RESULTS OF GENERAL SURGICAL TREATMENT OF PATIENTS OVER 80 YEARS OF AGE IN SINGLE-SITE EXPERIENCE

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The aim of the study was to evaluate the results of general surgical treatment of patients over 80 years of age.

Material and methods. Three hundred and four patients aged 80 to 105 years with general surgical disorders, treated in 2005-2009, were retrospectively included in the study. The collected information included demographic data, coexisting diseases, the mode of admission, the diagnosis, the method and result of treatment, and also potential complications and 30-day mortality. The data were subjected to statistical analysis.

Results. The study group included 186 women and 118 men. Two hundred patients (65.8%) were admitted in an emergency setting. The most common causes of immediate hospitalisation were: mechanical ileus (26.5%), gastrointestinal bleeding (22%), trauma (16%), and gall-bladder disorders (8.5%). The remaining 104 (34.2%) patients were operated upon on an elective basis. An emergency operation was required by 121 (60%) of the patients admitted in an emergency setting; the remaining ones were treated conservatively. Hernia plasties (27.5%), cholecystectomies (15.3%), colorectal resections (13.2%), strumectomies (11.2%) and endoscopies (6.1%) predominated among elective surgeries.

The total number of complications and mortality were 19.4% and 14.5%, respectively. The number of complications and mortality were significantly higher in the group of patients admitted in an emergency setting (25.5% and 20.5%, respectively) than in patients admitted on an elective basis (8.7% and 2.9%, respectively), p<0.01.

The mean duration of hospitalisation was 9.7 days (1 to 60 days), with a small difference between the groups of patients treated on an elective and emergency basis (8.5 and 10.4 days), p=0.181.

Conclusions. The results of surgical treatment of elderly patients do not significantly differ from the results of treatment of the general population. Much worse results, coupled with a significant increase in mortality, are observed in patients admitted and treated on an emergency basis.

Key words: surgery of elderly patients, eighty-year-old patients, surgical outcomes

In the last decades, the human lifespan was considerably lengthened. The age above 80 years is no longer as rare as even 20 years ago (especially as regards men). Currently, the average lifespan in Poland is 71.5 years for men and 80 years for women. It is estimated that it will continue to increase and will attain an average of 77 years for men and 83 years for women by 2035. In 1980, the percentage of persons aged 80 years and more was 1.46%, in 1990 it was 1.94%, in 2000 it was 2.02%, and in 2009 it attained 3.29% (1). The above data confirm the observations of physicians in many hospitals, where the number of patients in this age group has been increasing each year. At the authors' site, the percentage of hospitalised patients over 80 years of age, in a year-on-year comparison, has been increasing by ca. 1% per year (2).
In the past, most of the operations were not performed in elderly persons because the age itself was often considered a significant contraindication to surgical treatment. Along with the progress of surgical techniques and also of anaesthesiology and perioperative care, the results of treatment in this patient group considerably improved.

The objective of the present study was to assess the results of general surgical treatment of patients over 80 years of age in single-site experience.

**MATERIAL AND METHODS**

In 2005-2009, 662 patients aged 80 years or more were treated in the Department. Retrospectively, 304 patients with general surgical disorders, excluding persons with vascular disorders, were included into the study. The collected information included demographic data (age, gender), coexisting diseases, the mode of admission, the diagnosis, the method and result of treatment, and also potential complications. The 30-day mortality or mortality during hospitalisation was assessed. All patients were entered into the database and subjected to statistical analysis. The analysis was performed with the use of t-Student and Chi-square tests. The probability value of p≤0.05 was adopted as statistically significant, and p≤0.01 was adopted as highly statistically significant. The collected data are presented as means, percentages and numeric ranges.

**RESULTS**

The group of 304 patients covered by the analysis included 186 women (61%) and 118 men (39%) aged between 80 and 105 years, mean 84 years. Two hundred patients (65.8%) were admitted in an emergency setting while the remaining 104 (34.2%) patients were admitted on an elective basis. At least one coexisting disease was found in 262 (86.2%) patients, while two or more coexisting diseases were found in 165 (54.2%) patients. The most common coexisting diseases in the analysed group of patients are presented in tab. 1.

The indications for elective and emergency admission are presented in tab. 2.

All patients admitted on an elective basis were operated upon or subjected to an endoscopic procedure. Among 200 patients admitted in an emergency setting, 121 patients (60.5%) were found to require surgery. The remaining patients were treated conservatively – 79 (39.5%). The operations performed most frequently in this patient group are presented in tab. 3.

The mean duration of hospitalisation was 9.7 days (1 to 60 days), with a small difference between the groups of patients treated on an elective and emergency basis (8.5 and 10.4 days, respectively), p=0.181.

The total number of complications and mortality were 19.4% and 14.5%, respectively. The number of complications (p<0.01) and mortality (p<0.01) were statistically significantly higher in the group of patients admitted in an emergency setting (25.5% and 20.5%, respectively) than in patients admitted on an elective basis (8.7% and 2.9%, respectively). The most common postoperative complications were: postoperative wound infections (13.5%), pneumonia and respiratory insufficiency (12%), acute coronary syndromes (10%).

In the group of patients admitted on an elective basis, 3 deaths occurred: one as a result of cardiorespiratory failure without a discernible cause and two in patients who experienced acute coronary pain several days after the operation and subsequently died. All these patients had at least 2 coexisting diseases.

There were 41 deaths in the group of patients admitted in an emergency setting. Five patients died before being transported to the operating theatre, in the course of normalising their vital signs so as to make it possible to start surgery. Most of the patients died as a result of cardiorespiratory failure. The remaining deaths were mostly due to complications in the form of acute coronary syndromes or septic complications. The most common baseline causes of deaths are: ileus 36.4%, gastrointestinal bleeding 20.5%, gastrointestinal

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td>Arterial hypertension</td>
<td>66.1%</td>
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<tr>
<td>Coronary heart disease</td>
<td>41.5%</td>
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<tr>
<td>Cardiac arrythmia</td>
<td>24.3%</td>
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<tr>
<td>Heart failure</td>
<td>21%</td>
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<tr>
<td>Diabetes mellitus</td>
<td>17.4%</td>
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<tr>
<td>Chronic renal failure</td>
<td>8.2%</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>5%</td>
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</table>
perforation 18.2%. Deaths were most common on the first or second day after the operation.

**DISCUSSION**

In the group of 304 patients above 80 years of age hospitalised in 2005-2009, overall mortality was 14.5%, and postoperative complications developed in almost every fifth patient. However, these data are slightly different in a separate analysis of patients admitted on an elective and emergency basis. In the group of patients operated on an elective basis, these numbers rapidly fall to attain a level of less than 3% for mortality and 9% for the total number of complications. Similar results, i.e. 3% mortality and 10% complications, were obtained by Polanczyk et al. in a group of patients subjected to elective surgery, including cardiosurgical operations (3). Also Bufalari et al. evaluated mortality in eighty-year-olds at 5%, with a slightly larger number of complications than in our study group, namely as high as 25% (4). In many studies evaluating the results of surgical treatment depending on the patient’s age a correlation is found between the elderly age and increased mortality (5,6). However, there is an increasing number of reports on the lack or a small and acceptable difference in surgical outcomes in elderly persons versus the general population. This applies both to operations in different areas of general surgery such as endocrinology (7), anorectal surgery (8), gastrointestinal tract surgery (9, 10), as well as to highly specialised cardiosurgical operations (11, 12). Nevertheless, it should be noted that all authors emphasise the importance of preparing an elderly patient to the procedure (in elective treatment).

The situation in the group of patients admitted and treated in an emergency setting is completely different. Every fourth patient develops complications and every fifth patient dies in the hospital. This is mainly caused by the poor general clinical condition on admission, which, coupled with often several coexisting additional risk factors, gives small chances for success at the beginning of treatment. It can be noticed that the same or similar procedures (cholecystectomies, colorectal resections, therapeutic endoscopies) performed on an elective basis are much milder and give better results. As much as 1/3 of the patients in this group die from ileus. Ileus is a serious problem all over the world and in all age groups, and its most
common cause in the general population is intraperitoneal adhesions (13). Moreover, the prevalence of colorectal cancer significantly increases in the old age, which may explain the large number of cancer-related ileus cases in our patient group (27%), unfortunately often in an advanced metastatic stage (14).

The remaining 40% of deaths in this patient group are complications of peptic ulcers in the form of bleeding or perforation. The age above 60 years or shock on admission for treatment are the risk factors of death due to ulcer bleeding. In patients over 80 years of age, the risk of recurrent bleeding (in particular from a gastric ulcer) increases and thus endoscopy should be performed as soon as possible (15, 16).

CONCLUSIONS
1. On the basis of an analysis of the available literature and of our own experiences we may conclude that the results of elective surgical treatment in patients over 80 years of age are good and comparable with those obtained in the general population. Much worse results, coupled with a significant increase in mortality, are observed in patients admitted and treated on an emergency basis.
2. The main causes of deaths in the second patient group are advanced forms of cancer and gastrointestinal bleedings and haemorrhages and perforations.

REFERENCES

Received: 27.01.2012 r.
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