Antiarrhythmic use in obese individuals with atrial fibrillation: a narrative review and synthesis

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Background:

Atrial fibrillation (AF) and obesity affect ~37.6 and 650 million individuals globally, respectively. The altered pathophysiology in obese individuals may influence the volume of distribution and clearance of a drug and consequently the elimination half-life.

Objective:

To evaluate the literature on the impact of obesity on the pharmacokinetics (PK) of antiarrhythmics in people living with obesity and AF.

Method:

- Three databases (Medline, Embase, Scopus) were searched through to June 2023.
- Original research studies that addressed antiarrhythmic use in patients with AF and concomitant obesity were included.
- Correspondence, conference abstracts, review papers, letters to the editor/editorials, trial protocols, non-human studies and published in other than English were excluded.

Results:

Databases Searched

- Databases
  - Medline (n = 421)
  - Embase (n = 4,012)
  - Scopus (n = 1,866)
- Grey Literature (n = 164)

Screening

- Deduplicated records: n = 4,549
- Full-Text Review: n = 114
- Included Studies (n = 12)

Table 1: Characteristics of included studies

Study Design	Study Demographics		Drugs investigated			Outcome
Study Design: • Cohort (n = 8) • PK (n = 3) • Case Report (n = 1)	**Sample Size Range** • n = 1-371 **Sex** • Male (45-85%)	**BMI Range** • 23-66 kg/m^2 **Age Range** • 59-75 years	**Most common:** • Amiodarone • Dofetilide	**Others:** • Diltiazem • Digoxin • Flecainide • Disopyramide • Propafenone	• Dronedarone • Sotalol • Vernakalant • Ibutilide	Obesity may affect the PK of amiodarone and sodium channel blockers i.e., flecainide, disopyramide & propafenone

Discussion:

- Not all antiarrhythmics appear to be affected by obesity.
- Factors such as a drug's level of lipophilicity may influence the PK of the drug and the need for dose modification.
- However, this is based on dissimilar observational studies with respect to the average reported BMI and may also be subject to confounding factors such as concomitant medications/conditions, obesity class and route of administration.
- Further research is needed to confirm the clinical significance of these findings.