Primerjava pojavnosti agresije bolnikov v Univerzitetni psihiatrični kliniki Ljubljana in na Oddelku za psihiatrijo Univerzitetnega kliničnega centra Maribor

A Comparison of Incidence of Patient Aggression in the University Psychiatric Clinic Ljubljana and at the Department of Psychiatry of the University Medical Centre Maribor

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Izvleček

Namen: *Agresivno vedenje, s katerim se srečujemo pri obravnavi oseb z duševno motnjo, predstavlja izziv in hudo obremenitev za zdravstveno osebje. V raziskavi smo primerjali pojavnosti in posledice agresije na Oddelku za psihiatrijo Univerzitetnega kliničnega centra Maribor in Univerzitetne psihiatrične klinike Ljubljana. Primerjali smo pogostost agresivnosti moških in žensk, bolnikov s shizofrenijo in ostalimi diagnozami, predhodno in prvič agresivne bolnike ter pogostost uporabe posebnih varovalnih ukrepov med obema ustanovama.*

Metode: *Raziskava je bila retrospektivna. Iz dokumentacije vseh bolnikov, ki so bili v obdobju med 1. 1. 2012 in 31. 6. 2012 hospitalizirani v Univerzitetni psihiatrični kliniki Ljubljana in na Oddelku za psihiatrijo UKC Maribor, smo identificirali tiste z agresivnim vedenjem in zanje pridobili socio-demografske podatke, diagnozo, število hospitalizacij, prisotnost alkohola ali psihoaktivnih sub-*

Abstract

Purpose: *Management of aggressive behaviour in patients with psychiatric diagnoses presents a challenge and burden for health staff. The present study compared two psychiatric institutions (the Department of Psychiatry of the University Medical Centre Maribor and the University Psychiatric Clinic Ljubljana) in terms of frequency and consequences of patient aggression. We compared frequencies of aggression between male and female patients, patients diagnosed with schizophrenia and other diagnoses, previously aggressive patients and patients who were aggressive for the first time. We also compared the use of special protective measures in both institutions.*

Methods: *This study was retrospective and included the analysis of documentation of patients who were hospitalised at both institutions from 1 January 2012 to 31 June 2012. We identified patients with aggressive behaviour and acquired their sociodemographic data, diagnosis, number*

stanc in pogostost agresivnega vedenja. Za oceno agresivnega vedenja smo uporabili lestvico očitne agresije.

Rezultati: *147 bolnikov je izpolnjevalo kriterije za agresivno vedenje. V pogostosti agresivnosti med spoloma in pri različnih diagnozah nismo opazili statistično pomembne razlike, prav tako tudi ne pomembne razlike v uporabi posebnih varovalnih ukrepov. Statistično pomembna razlika ($p \leq 0,01$) pa je bila v pogostosti agresivnosti pri bolnikih s predhodnim agresivnim vedenjem v primerjavi z bolniki, ki predhodno niso bili agresivni.*

Zaključki: *Raziskava je v obeh ustanovah ugotovila primerljivo stopnjo agresivnosti bolnikov, njihovo primerljivost med spoloma in pogostost uporabe posebnih varovalnih ukrepov. Od štirih hipotez sta bili potrjeni dve, in sicer, da so bolniki s predhodnim agresivnim vedenjem v zdravstveni ustanovi pogosteje agresivni kot tisti, ki tega vedenja niso izkazali, ter da je pogostost uporabe posebnih varovalnih ukrepov primerljiva med obema ustanovama.*

of hospitalisations, presence of alcohol or psychoactive substances and presence of aggressive behaviour. For assessment of aggressive behaviour, the Overt aggression scale was used.

Results: *One-hundred and forty-seven patients met the criteria for aggressive behaviour. There was no statistically significant difference in the frequency of aggression between genders or diagnoses. However, there was a statistically significant difference ($p \leq 0.01$) in the frequency of aggression in patients who had previously been aggressive compared to those patients who had not exhibited such behaviour. There was no statistically significant difference in the use of special protective measures between the two institutions.*

Conclusions: *Two hypotheses were confirmed: patients who had exhibited previous aggression were more frequently aggressive than those with no previous aggressive behaviour while the use of special protective measures between the two institutions was similar.*

INTRODUCTION

Violence or aggression has various definitions, one of which states that violence/aggression is defined as a verbal or physical attack on another human being or object (1). In a narrower, psychopathological sense, violence includes intentional and negligent damage or destruction and is usually associated with negative emotions, such as anger, fear, despair, rage and hatred (1). The manner in which these emotions are expressed depends on social and cultural influences (2). People demonstrate three main subtypes of aggression: verbal aggression, physical aggression towards other people and physical aggression towards objects. Violence is an exclusively human term and usually characterises physical aggression towards other people (3).

Physiological mechanisms of aggression

Throughout the history of research on aggression, many different experimental techniques were used to create animal models of aggression. Mice and rats were often exposed to prolonged periods of isolation, electroshocks, pharmacological manipulation, brain stimulation or lesions. The analyses of specific brain areas showed that the main inhibitory neurotransmitter gamma-aminobutyric acid (GABA) has a regulatory effect on violence. The potentiation of GABAergic inhibition by pharmacological agents, such as valproic acid, resulted in decreased aggression (4). The role of serotonin has also been addressed in aggression research, confirming the hypothesis that serotonin modulates impulsive aggressive behaviour in humans (5, 6).

The hypothalamus plays a crucial role in the expression of aggression in animals, but there appears to be multiple aspects to its functions, depending on the species used for experimentation and the nature of the lesions or stimulations (4). Other areas implicated in aggression include the midline thalamus, lateral preoptic region, mammillary bodies, hippocampus and cingulate gyrus (4). Genetic studies of criminality, delinquency and antisocial behaviour showed that adult criminality, as a manifestation of antisocial personality disorders, has some genetic etiology (7).

Determinants of violence and aggression

Patient characteristics. Psychoactive substance abuse is the most important risk factor for violent incidents due to its disinhibitory effect. People who are addicted to these substances or abuse them are frequently treated in health centres (2). Serious psychopathology, male sex, early onset of psychosis, noncompliance, unemployment and lack of insight are also very important risk factors (8, 9, 10). One of the most consistent and stable predicting factors for future incidents is past aggressive behaviour (11).

Environmental factors. Violence is frequently experienced in closed admission departments of psychiatric hospitals or departments that admit the least stable patients, as well as emergency departments. Violent incidents occur more often when administering therapy and during physical restraint of agitated patients (12, 13). Another risk factor for violent incidents is hospitalisation against the patient's will (2, 14). Additional factors that may contribute to violence in health institutions include the lack of educated personnel, hospital rooms that are too small and uncomfortable, long waiting periods in crowded waiting rooms, isolated work at night, inadequate hierarchy and excessive pretentiousness of superior personnel (2).

Situation in Slovenia. There is no centralised programme for the reduction or management of violent incidents in health institutions or specifically in psychiatric hospitals. At the same time, there are no data on the frequency of violent incidents as some institutions retain their own data (2).

Special protective measures

Special protective measures as a coercive restriction of movement can be defined as any physical method, physical or mechanical device, material or equipment that immobilises a patient or decreases his ability to move his arms, legs, body or head. Coercive restriction of movement may also be a substance or medicine when used for controlling a patient's behaviour or for restricting a patient's freedom of movement, although it does not form part of a patient's standard therapy or dose (15).

MATERIAL AND METHODS

Our study was retrospective and included the analysis of documentation of patients who were hospitalised at the University Psychiatric Clinic Ljubljana (UPC Ljubljana) and the Department of Psychiatry of the University Medical Centre Maribor (UMC Maribor) from 1 January 2012 to 31 June 2012. Only patients who had outbursts of aggressive behaviour and needed special protective measures (fixation with belts) were included in the study. Both institutions used the same rating scale to measure aggressive behaviour: the Overt Aggression Scale, designed by Yudofsky and co-workers (16). This scale quantifies verbal aggression, physical destructiveness, auto aggression and hetero aggression. Our protocol also included questions about marital status, social status, education, last known diagnosis (from the International Classification of Diseases, 10th revision), previous number of hospitalisations, alcohol or psychoactive drug abuse, acute intoxication with alcohol or psychoactive drugs detected during aggressive outbursts and frequency of aggressive incidents during the study period of six months. At the Department of Psychiatry of the UMC Maribor, 56 patients were included in the study, although one was later excluded because the patient was transferred to the Department of Forensic Psychiatry. At the UPC Ljubljana, 97 patients were included, of which five patients were excluded later; one due to an aggressive outburst during treatment as an outpatient and four because they had not given consent to take part in medical research. The patients did not actively participate in the study; as only their medical documentation was examined and protocol data was gathered thereafter.

The Republic of Slovenia National Medical Ethics Committee reviewed the study protocol and provided a consensus on 16 July 2013.

For statistical analysis, the SPSS PASW 17.0 programme (IBM Corporation, Armonk, New York, United States) was used. One sample Kolmogorov–Smirnov test was used in order to examine the distribution of the dependent variable. As data deviate from a normal and Poisson distribution (Poisson dis-

tribution is characteristically rare), a generalised linear model and negative binomial distribution were used.

RESULTS

Demographic data and diagnoses of 147 included patients (55 patients from UMC Maribor and 92 patients from UPC Ljubljana) are presented in Table 1.

At both institutions a higher percentage of verbal aggression (over 90%) was noted while implementing the special protective measure; occurring 50 times at UMC Maribor and 83 times at UPC Ljubljana. At UPC Ljubljana, auto aggression was more frequent than at UMC Maribor, amounting to 19 (21%) and 3 (6%) patients, respectively. The same applies to aggression towards objects, with 35 (38%) patients at UPC Ljubljana and 19 (35%) at UMC Maribor. At UMC Maribor, aggression towards others was more frequent than at UPC Ljubljana: 50 (91%) patients compared to 76 (83%), respectively (see Tables 2 and 3). In relation to verbal aggression, both genders had a similar share, which was extremely high, above 90%. There was somewhat more auto aggression exhibited by female patients (20%) than by males (12%) and also more aggression towards objects (females: 39%, males: 35%). Male patients demonstrated more aggression towards others (87%) than female patients did (84%).

There was no statistically significant difference in the expression of aggression between male and female patients ($\chi^2 = 0.696$; df = 1; $p = 0.404$), patients with schizophrenia and patients with other diagnoses ($\chi^2 = 0.52$; df = 1; $p = 0.471$). However, there was a trend (negative regression coefficient in schizophrenia group – 0.152) for less frequent aggression in group 2 (other diagnoses). There was a statistically significant difference in the expression of aggression ($\chi^2 = 8.078$; df = 1; $p \leq 0.01$) in patients who were previously aggressive compared to patients who were not previously aggressive.

There was no statistically significant difference ($\chi^2 = 2.005$; df = 1; $p = 0.157$) in the frequency of use of special protective measures between both institutions.

DISCUSSION

Analysing the results has demonstrated that the initial impression regarding the greater number of incidents of aggression among male patients and patients with diagnosed schizophrenia was hasty. Tardiff and Sweillam also made similar conclusions in their study (17). On the other hand, Soyka obtained completely different results, as his study showed that male gender and severe psychopathology are important risk factors for violence and aggression during hospitalisation, along with a primary antisocial personality, repeated intoxications and treatment non-adherence (18). Räsänen and his colleagues concluded that patients with schizophrenia are four to seven times more likely to experience aggressive incidents during their hospitalisation (19). Contrary to that, Rice and Harris showed that patients with schizophrenia are actually less likely to cause aggressive incidents (20). Modestin demonstrated that the risk of aggression and violence is greater when patients use or abuse alcohol or other psychoactive substances. He also emphasised that this behaviour depends on the social context, which changes over time (21). This topic is of great interest and provides the basis for further study as the results are not homogenous.

When comparing male and female patients, our study did not find statistically significant differences in the frequency of aggression. Male patients may have been aggressive on a different spectrum, which did not have an impact on the final frequency. The reason for using special protective measures definitely varies from case to case and if a patient is only verbally aggressive, the staff interpret that aggression differently in comparison to someone who is physically aggressive towards others. According to Serper and his colleagues, female patients are more verbally aggressive in the first two weeks of their hospitalisation than male patients (22). Odgers and Moretti investigated sexual and environmental risk factors for aggression and antisocial behaviour among minors (23). They discovered that only a few studies included female subjects, which reduces statistical reliability when comparing genders. Therefore, it is necessary to be cautious when

Table 1: *Gender, age, marital status, social status, education and last known diagnosis; separated for each institution*

Variable	UMC MB (N=55)	UPC LJ (N=92)
Gender, male/female, N	38 (69.1%)/17 (30.9%)	53 (57.6%)/39 (42.4%)
Age	42.8±18.7	40.7±15.8
Marital status:		
- Single:	31 (56.4%)	50 (54.3%)
- Married:	9 (16.4%)	18 (19.6%)
- Widowed:	3 (5.5%)	4 (4.3%)
- Other:	10 (18.2%)	13 (14.1%)
- No data:	2 (3.6%)	7 (7.6%)
Social status:		
- Employed:	9 (16.4%)	19 (20.7%)
- Retired:	16 (29.1 %)	29 (31.5%)
- Unemployed:	29 (52.7 %)	41 (44.6%)
- No data	1 (1.8 %)	3 (3.3%)
Education:		
- Elementary school:	12 (21.8%)	35 (38%)
- Technical school:	9 (16.4%)	22 (23.9%)
- Grammar school:	6 (10.9%)	11 (12%)
- University:	2 (3.6%)	10 (10.9%)
- No data:	26 (47.3%)	13 (15.2%)
Last known diagnosis (ICD-10):		
- F06-F09	4 (7.3%)	7 (7.6%)
- F10.X	4 (7.3%)	12 (13%)
- F20.X	13 (23.6%)	27 (29.3%)
- F23.X	7 (12.7%)	5 (5.4%)
- F25.X	6 (10.9%)	14 (15.2%)
- F31.X	7 (12.7%)	3 (3.3%)
- Other	14 (25.4%)	24 (26.1%)

Legend: UMC MB: Department of Psychiatry of University Medical Centre Maribor; UPC LJ: University Psychiatric Clinic Ljubljana; ICD-10: International Classification of Diseases, 10th revision; F06–F09: mental disorders due to brain damage, dysfunction or physical disease; F10.X: mental and behavioural disorders due to psychoactive substance abuse; F20.X: schizophrenia; F23.X: acute and transient psychotic disorders; F25.X: schizoaffective disorders; F31.X bipolar affective disorders.

Table 2: *Types of aggression, separated for each institution.*

Type of aggression	Institution		Total (N=147)
	UMC MB (N=55)	UPC LJ (N=92)	
Verbal aggression	50 (90.9%)	83 (90.2%)	133 (90.5%)
Auto aggression	3 (5.5%)	19 (20.7%)	22 (15%)
Aggression towards objects	19 (34.5%)	35 (38%)	54 (36.7%)
Aggression towards others	50 (90.9%)	76 (82.6%)	126 (85.7%)

Legend: UMC MB – Department of Psychiatry of University Medical Centre Maribor; UPC LJ – University Psychiatric Clinic Ljubljana;

Table 3: *Types of aggression, separated for each gender*

Type of aggression	Gender		Total (N=147)
	Male (N= 91)	Female (N= 56)	
Verbal aggression	82 (90.1%)	51 (91.1%)	133 (90.5%)
Auto aggression	11 (12.1%)	11 (19.6%)	22 (15%)
Aggression towards objects	32 (35.2%)	22 (39.3%)	54 (36.7%)
Aggression towards others	79 (86.8%)	47 (83.9%)	126 (85.7%)

determining various risk factors for gender (23). The role of gender in aggression also provides a worthy springboard for further study, but it may require a multidisciplinary approach due to sociological factors that affect patients in their youth, prior to mental illness, during hospitalisation and after remission.

The results of our study have confirmed the hypothesis that previous aggressive behaviour is an important risk factor contributing to the repetition of aggressive incidents. Bornstein discovered a very high frequency of reoffending aggressive patients that needed fixation (24). Palmstierna and Wistedt tried to identify the most important risk factors for aggressive behaviour and found that only previous aggressive behaviour and drug abuse significantly correlate with aggressive behaviour during acute involuntary hospitalisation (25). Previous aggressive behaviour could be one of the main risk factors when assessing the risk of aggressive incidents (26). Assessment and prevention of incidents are definitely very important for the security of hospital staff, patients and visitors, so it is wise to be cautious when dealing with patients who have a history of aggressive behaviour.

Our study also found that special protective measures (fixation with belts) were used to a similar extent in both institutions. This method still remains an effective way of providing a safe and secure environment for hospital staff, patients and ultimately hospital equipment and furniture. Study by Khadivi and colleagues found that an attempt to introduce measures to reduce restriction of movement and the use of belts led to an increased risk of injury for patients and staff (27). It is important to have effective collaboration within a multidisciplinary team, well-educated and trained nurses and technicians, a sufficient number of people that implement the fixation and a good therapeutic relationship that will not break down during interventions (28). Both institutions included in this study have similar protocols for protective measures. Given that the profile of patients at both institutions is very similar (with the exception of patients at the Department for Forensic Psychiatry at UMC Maribor), it is not surprising that the extent of special protective measures used is also similar. Our study showed the need for written protocols and guidelines on the use of fixation and education, which is carried out regularly at both institutions, especially in the form of training for all members of the multidisciplinary team. The need for support and supervision of medical personnel in the use of fixation may reduce accidents during implementation procedures and improve the well-being of staff, both of which lead to improved staff satisfaction (29). Data gathered from the UPC Ljubljana show that the rate of implemented special protective measures as well as the number of adverse events occurring during such measures is decreasing from year to year (30).

CONCLUSION

This study compared the incidents of aggression between hospitalised patients with mental disorders at UMC Maribor and UPC Ljubljana. We observed a comparable degree of aggression among patients independent of gender. Moreover, a similar extent of special protective measures was used to prevent further escalation of aggression as well as to reduce the risk of self-harm and harm to other patients and staff. The data obtained from this study may be used in novel guidelines for special protective measures in psychiatric hospitals and therefore carry important application value for Slovenian hospital psychiatric treatment.

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