Primjena novih tehnologija za ostvarivanje boljeg kontakta s tkivom tijekom ablacije fibrilacije atrijske – iskustvo u korištenju intrakardijalnog ultrazvuka, upravljivih transseptalnih uvodnica i nove generacije ablacijskih katetera

Tools used during atrial fibrillation ablation to improve catheter-tissue contact – single center experience in using intracardiac echocardiography, steerable transseptal sheath and new generation ablation catheters

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KEYWORDS: atrial fibrillation ablation, intracardiac echocardiography, steerable transseptal sheaths, catheter tissue contact.

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UVOD: Uspjeh ablacije fibrilacije atrijske (FA) iz prvog pokušaja nije zadovoljavajući. Vjeruje se da je neadekvatan, preslab kontakt s tkivom glavna odrednica izostanka transmurálnosti lezije pa stoga i oporavka tkiva po ablaciji, što onda predstavlja substrat za povratak aritmije. Zbog toga su razvijene i u praksu uvedene nove tehnologije kojima je cilj poboljšati kontakt s tkivom tijekom ablacije u lijevoj atriji, kao što su intrakardijalni ultrazvuk (ICE), upravljive transseptalne uvodnice te konačno i kateteri s mogućnošću intraproceduralnog praćenja kontakta vrha ablacijskog katetera s tkivom.

PACIJENTI I METODE: Od studenoga 2009. do rujna 2014. godine smo napravili radiofrekventnu (RF) ablaciju FA u 143 pacijenta. U svih je ablacija bila monitorirana ICE-om. Od listopada 2011. smo u praksu uveli upravljive transseptalne uvodnice (Agilis, NxT, SJM) kako bi olakšali manipulaciju u lijevoj atriji te ostvarili bolji kontakt s tkivom. Konačno, u 2014. godini smo u praksi primijenili novu generaciju ablacijskih katetera s mogućnošću intraproceduralnog praćenja kontakta vrha ablacijskog katetera s tkivom (SmartTouch Thermocool, B&W).

REZULTATI: ICE je korišten u svih pacijenata kao pomoć kod transseptalne punkcije, no i za vizualnu procjenu kontakta s tkivom. Upotreba upravljivih transseptalnih uvodnica je rezultirala smanjenjem ukupnog trajanja procedure i korištenja fluoroskopije u usporedbi sa standardnim, neupravljivim uvodnicama (155±31 vs 181±37 min za ukupno vrijeme procedure te 27±13 vs 39±17 min za vrijeme fluoroskopije). Ukupno vrijeme procedure i vrijeme fluoroskopije je dodatno bilo reducirano korištenjem SmartTouch katetera (138±29 min za ukupno vrijeme procedure te 21±13 min za vrijeme fluoroskopije).

ZAKLJUČAK: Naša iskustva u primjeni novih tehnologija dizajniranih kako bi se poboljšao kontakt s tkivom lijeve atrije tijekom ablacije FA ukazuju na smanjenje ukupnog trajanja procedure te korištenja fluoroskopskog zračenja.

INTRODUCTION: Single procedure success rate for the atrial fibrillation (AF) ablation is still unsatisfactory. For the patients in whom pulmonary vein isolation (PVI) was attempted the dominant mechanism for the AF recurrence is the pulmonary vein (PV) reconnection due to a lack of transmural ablation of the radiofrequency lesions at some of the points at circumferential line around PVs. It is believed that inadequate catheter-tissue contact is major determinant of tissue recovery and thus PV reconnection. Therefore several tools were developed in order to improve the catheter-tissue contact such as use of intracardiac echocardiography (ICE), steerable transseptal sheaths and finally a new generation ablation catheters capable of measuring real time catheter tip contact with a tissue.

PATIENTS AND METHODS: From November 2009 till September 2014 we performed AF ablation in 143. In all patients ablation was monitored by intracardiac echocardiography. As of October 2011 steerable transseptal sheath (Agilis, NxT, SJM) was used to improve ablation catheter manipulation and obtain better contact. Finally in 2014 we introduced to our practice a new generation ablation catheters (SmartTouch Thermocool, B&W) capable of real time assessment of catheter tip contact with a tissue.

RESULTS: As noted above ICE was used in all patients, firstly to direct transseptal puncture and thereafter to visually assess the catheter-tissue contact. Steerable transseptal sheath usage resulted in decline in overall procedure and fluoroscopy time over the non-steerable sheath (155±31 vs 181±37 min and 27±13 vs 39±17 min respectively). Mean procedure and fluoroscopy time were additionally reduced with using SmartTouch catheter with 138±29 min for the procedure time and 21±13 min for the fluoroscopy time respectively.

CONCLUSION: Our experience in using new tools designed to improve catheter tip-tissue contact during AF ablation show that this technology cuts down the overall procedure and fluoroscopy time.

LITERATURE

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