Are gender disparities correlated with onset symptoms land use type among patients treated with r-tpa?

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Introduction

In France, in 2014, there were 140 000 hospitalizations for stroke, an increase of 13.7% since 2008. The RESUVal area is mainly rural. Literature has demonstated that stroke patients proportion treated with tissue plasminogen activator (r-tPA) is higher in urban than in rural hospitals. Literature has also revealed a different management by gender.

Does the land use type play a role in the management of treated patients according to gender ? Our study evaluates if a disparity in management and functional prognosis between thrombolyzed women and men depends on the onset symptoms land use type.

Methods

- RESUVal network :
  - funded by the French Regional Agency for Health (ARS)
  - aimed to federate emergency physicians and neurologists around guidelines to optimize quality of care and promote universal access to care whatever the onset symptom place
  - 40 emergency departments ; 6 stroke units, 1 CSC
  - all patients treated with r-tPA between 2010 and 2016
- Age-adjusted analyses and multivariate models were performed.
- Multivariate analysis, depending on the patient gender :
  - impact on mortality and disability at 3 months (mRS)
  - wheter the place of occurrence : rural or urban (fig. 1)

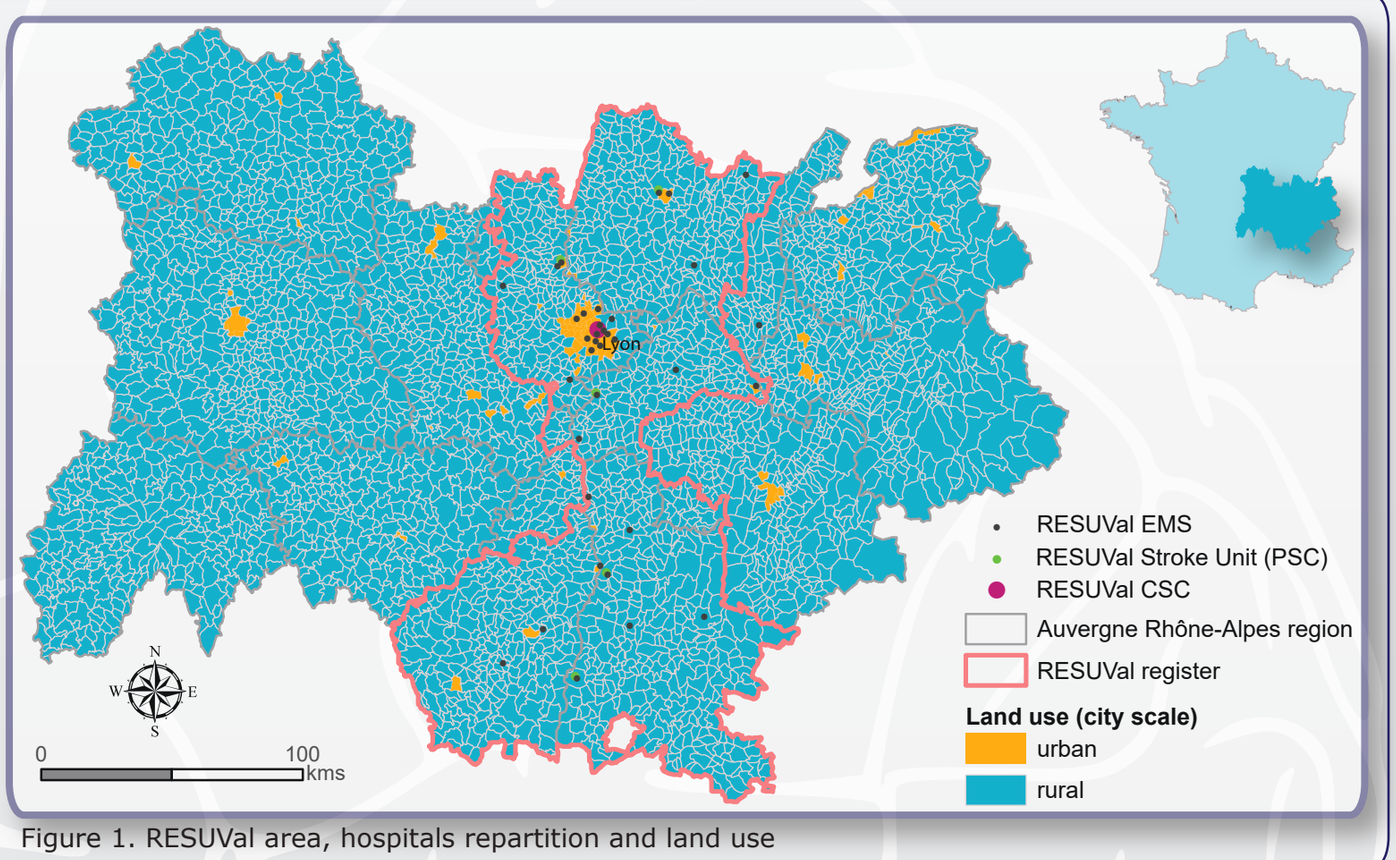

Figure 1. RESUVal area, hospitals repartition and land use

Results and conclusion

- 2790 patients were thrombolyzed and included in the RESUVal register : 45.7% were women. (fig. 2)
- *Bivariate analysis :*
  - Non adjusted analysis : Women from urban land use : more likely to be admitted directly to stroke unit (34.28% vs 29.58%, p=0.0169).
  - Age-adjusted analysis : difference less pronounced (33.83% vs 29.68%, p=0.0546) --> explained by the higher proportion of elderly women.
- *Multivariate analysis :*
  - Age-adjusted mRS before stroke and 3-month mRS were available for 953 alive patients
  - Land use :
    - did not influence patient mortality
    - rural area : risk factor of poor functionnal outcome for women (RR 1.26[1.03;1.55], p=0.0219)
- *3 months follow-up (fig. 3) :*
  - Before stroke : distributions by mRS levels were not significantly different for women and men (n=953), even for poor functional outcomes (mRS score 3-5 ; 14.46% vs 13.15%, p=0.8962).
  - At 3 months : women presented worst functional outcomes (mRS score 3-5; 23.27% vs 35.09%, p=0.0451), with at least 4 mRS points of deterioration.

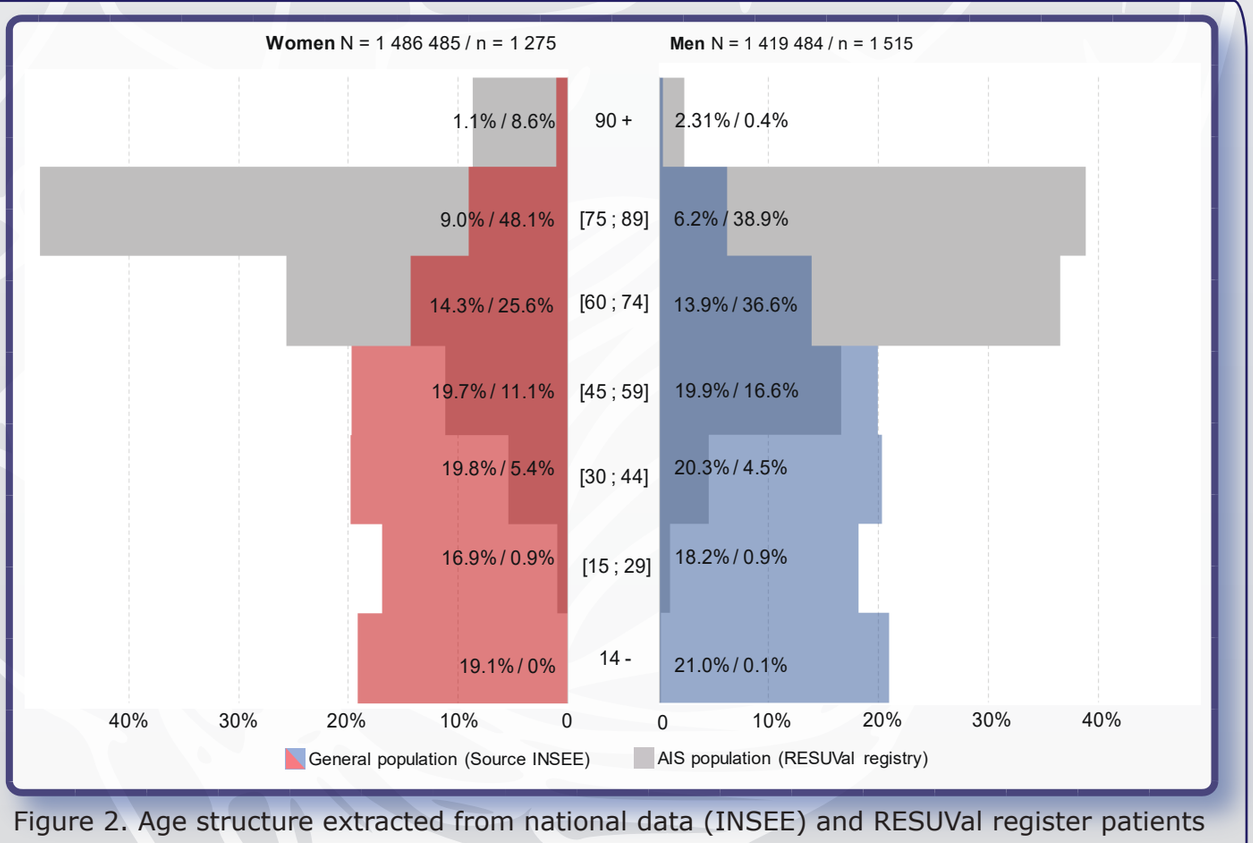

Figure 2. Age structure extracted from national data (INSEE) and RESUVal register patients

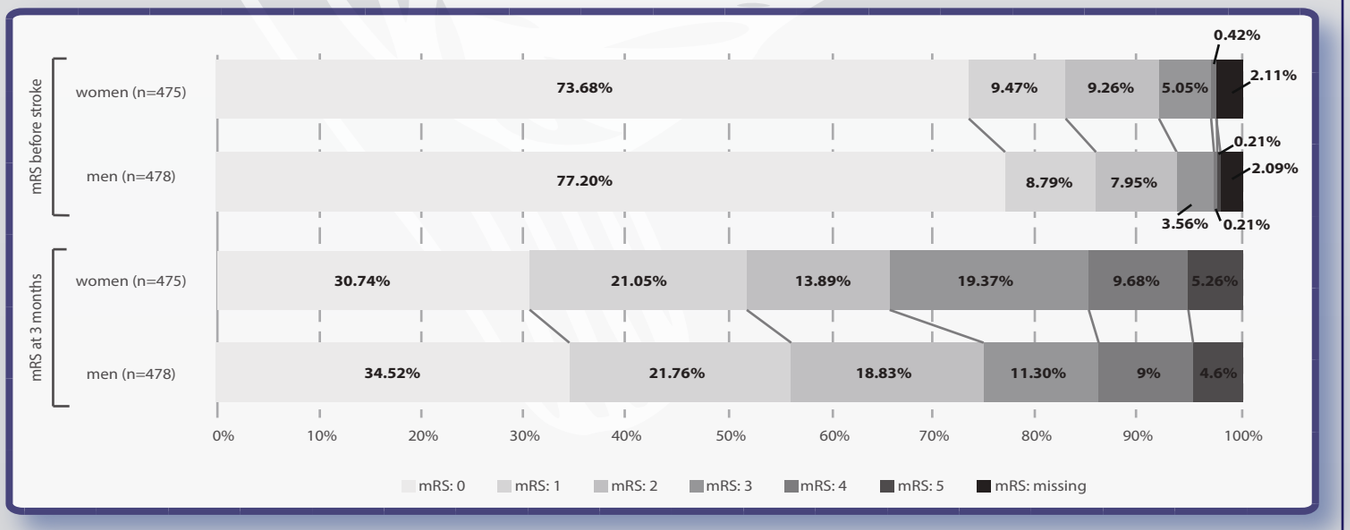

Figure 3. Age-adjusted comparison of mRS before stroke and 3-month mRS among women and men

Conclusion : *Rural areas are an explanatory factor for poorer direct access to PSC and poorer functional recovery at 3 months for women. An explication could be the higher proportion of single women and longer travel times to the nearest PSC.*

The AIS registry was funded by the regional agency for Health (Agence Régionale de Santé AURA - ARS Auvergne Rhône Alpes). The author thank the primary stroke centers (PSC) referents ; by decreasing contribution in the AIS RESUVal registry : Lyon (Laurent Derex, MD), Valence (Karine Blanc-Lasserre, MD), Vienne (Anne-Evelyne Vallet, MD), Bourg-en-Bresse (Frédéric Philippeau, MD), Villefranche-sur-Saône (Serkan Cakmak, MD) and Montélimar (Chérif Heroum, MD).

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