eComment. "Practice makes the master" Patrick Rothfuss - *The Name of the Wind*

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With great interest, we read the article by Smith *et al.*, summarizing all the existing publications pertaining to the outcomes of off-pump coronary surgery performed by residents in training [1]. It confronts the most significant questions related to the quality of off-pump surgery anastomosis and completeness of revascularization. Some surgeons suggest that this may lead to worsening of long-term results of less invasive coronary revascularization [2]. On the other hand, there is an agreement that off-pump surgery (in particular, the no-touch aorta technique) reduces the risk of neurological complications, and may be beneficial for high-risk patients [3]. This gives us a plausible rationale behind attempting to evolve this method, and to teach our residents more demanding beating heart surgery. So how to do it? In our belief, the basic premise lies neither in the experience nor in the talent of a single surgeon [4]. It is the collective experience of the entire surgical team comprising anaesthesiologists, nurses, and a readily available perfusionist that makes the difference. Surgical volume translates into outcomes; the off-pump procedure is a good example of this law [5]. Once this procedure is conducted on a daily basis in a high volume centre, it does not differ from any other operation and does not require any special attention. In centre where more than 90% of planned bypass surgeries are off-pump interventions, the whole team works together and residents garner skills gradually to learn this procedure simultaneously with all others. We strongly believe there is no other way; only practice renders a master. It is known, that the best manual skills and the most optimal hand-eye coordination are present in surgeons between ages 35 and 45 years. We encourage working with our trainees earlier, in order to assimilate him or her with this more difficult technique, allowing for prompt expertise. In our opinion, a resident who has performed approximately 20 on-pump coronary cases is a good candidate for starting off-pump training under supervision. Among the reviewed articles, none compare flows estimated in grafts performed off-pump (calculated, for example, with transit time flow measurement devices). Through our observations, residents are oftentimes able to achieve better flows than experienced surgeons; furthermore, the percentage of occluded grafts in their hands is negligible. To conclude, the learning curve to become an efficient off-pump surgeon certainly exists; however, if training is commenced earlier, one can anticipate a superior final result.

Conflict of interest: Authors work in a high volume off-pump coronary surgery center.

References

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