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Etiologic distribution of chronic wounds and characteristics of patients in primary care and home treatment

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Chronic wound (CW) is a chronic disease developing as a consequence of injury or vascular, metabolic, oncologic, neuropathic and other diseases, with polyetiologic risk factors and many complications (infection, cellulitis, fasciitis, hemorrhage, amputation). The management of CWs includes early diagnosis followed by operative and nonoperative therapy. A very significant factor for CW management as a non-etiologic factor is good organization and accessibility of the healthcare system to patients. Primary care and home care are modern, currently favored modalities of CW therapy that have been recommended in Europe, also as the models in the future. The primary healthcare (PHC) team for CW management as part of the PHC system performs CW triage and therapy, diagnostic procedures and modern, nonoperative therapy, evaluation, prevention and rehabilitation, with continuing education and collaboration with specialists. This team can treat about 80% of patients with CWs of different etiology. Demographic tendency and global increase of chronic diseases emphasize the critical importance of PHC team for CW management.

KEY WORDS: primary care, chronic wounds, patient characteristics

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New incentives and models of treatment of chronic diseases in Europe give greater importance to outpatient care, especially primary health care services and home care. This also applies to chronic wounds as a chronic disease. "Reduce avoidable/unnecessary hospitalization of older people with care conditions through the effective implementation of integrated program and chronic disease management model. Reinforcement of the role of nurse and social working, and volunteers in the provision of integrated care..." (1). There are reasons justifying this tendency because healing of chronic wounds (CWs) depends on many etiologic and non-etiologic factors, primarily unfavorable demographic trends and increase in the elderly population and thus in individual polymorbidities. In addition, there is inadequate hospital capacity and insufficient number of trained staff to hospitalize the increasing number of patients. Also, prolonged hospitalization and significantly higher treatment costs are not always justified. In the USA, Europe, Canada and Australia, home care accounts for 35%-48% of CW management, with medical and financial efficacy (2,3).

Considering the increasing trend of elderly population, there are 16% of persons older than 65 in Europe and 17% in Serbia, 3.35% of them older than 80 (N=259000). Such a population structure results in many chronic diseases, including chronic wounds and home care patients. CWs are present in 1% of adult population, 4% of them older than 75.

Many epidemiological studies have presented etiologic distribution of CWs: Wells (2001, N=11444): 62% veins, 20% pressure, 12% diabetic, 3% arterial, mixed 30%; Schulze (2003, N=2012): 59% veins, 21% pressure, 11% diabetic, 9.45% other etiology; MUPP (2004, N=5851 adult general population): vein wounds, arterial pressure; Delic *et al*. First Congress of Phlebology,

Belgrade (2007, N=7000): veins 65%, mixed 4.5%, arterial 3%, diabetic 12%, pressure 2.5%; and Corber (2009, N=36606): vein wounds 57.6%, arterial 9, arterial/venous 8.5%.

The profile of CW patients in primary care and home care is in line with demographic trends and increase of chronic diseases. In the home care service, 85% of all patients were older than 70, in geriatric centers 75% were older than 80 and 20% older than 90 years, while in primary health care services the average age of CW patients was 67 years. The patients had two or more comorbidities, mostly cardiovascular and polyvascular disorders (arterial, venous, lymph). Each patient used 4-12 (5 on average) drugs *per* day. The distribution of chronic comorbidities was as follows: cardiovascular disease 58%, degenerative disease 50%, metabolic disease 25%, and mental disorders 10%. Partial immobility was recorded in 35% and total immobility in 20%, while mobility was preserved in 45% of patients. The female to male ratio was 2:1. Social and financial conditions of CW patients were generally very poor. The patients suffered frequent skin changes as a result of vascular and metabolic diseases, tumors and aging, with increased vulnerability, very similar to the atopic skin (skin like atopic skin (SLAS) syndrome, author's term).

The characteristics of CWs are mixed forms, hard to heal healing wounds, oncologic and traumatic. In outpatient care, specific and different etiologic distribution of CWs is recorded in adults, young population and children. In adults, the most common wounds were venous, pressure, oncologic, and postoperative wounds; in young people, wounds were mostly consequential to trauma, thrombophilia, vasculitis, and intravenous drug use; in children, injuries and burns, infection, epidermolysis bullosa and pressure ulcers were most common.

How do non-etiologic factors, e.g., place of life and work (urban, rural), financial status, level of education, level of health care organization and availability, patient profile, etc., affect CW healing? For example, financial factor: in a study of 1393 CW patients, only 30.94% (n=624) patients could afford buying support stockings, dressings, drugs, or paying for diagnostic methods, laser operations of the veins, etc., not covered by health insurance (X_{2emp}=293.19>C_{20} (p£0.05), df=1; p<0.0001). Also, comparison between patients from urban and rural settings showed the former to have first physician appointment earlier, with 6 times more follow up visits, 21 times more vein operations, and 25 times more color duplex examination. Based on color duplex examinations, indications for operative treatment were found in 1260 (62.47%) of 2017 patients, while only 338 (17%) patients were operated on (C^2_{emp}=125.44 >C^2_0 (p£0.05) df=1; p<0.001). Anti-reflux operations of insufficient veins showed best results with the lowest percentage of relapse. The cause of this disproportion is the impact of a non-etiologic factor on venous wound therapy (4).

Primary care and home care is the nucleus, a model of micro centers for CW therapy. Primary care doctors and nurses know the patients and their health status very well (holistic principles of therapy), they conduct triage and can treat approximately 80% of CWs in postoperative conditions, nonoperative current treatment, dressings, evaluation, prevention and rehabilitation. Primary care has the highest availability to patients (compared to secondary and tertiary levels), which is a significant non-etiologic factor with positive effects on CW treatment.

The primary Home Care-Wound Care team includes a physician, nurse, pharmacist, patient, family, social workers, volunteers, companies, etc. Collaboration between all team members is very important (5). The health insurance fund should also be involved. The requirement for effective work is standard documentation and protocol for CW therapy to enable proper team communication. Evaluation is carried out for 3-4 weeks; if there are no signs of healing, change of treatment needed with specialist consultation. Staff education is a permanent process to qualify specialists for CW management.

The possibility and recommendation how to organize the home care team depend on many factors that influence CW therapy. Primary care and home care are the first line of triage, diagnosis and therapy of CWs, i.e. primary team for CW management, who can treat CWs of different etiology. There is no difference in the efficacy of treatment at the hospital as compared with primary care and home care with implementation of the current therapy model, continuing staff education, patient information, standard documentation, evaluation and rehabilitation of patients. This is a model for CW therapy that will increase in importance in the future (6,7).

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SAŽETAK

ETIOLOŠKA PODJELA KRONIČNIH RANA I KARAKTERISTIKE PACIJENATA U LIJEČENJU U PRIMARNOJ SKRBI

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Kronične rane su kronične bolesti, posljedice ozljeda ili vaskularnih, metaboličkih, onkoloških, neuropatskih ili drugih bolesti s polietiološkim rizičnim faktorima i mnogim komplikacijama (infekcija, celulitis, fasciitis,krvarenje, amputacija). Menedžment kroničnih rada uključuje ranu dijagnozu i suvremenu kirurško ili nekirurško terapiju. Vrlo značajan faktor u menedžmentu kroničnih rana kao neetiološki čimbenik je dobra organizacija i pristup zdravstvenog sustava pacijentu. Primarna skrb i skrb u kući moderni su aktualni modeli za terapiju kroničnih rana koje se preporučuju u Europi i kao modeli budućnosti. Primarni tim za menedžment kroničnih rana kao dio primarne zdravstvene skrbi provodi trijažiranje i terapiju kroničnih rana, dijagnostičke postupke i modernu nekirurško terapiju, evaluaciju, prevenciju i rehabilitaciju uz stalnu edukaciju I suradnju sa specijalistima. Takav tim može liječiti 80 % pacijenata s kroničnom ranom različite etiologije. Demografska tendencija I globalno povećanje kroničnih bolesti naglašava kritičku važnost primarnog tima za postupke s kroničnim ranama.

KLJUČNE RIJEČI: primarna zdravstvena zaštita, kronične rane, karakteristike pacijenata