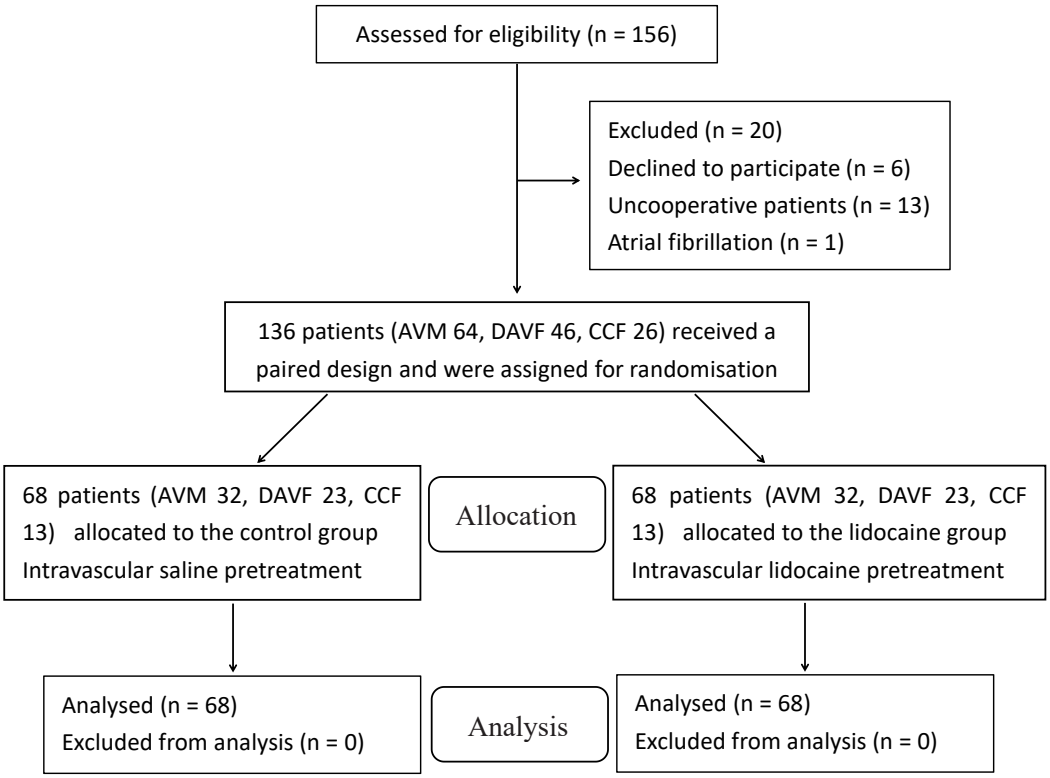


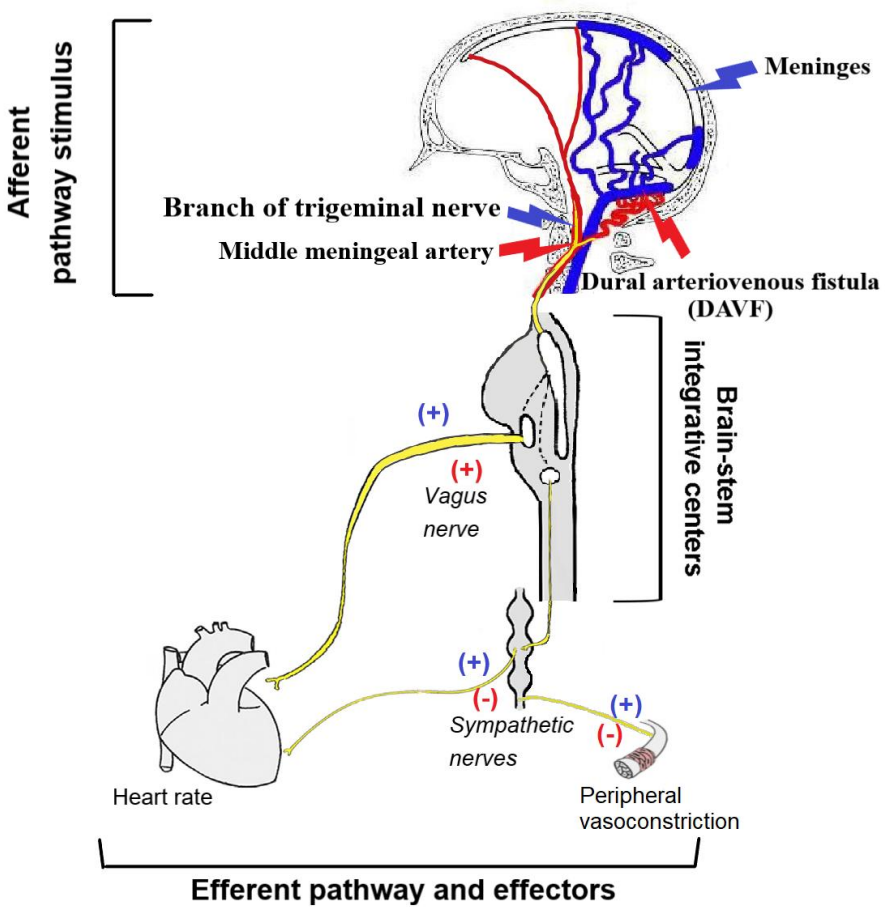
Supplementary Figure 1. Flow of participants through the study.

Supplementary Table 1. Description of the 12 cases who suffered TCR during embolization

Cases	Diagnosis	Comorbidity	Vessel of Embolization	HR	MAP	Treatment Approach	TCR Type
Case 1	DAVF	None	Middle meningeal artery	0	0	CPR	IV a
Case 2	CCF	Bradycardia	Cavernous sinus	0	0	Atropine	IV a
Case 3	DAVF	Hypertension	Middle meningeal artery	0	0	Atropine, CPR, Epinephrine	IV a
Case 4	DAVF	Diabetes	Middle meningeal artery	33	55	Atropine	IV a
Case 5	DAVF	None	Middle meningeal artery	31	51	Atropine	IV a
Case 6	DAVF	None	Middle meningeal artery	36	62	Atropine	IV a
Case 7	CCF	Bradycardia	Cavernous sinus	38	67	Atropine	IV a
Case 8	DAVF	None	Middle meningeal artery	42	105	N/A	IV b
Case 9	CCF	Hypertension	Cavernous sinus	41	121	N/A	IV b
Case 10	DAVF	None	Occipital artery	42	110	N/A	IV b
Case 11	DAVF	None	Vertebral artery branch	45	103	N/A	IV b
Case 12	DAVF	Hypertension, Diabetes	Middle meningeal artery	46	122	N/A	IV b

HR was the slowest with MAP recoded accordingly when TCR occurred during intra-arterial embolization. TCR type was defined according to the new classification scheme according to the onset of HR reduction [17]: IVa is defined when HR reduction appears early than MAP alteration and IVb type is classified if HR reduction follows MAP alteration.

N/A, not applicable.



Supplementary Figure 2. Schematic illustration of the autonomic neural pathway and effector activated as a consequence of trigeminal nerve stimulation trigged by meningeal vascular stimulus during DMSO/Onyx injection.

Endovascular embolization induced TCR is that signals triggered by central stimulation are sent to brainstem integrative centers including the sensory nucleus of the trigeminal nerve, the short internuncial nerve fibers in the reticular formation, and the efferent pathway in the motor nucleus of the vagus nerve and nucleus ambiguus. The fibers of the vagus or sympathetic nerves end in the myocardium and peripheral blood vessels, leading to autonomic changes that usually manifest as a negative chronotropy, or occasionally bradycardia with increased blood pressure. Patients with DAVF and the middle meningeal artery as a major supplying vessel to the lesion site are more likely to experience TCR with bradycardia and hypotension or hypertension.