularisation, proves nothing. A similar patient who is also alive and well at the same time of follow-up but has had his problem fixed must be better off. A time bomb with the trigger set late is still a ticking time bomb and is not proved innocuous merely by the fact that some time has passed without the bomb going off. Defusing or removing the time bomb upon detection makes perfect sense.

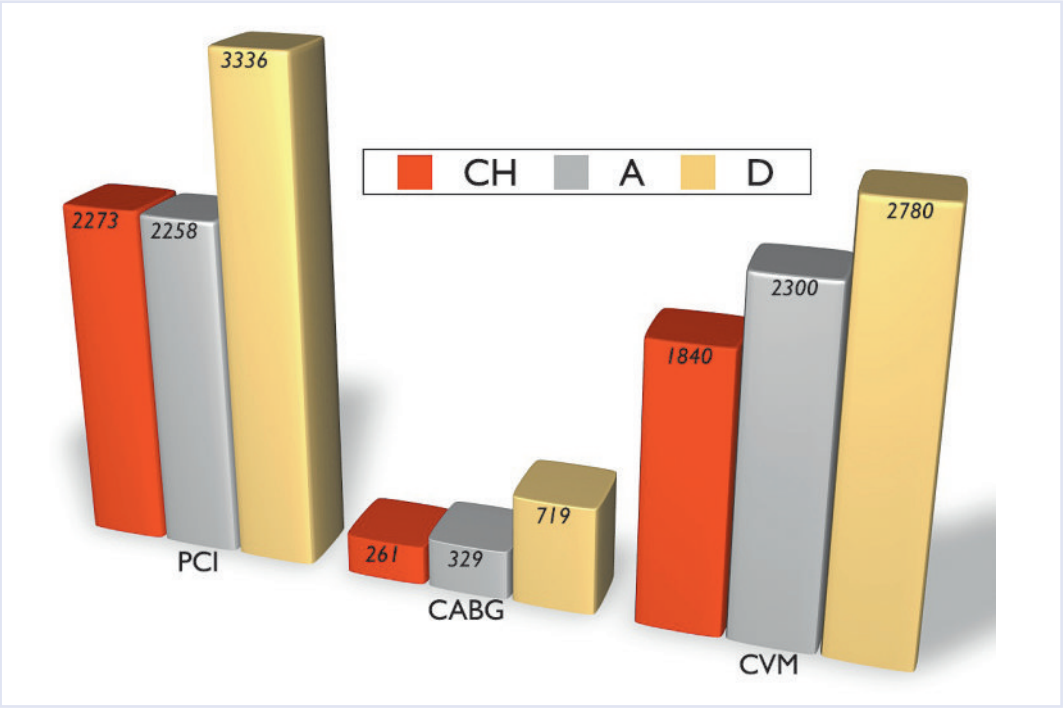
The SWISSI-II trial [8], a Swiss product like PCI, and a meta-analysis carried out by a Munich group [9] look at the 10-year follow-up of conservative treatment and PCI. They found that many time bombs left alone have gone off during that time and that PCI clearly prevails. But are we really surprised by this?

Another factor for the slowing down of PCI growth may be equally instrumental. In contrast to common belief, the steep increase in PCI numbers over the past 20 years stems much more from the early diagnosis of coronary artery disease (an increase in the number of invasive facilities) and expanding of indications to early disease and old patients), than from taking complex cases away from cardiac surgeons. Once the early invasive diagnosis of coronary artery disease has become commonplace within a country such as Switzerland, the PCI numbers level off as the occurrence of coronary artery disease is stable, if not decreasing.

Figure 1 shows that we may be subjecting the correct percentage of patients to coronary revascularisation or perhaps even still falling short of this percentage. It compares the annual numbers of PCI and coronary artery bypass grafting (CAGB) per million inhabitants in Switzerland, Austria, and Germany, against a back-

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Figure 1
Annual percutaneous coronary intervention (PCI), coronary artery bypass grafting (CABG), and cardiovascular mortality (CVM) in Switzerland (CH), Austria (A), and Germany (D) per million inhabitants [10].



ground of cardiovascular mortality [10]. Of course, there is no proof that a further increase in coronary revascularisation would enhance the Swiss lead in terms of low annual cardiovascular mortality.

If you think that the downturn in the percentage of drug-eluting stents (DES) per all stents is final, think again. The concerns about an overall disadvantage of DES because of a propensity to increased late thrombosis have all but evaporated. At least for the first five years, DES can confer an equivalent or improved clinical outcome with probably even improved longevity than bare metal stents, and this is the case across the board of indications. This occurs in addition to the considerable reduction in the number of soft endpoints, such as the need for repeat revascularisation [11–21]. Cost still plays a role, but the prices will come down and the funds will be budgeted to afford for employing ever-improving DES, rather than obsolete bare metal stents.

The number of patients suffering from mitral valve stenosis, the hitherto dominant catheter-based valve procedure, will dwindle further unless a new wave of immigrants from third-world countries arrive in the country. Percutaneous aortic valve replacement has already supplanted mitral balloon valvuloplasty in its respective leadership, and we have only seen the tip of the iceberg in this regard. In contrast to PCI, this interventional procedure began with the most difficult cases. Therefore, proceeding on to use this in less complex cases will be a piece of cake. The duration of procedures and the rate of complications that result from procedures that are carried out will improve from two ends, firstly because experience accumulates and secondly because younger, less sick patients will be less prone to problems associated with procedures.

The closure of the patent foramen ovale (PFO) may not emerge from its Cinderella role for many more years to come. The technique is the most mature and innocuous of all techniques used in interventional cardiology, but clinical proof of the concept suffers as a result of the very problem discussed with regard to PCI. Events in non-treated patients may not occur for years or even decades. As PFO closure is a purely preventative measure (apart from the inappropriately ridiculed benefit regarding headaches), there is no excuse to go ahead with the treatment, anyway, while waiting for the data; in contrast to PCI, a potent angina reliever.

We enjoy seeing Switzerland play a well-balanced, yet active role with regard to this country's most vital contribution to global medicine ever: interventional cardiology as we enjoy it today.

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