

I have financial relationships to disclose
Honoraria from: Companies producing antihypertensive agents
Research support from: EU

LESSONS from ALTITUDE

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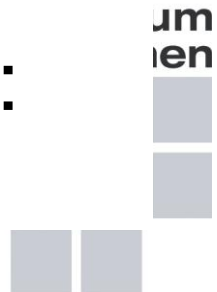
and

Population Health Research Institute

McMaster Univ., Hamilton, Canada

Strengths ALTITUDE

- **Clear description of population**
(diabetes with eGFR <60 or with macroalbuminuria)
- **Vital status** known in 97.5%
- **92% of expected outcomes** reached
- **Unequivocal results** (congratulations!):
Neutral effects on main outcomes



STROKE: Risk of aliskiren ? ... of dual renin system inhibition ? ... of BP↓ ?

	Alisk	Plac	HR	P
Stroke	146	118	1.25 (.98-1.6)	0.070
Cardiac arrest	18	8	2.28 (.99-5.3)	0.053
K \geq6.0 mmol/L	8.8%	5.6%		

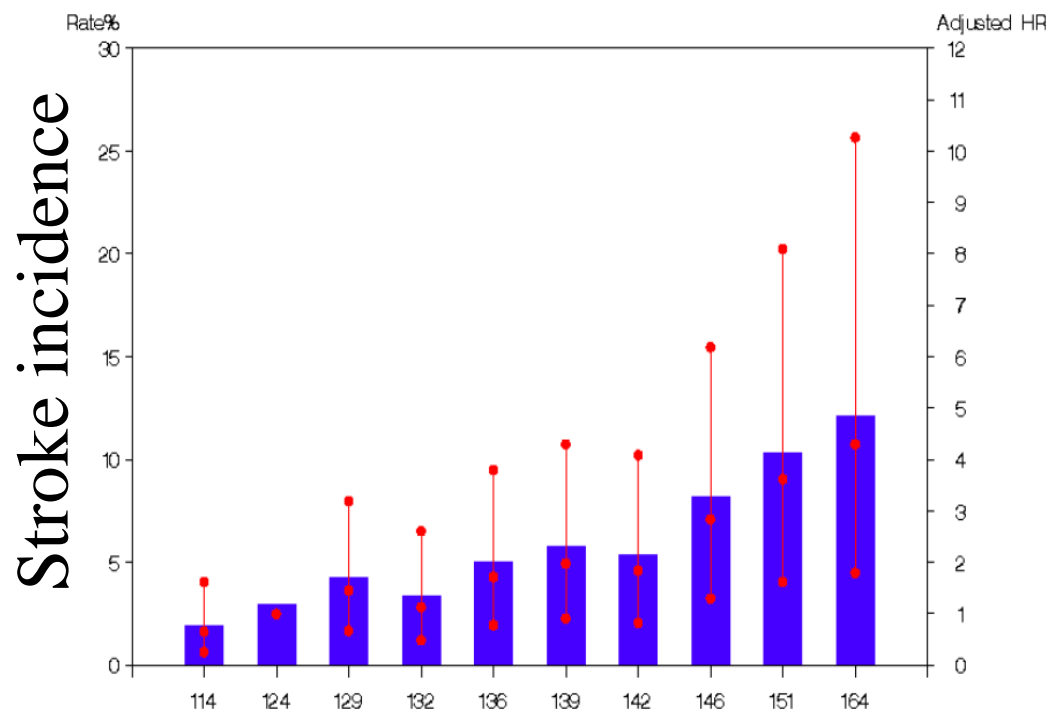


	ALTITUDE (N= 8561)	ONTARGET (N= 25620)
Population	Diabetes with renal disease	Vascular disease incl. diabetes
Therapy	Aliskiren 300 + any ACEi or ARB	Ramipril 10 + Telmisartan 80
CV outcome N =	1109	4221
Renal outcome N =	498	575
Stroke N =	264	613



BP and stroke outcomes in people with diabetic nephropathy in ONTARGET

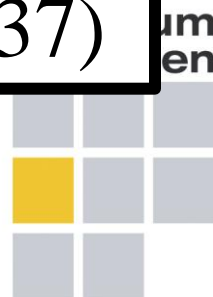
(N= 3163, N= 207 strokes)



Deciles of sBP on treatment

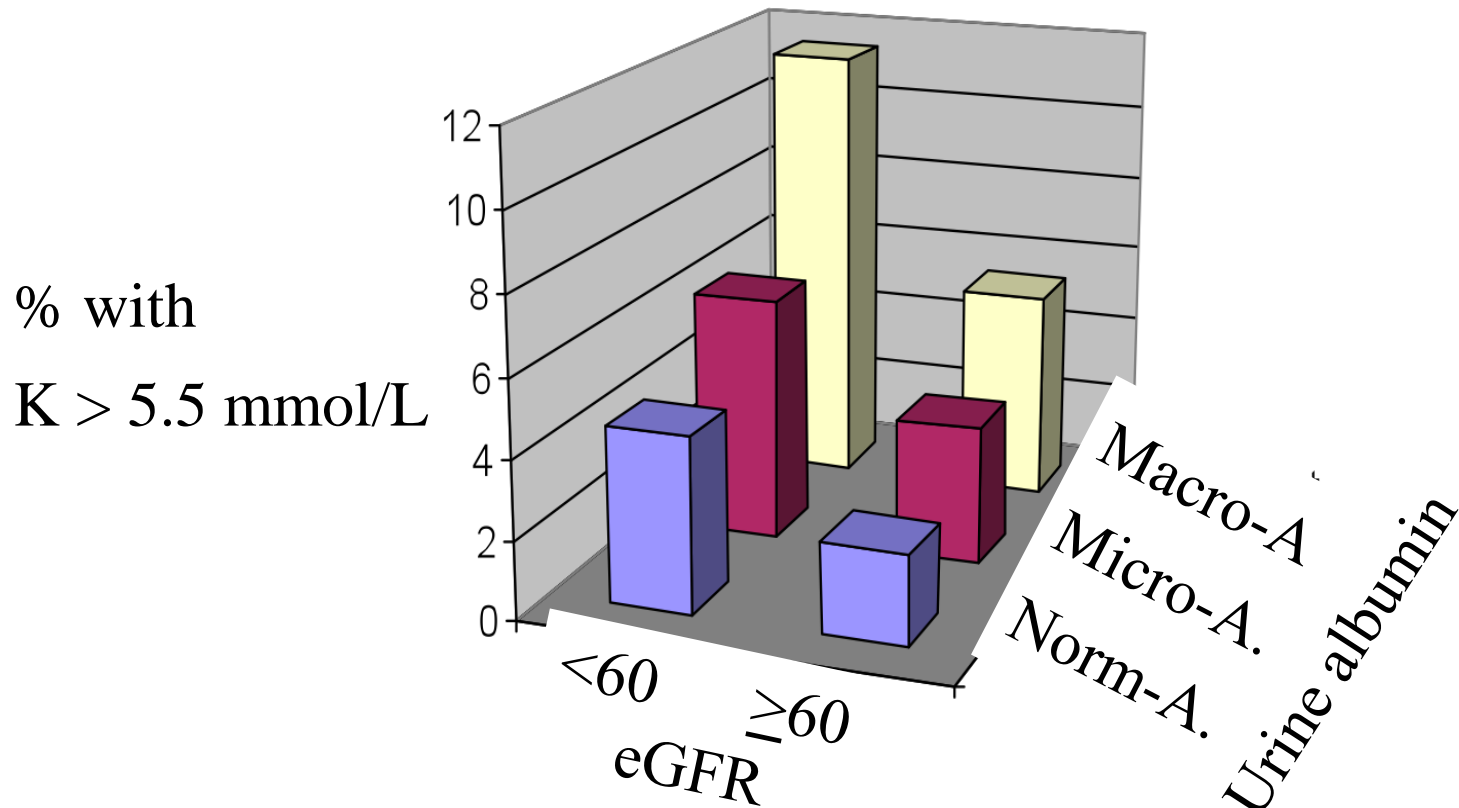
Stroke rate
(n/1000 py)

<u>Dual</u>	<u>Mono</u>	HR
<u>15.9</u>	<u>15.5</u>	<u>1.03</u>
(0.77-1.37)		



ONTARGET: Risk of hyperkalemia in subgroups at high renal risk

K >5.5 by eGFR and Urine Albumin Level



LESSONS from ALTITUDE

- **No dual inhibition of the renin system**
 - to lower BP
 - to prevent CV or kidney diseases
- **Stroke:**
 - specific risk of aliskiren or play of chance
 - ?? : clarifying study (APOLLO) stopped by sponsor
 - risk not explained by BP or dual inhibition

