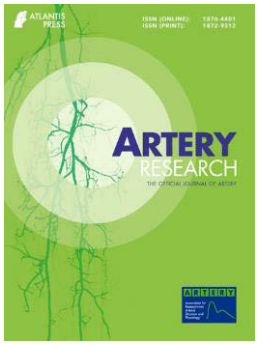

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

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To cite this article: H. Struijker-Boudier (2009) Michel Safar, the macro- and the microcirculation, Artery Research 3:2, 51–51, DOI: https://doi.org/10.1016/j.artres.2009.05.007

To link to this article: https://doi.org/10.1016/j.artres.2009.05.007

Published online: 21 December 2019

Michel Safar, the macro- and the microcirculation

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Available online 31 May 2009

30 Years ago two gentlemen from Paris visited the Cardiovascular Research Institute in Maastricht. They were interested in the ultrasound vessel wall tracking system that was being developed by Arnold Hoeks and Rob Reneman. They also visited Karl Heinz Rahn and myself. We were setting up a research program in the area of hypertension in Maastricht. The two gentlemen from Paris were Michel Safar and Bernard Lévy. Both were doing research at that time on arterial wall properties in hypertensive disease. The meeting in 1979 in Maastricht was the beginning of a long friendship and fruitful collaboration between the Paris and Maastricht cardiovascular researchers.

Michel Safar was exploring how the mechanical properties of large arteries affect blood pressure in hypertensive patients. At that time hypertension was believed to have its origins in the kidney, the brain or in the small resistance arteries and microcirculation. Large arteries were the domain of physiologists and biophysicists, but were of little significance for clinical cardiovascular scientists. At hypertension meetings large arteries were discussed by a small group of devotees. In the past 3 decades a radical shift in focus occurred: the 2009 meeting of the European Society of Hypertension has no less than 4 oral sessions devoted to large arteries, with only 2 on the kidney, 1 on small vessels and 1 on the brain. There is no doubt that Michel Safar is the key architect of this shift in focus. Many of his publications have become citation classics and have led the way in the research of his pupils and colleagues.

I spent a sabbatical year in Paris in 1991. During that year there was ample room for discussions with Michel Safar and Bernard Lévy. These discussions surprisingly often were about the micro- instead of the macrocirculation. Bernard Lévy even shifted his research program to the smallest vessels, their role in angiogenesis and tissue ischemia. A recent review the three of us co-authored with several colleagues summarizes some major developments in this field.[1] Michel Safar's attraction to the microcirculation stems from the important notion that the height of the pressure pulse in the arterial system is influenced by pulse reflection sites in the microcirculation. Although the exact sites of wave reflections still have to be determined, their role in the control of pulse pressure has been well established. Furthermore, the pressure pulse is transmitted much further into the small arteries than was believed previously. This makes the small arteries and microcirculation to be a primary site of target organ damage in hypertension. Michel Safar has developed his thoughts in this direction in several recent papers, including a review in Circulation.[2]

One sign of Michel Safar's gradual shift in focus has been the change in the title of the biannual Workshop he has organized in the past two decades in Paris. Originally, this workshop was entitled ''Structure and Function of Large Arteries'', whereas the last 2 editions were on ''Structure and Function of the Vascular System''. The proceedings of these workshops have always been published in ''Hypertension'' and have thus been a source of high-impact papers on the macro- as well as the microcirculation.

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doi: 10.1016/j.artres.2009.05.007

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