

ORIGINAL PAPER**INFLUENCE OF GENDER AND LOCATION OF THE LESION
ON ANXIETY LEVELS AFTER ISCHEMIC STROKE**

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ABSTRACT

Aim: To analyze anxiety in patients within 48 hours and 15th day after the ischemic stroke (IS) in relation to gender and location of the lesion.

Patients and Methods: We analyzed 40 patients (mean age 65.3 ± 10.3 years) with gender ratio 20:20. Mean age of hospitalized women was 66.35 ± 7.31 years and men 64.2 ± 12.68 years ($p=0.5$). IS was verified by computerized tomography (CT) of the brain in all patients. Anxiety level was measured with self estimated Zung scale. Score 50 and higher was verification of anxiety. Criteria made by Domasio were used to determine location of the IS.

Results: Mean value on anxiety within 48 hours was 44.4 ± 8.8 and 42.2 ± 7.7 15th day after the IS ($p=0.237$). In 12 (30%) patients anxiety was found during the first and in 10 (25%) during the second evaluation. Women had higher level of anxiety with significant gender differences within first 48 hours (47.75 ± 8.4 : 41.05 ± 7.9) ($p=0.013$). In 9 (45%) female patients and 3 (15%) male patients anxiety was present within 48 hours from disease onset ($p=0.024$). Mean level of anxiety 15th day after the stroke in women was 45.7 ± 8.34 what was significantly different to 38.7 ± 5.24 in men ($p=0.0029$). In 9 (45%) women and 1 (5%) men mild to moderate anxiety was present ($p=0.015$). Concerning the circulation (anterior/posterior) and side of lesion (right/left hemisphere) there were no significant differences in level of anxiety in patients with IS ($p=0.583$; $p=0.678$ and $p=0.207$; $p=0.27$, respectively) neither within 48 hours nor 15th day after the disease onset.

Conclusion: Gender has significant influence on anxiety rising within 48 hours and 15th day after the ischemic stroke (IS). Women have higher level of anxiety at both periods of measurements. Number of anxious patients is somewhat higher within 48 hours after the stroke but it is not significantly lower 15th day after the IS as well. Location of IS has no significant influence on anxiety after IS.

Key words: anxiety, ischemic stroke, gender, lesion location

INTRODUCTION

Ischemic stroke (IS) is defined as rapid development (focal or global) of clinical signs of brain function disorder with symptoms lasting 24 hours or longer, or leading to death, without other clear causes except destruction of blood vessel.¹ Anxiety does occur in patients with IS, but not in those with intracerebral hemorrhages.² Astrom found symptoms of anxiety in 28% of patients in acute phase of stroke.³

The aim of this study was to analyze anxiety in patients within 48 hours (hyperacute and acute phase) and 15th day (subacute phase) after the IS in relation to gender and location of the lesion.

PATIENTS AND METHODS

We prospectively analyzed 40 (gender ratio 20:20) patients hospitalized for the first time due to IS. All participants were consecutively recruited. They were able to answer the questions contained in self-estimated scale by Zung. Mean age of all patients was 65.3 ± 10.3 years. Mean age of hospitalized women was 66.35 ± 7.31 and men 64.2 ± 12.68 ($p=0.5$). IS was verified by neurological exam and computerized tomography (CT) of the brain in all patients. Anxiety level was measured within 48 hours and 15th day after the IS with self-estimated scale by Zung made of 20 questions.⁴ That scale is reliable, valid and has been used

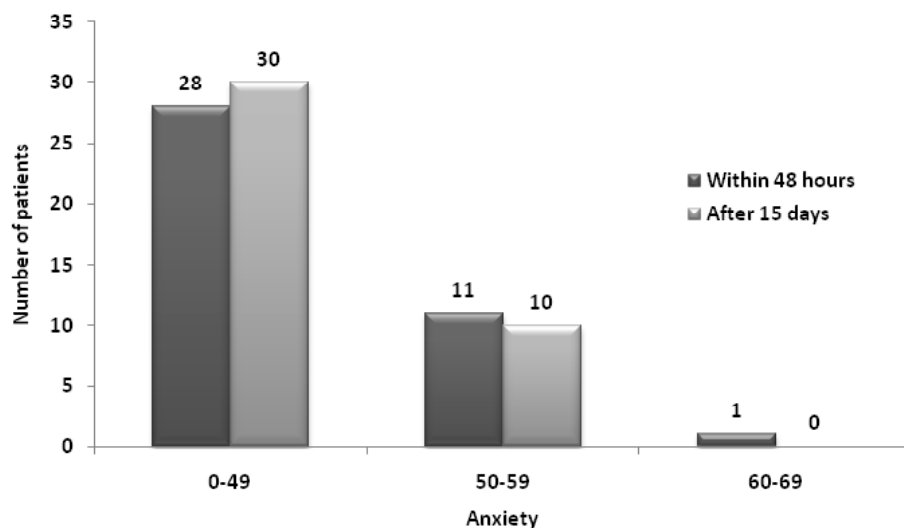


Figure 1. Distribution of patients according to level of anxiety within 48 hours and 15th day after ischemic stroke (0-49: normal; 50-59: minor to moderate anxiety; 60-69: moderate to severe anxiety)

in studies with IS patients before. Score 50 and higher was verification of anxiety. Analysis of depression, cognitive function and functional status was not planned in this part of the study. Criteria made by Domasio were used to determine location of the IS.⁵ Study was performed in accordance with the ethical standards of University Clinical Center Tuzla. Standard statistical test have been used: mean value, t - test and χ^2 -test. Value of $p < 0.05$ was considered to be significant.

RESULTS

Mean value on anxiety within 48 hours after IS was 44.4 ± 8.8 (26-64) and it was verified in 12 (30%) patients. Fifteenth day after IS mean value of anxiety was 42.2 ± 7.7 (28-58) what was not significantly different

to anxiety level within 48 hours ($p = 0.237$). Anxiety persisted during the second evaluation in 10 (25%) patients (fig. 1).

Mean anxiety level in hospitalised women within 48 hours after IS was 47.75 ± 8.4 (33-64) what was significantly different to anxiety level in men 41.05 ± 7.9 (26-55) ($p = 0.013$). In 9 (45%) women and 3 (15%) men it was registered anxiety (fig. 2) what was significantly different in relation to gender as well ($p = 0.024$).

Mean level of anxiety 15th day after IS in women was 45.7 ± 8.34 (30-58) what was significantly different to 38.7 ± 5.24 in men (28-51) ($p = 0.0029$). In 9 (45%) women and one (5%) man it was registered mild to moderate anxiety what was significantly different in relation to gender ($p = 0.015$) (fig. 3).

Majority of analysed patients had IS generated in anterior circulation. It was found in 23 (57%) patients

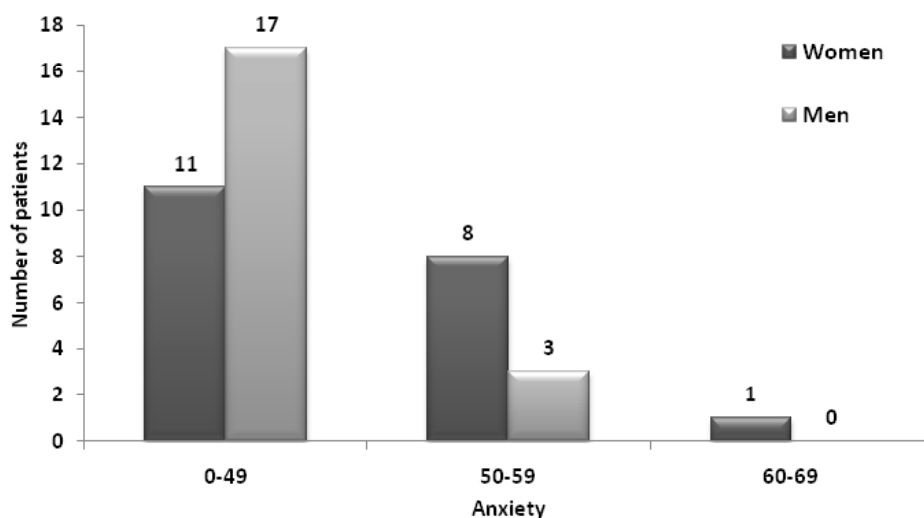


Figure 2. Distribution of patients with differences in anxiety within 48 hours after ischemic stroke according to gender (0-49: normal; 50-59: minor to moderate anxiety; 60-69: moderate to severe anxiety)

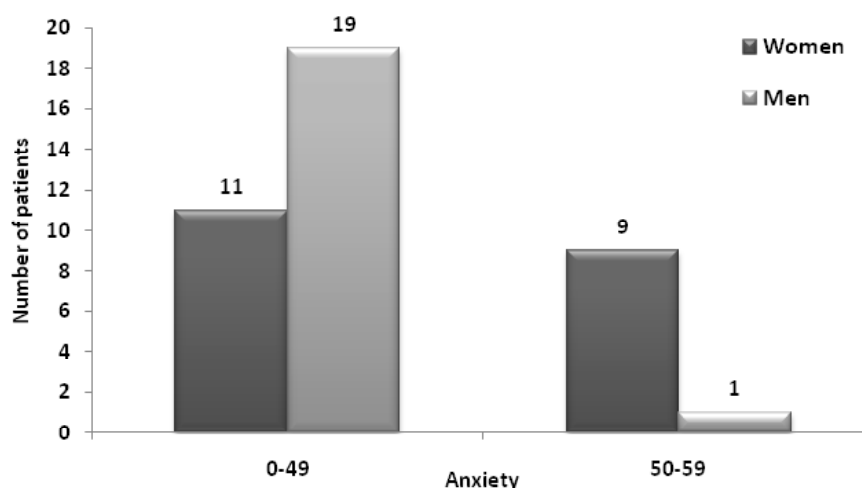


Figure 3. Distribution of patients with differences in anxiety 15th day after ischemic stroke according to gender (0-49: normal; 50-59: minor to moderate anxiety)

(women: 13, men: 10). Seven patients (18%) experienced IS in posterior circulation (women: 3, men: 4). Ten (25%) patients had IS in both circulations. IS was bilateral in 17 (42%) patients. In left hemisphere IS was in 10 (25%) patients (women: 3, men: 7) as well as in 13 (33%) patients (women: 8, men: 5) with IS in right hemisphere.

Concerning the circulation (anterior / posterior) there were no significant differences in level of anxiety within 48 hours; 45.1 ± 9.3 (30-64), 42.9 ± 9.5 (26-55) respectively ($p=0.583$). Furthermore, 15 days after IS onset the result was 45.1 ± 9.3 (30-64) and 42.9 ± 9.5 (26-55) with no significant differences as well ($p=0.678$). Within 48 hours after IS in right hemisphere mean anxiety level was 49 ± 10.1 (26-64) and in left 43.9 ± 8.2 (30-55). The similar result was 15 days after IS: to the right 46.2 ± 9.4 (28-58) and to the left 42 ± 6.1 (34-53). It was not significantly different ($p=0.207$, $p=0.27$ respectively).

DISCUSSION

In some studies the frequency of anxiety is 3.5-24% 6,7. In our study mean value of anxiety is not significantly changed in both periods of evaluations. Thirty percent of all patients is anxious within 48 hours after the IS but reduction of anxiety is not significant neither the 15 days after the IS. Every fourth patient (25%) with IS was anxious. Almost $\frac{3}{4}$ of patients (74%) with this disorder have signs of depression as well.³ This makes recovery after stroke much harder comparing to recovery after stroke associated only with depression.⁸ Hospitalized women with IS were older than men what was the same in studies done in our region.^{9,10} One study refer that isolated generalized anxious disorder in elderly is more frequent in women.¹¹ Number

of anxious patients and mean anxiety level are higher in women both within 48 hours and 15 days after the IS. Explanation for this could be higher inclination for fear and worrying in women, especially in our area. Also, because of our social rules, it is possible for hospitalized women to be more anxious due to family expectations after they are dismissed. Further on, majority of women are financially dependent and this leads to higher level of anxiety after IS, too. Almost one half of all women (45%) are minor to moderate anxious even 15 days after the disease onset. Otherwise, every twentieth men are anxious in same period. Concerning our study and study made by Schultz et al, women are more often anxious in acute phase of IS.¹² Presumably, it would be of great benefit for inpatient to keep in mind this possible psychological consequences (especially anxiety and depression) and start with proper medication or/and psychotherapy.¹³

CONCLUSION

Gender has significant influence on anxiety rising within 48 hours and 15th day after the IS and it is more frequent in women. Location of IS has no significant influence. Number of anxious patients is higher within 48 hours after IS but it is not significantly lower 15th day after.

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