

Transradial Approach for Noncoronary Interventions: A Single-Center Review of Safety and Feasibility in the First 1,500 Cases

Raghuram Posham, MPA, Derek M. Biederman, MD, Rahul S. Patel, MD, Edward Kim, MD, Nora E. Tabori, MD, F. Scott Nowakowski, MD, Robert A. Lookstein, MD, and Aaron M. Fischman, MD

ABSTRACT

Purpose: To review safety and feasibility in a single center using transradial access (TRA) for noncoronary interventions.

Materials and Methods: Retrospective analysis was performed of 946 patients evaluated for 1,531 consecutive TRA procedures from April 2012 to July 2015. Exclusion criteria included sheath > 6 F, Barbeau D waveform, radial artery (RA) diameter < 2 mm on ultrasound, history of severe aortic tortuosity or RA occlusion, and dialysis. TRA was attempted in 936 patients (62% men; median age, 62.4 y) who underwent 1,512 consecutive procedures (chemoembolization [n = 485], yttrium-90 mapping [n = 391] and infusion [n = 293], renal/visceral intervention [n = 172], uterine artery embolization [n = 116], peripheral intervention [n = 43], endoleak repair [n = 10], and other [n = 2]). Patients were evaluated for complications during follow-up at ~30 days.

Results: Technical success was 98.2% (1,485/1,512). Major complications (0.13%) included pseudoaneurysm (n = 1) and seizure (n = 1). Minor complications (2.38%) included hematoma/bleeding (n = 13), RA occlusion (n = 11), arm pain (n = 6), and RA spasm (n = 6). Univariate analysis demonstrated a lower rate of adverse events in African American patients (hazard ratio [HR], 0.25; 95% confidence interval [CI], 0.07–0.86; $P = .027$). Twenty-seven cases (1.8%) required crossover to transfemoral access (TFA). Crossover rates were higher in female patients ($P = .0055$), height < 1.7 m ($P = .024$), renal/visceral interventions ($P = .0003$), and endoleak interventions ($P = .0357$). Multivariate analysis demonstrated intervention type to be the only significant predictor of TFA crossover (renal/visceral [HR, 4.48; 95% CI, 1.84–10.9; $P = .001$]; endoleak repair [HR, 9.54; 95% CI, 1.09–83.8; $P = .042$]).

Conclusions: TRA was safe and well tolerated in a heterogeneous patient population across a range of peripheral vascular interventions.

ABBREVIATIONS

RA = radial artery, RAO = radial artery occlusion, TFA = transfemoral access, TRA = transradial access

From the Department of Radiology, Icahn School of Medicine at Mount Sinai, 1 Gustave Levy Place, New York, NY 10029. Received August 12, 2015; final revision received October 13, 2015; accepted October 26, 2015. Address correspondence to A.M.F.; E-mail: aaron.fischman@mountsinai.org

R.S.P. is a consultant for Sirtex Medical Ltd (North Sydney, Australia) and Arstasis, Inc (Fremont, California). E.K. is a consultant for Koninklijke Philips Electronics NV (Amsterdam, Netherlands) and is on the advisory board for Onyx Pharmaceuticals (South San Francisco, California) and the speaker's bureau for BTG International Inc (West Conshohocken, Pennsylvania). R.A.L. is a consultant for Bayer AG (Leverkusen, Germany), Johnson & Johnson (New Brunswick, New Jersey), and Boston Scientific Corporation (Marlborough, Massachusetts). A.M.F. is a consultant for Surefire Medical, Inc (Westminster, Colorado) and Terumo Medical Corporation (Somerset, New Jersey) and is on the advisory board for Terumo Medical Corporation. None of the other authors have identified a conflict of interest.

© SIR, 2015

J Vasc Interv Radiol 2015; XX:■■■-■■■

<http://dx.doi.org/10.1016/j.jvir.2015.10.026>

Numerous prospective randomized trials have been published in the last decade examining the safety and feasibility of transradial access (TRA) as an alternative to transfemoral access (TFA). Published in 2012, the RIFLE study by Romagnoli et al (1) demonstrated a 60% decrease in access site-related bleeding for TRA compared with TFA (2.6% vs 6.8%, $P = .002$) and a 17.3% reduction in net adverse clinical events (13.6% vs 21%, $P = .003$) in > 1,000 patients undergoing percutaneous coronary intervention (PCI). Overall length of hospital stay was also found to be reduced in patients with TRA (5 d vs 6 d, $P = .008$). Similar reductions in overall access site-related complications were demonstrated in larger prospective studies, including the 2012 RIVAL study by Mehta et al (2) and most recently the

2015 MATRIX study by Valgimigli et al (3), which recommended that TRA should be the “default approach in patients with an acute coronary syndrome undergoing invasive management.”

Since 2007, interventions using TRA in the United Kingdom have grown 25% per year, accounting for > 65% of all PCIs in 2012 (4). In 2013, approximately one in every six PCIs in the United States was performed using TRA (5). TRA has also been found to be significantly more cost-effective (6) than TFA, and patient preference for TRA has been documented (7). Despite this shift in access site preference among interventional cardiologists, TFA remains the predominant access site choice for peripheral and visceral interventions. Literature examining the feasibility of TRA for noncoronary interventions is relatively sparse, although its safety and feasibility have been described for uterine artery embolization (8), renal artery intervention (9), and transarterial chemoembolization (10). In a 2003 study by Shiozawa et al (10), overall access site complications were found to be significantly less in TRA versus TFA in treating hepatocellular carcinoma via transarterial chemoembolization (4.5% vs 12.7%), while maintaining comparable therapeutic efficacy. To date, the study by Shiozawa et al (10) has been the only study formally comparing the two access sites in a noncoronary procedure. Given the published benefits of TRA during PCI, we sought to investigate the safety and feasibility of TRA for noncoronary vascular interventions.

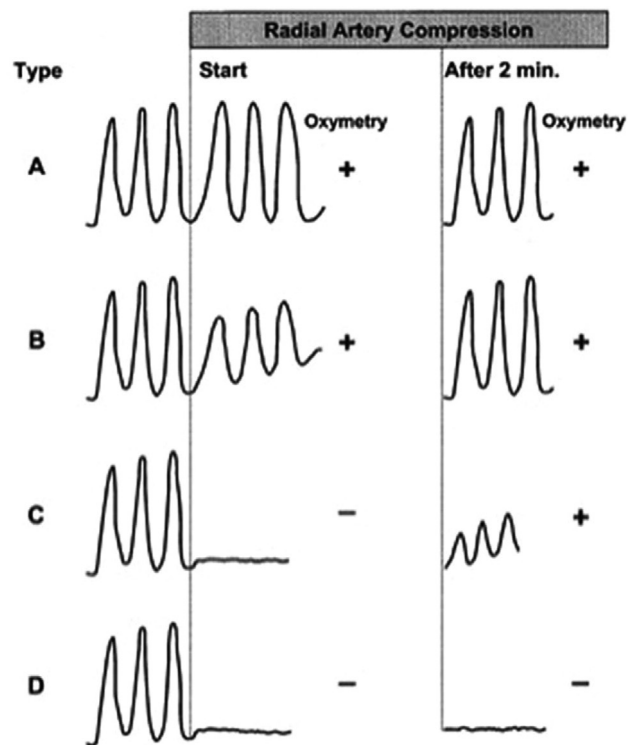
MATERIALS AND METHODS

Study Design and Exclusion Criteria

This single-center study was compliant with the Health Insurance Portability and Accountability Act and approved by the local institutional review board. A retrospective analysis was performed of 946 patients evaluated for 1,531 consecutive TRA procedures from April 2012 to July 2015. During this period, specific procedural data including sheath size, technical success, and complications were collected in a prospective manner for 1,512 consecutive TRA procedures in 936 patients who qualified for TRA.

Patients were initially given the option of TRA based on operator preference and experience with the TRA procedure type. Patients who consented to TRA were verified to have ulnar–palmar arch patency using a technique initially described by Barbeau et al (11). Patients displaying Barbeau waveform D (Fig 1), indicating inadequate ulnar–palmar arch patency, were excluded from TRA. Patients were also screened for additional TRA exclusion criteria, including sheath requirements > 6 F, radial artery (RA) diameter < 2 mm on ultrasound, prior history of severe vascular tortuosity or radial artery occlusion (RAO), or need for dialysis.

Patient demographic data, height, weight, and body mass index at the time of the procedure were obtained retrospectively searching the Epic electronic medical record system (Epic, Verona, Wisconsin) and the Mount Sinai Data Warehouse. Patient demographics and baseline characteristics before the procedure are presented in Tables 1 and 2.



Drawing representing the 4 types of ulnopalmar arch patency findings with PL and OX, as recorded with the finger clamp applied on the thumb.

Figure 1. Barbeau classification of pulse waveform responses to compression of the RA. (Reprinted with permission from Barbeau GR, Arsenault F, Dugas L, Simard S, Lariviere MM. Evaluation of the ulnopalmar arterial arches with pulse oximetry and plethysmography: comparison with the Allen’s test in 1010 patients. *Am Heart J* 2004; 147:489–493 [11].)

Table 1. Patient Demographics (n = 936)

Characteristic	Value
Age (y)	62.4 (52.6–70.2)
Sex	
Male	580 (62.0)
Female	356 (38.0)
Ethnicity	
White	346 (37.0)
African American	208 (22.2)
Hispanic	163 (17.4)
Asian	101 (10.8)
Other	118 (12.6)

Note—Values presented as number (%) and median (interquartile range) as appropriate.

Download English Version:

<https://daneshyari.com/en/article/6245697>

Download Persian Version:

<https://daneshyari.com/article/6245697>

[Daneshyari.com](https://daneshyari.com)