Non-vitamin K oral anticoagulants in congenital heart disease patients with atrial arrhythmias

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Background

Adults with **congenital heart disease** (ACHD) are at an increased risk for **thromboembolic** events and **atrial arrhythmias** are common in this population. Non-vitamin K antagonist oral anticoagulants (NOACs) data on **efficacy and safety in ACHD** is unclear, particularly in complex CHD. The aim of the study was to **review use of NOACs** in various types of ACHD and assess its safety and efficacy.

Methods

Evaluation of ACHD patients (P) started on NOAC therapy from 2014 to 2020 for thromboprophylaxis of atrial arrhythmias. P were followed-up **for bleeding or thrombotic events and mortality**. CHA_2DS_2-VASc and HASBLED scores were calculated and risk factors for bleeding were identified.

Results

75 ACHD patients
Mean age 55 ± 15 years
57% male
37% with complex CHD

26.4% atrial septal defect	4.2% patent ductus arteriosus
20.7% tetralogy of Fallot	4.2% coarctation of aorta
9.7% Ebstein's anomaly	2.8% univentricular heart
9.7% ventricular septal defect	2.8% TGA
9.7% pulmonary stenosis	2.8% supra-aortic stenosis
5.6% AV septal defect	1.4% Uhl disease

40% rivaroxaban **21% apixaban**
23% edoxaban **16% dabigatran**

72% atrial fibrillation
12% atrial flutter
16% both

Mean CHA_2DS_2-VASc 2.5 ± 1.4
Mean HASBLED 0.6 ± 0.5

Mean follow-up **45 ± 21 months**
278 patient-years

Annual risk for bleeding of 2.2%/patient/year

There were **embolic events** in 1P (pulmonary embolism), albeit in the context of anticoagulation interruption. 4P (5.3%) suffered a **minor** and 2P (2.7%) suffered a **major bleeding**, a median time of **10 (IQR 21) months** after starting NOAC.

P with bleeding events showed no significant difference regarding **age** (59±17 vs 54±15 years, p=0.507), **gender** (9.3% female vs 6.3% male, p=0.630) or **CHD type** (p=0.773).

Renal disease was a strong risk factor for **bleeding** (HR 11.3 [1.2-107.7], p=0.036) and multivariate analysis showed that the **HASBLED** score was an independent predictor of **minor** (adjusted HR 3.57 [1.18-10.82], p=0.025) and **major** (adjusted HR 5.00 [1.19-21.10], p=0.028) **bleeding** complications.

CV mortality 3%
Allcause mortality 6.7%
No relation to thrombosis or bleeding events

Conclusion

NOACs are a **safe and effective** option for selected ACHD P, although **bleeding** complications were not negligible, particularly in P with renal disease.

TGA: Transposition of the great arteries