Continued from page 793

A person using additional hypertensive medications had 2.74 more visits ($P < 0.05$) than those using HCT alone. Although not statistically significant, higher provider continuity was associated with higher ambulatory care utilization. Patients having no continuity of provider experienced 1.19 fewer visits during the prior year as compared with those with total provider continuity. There was a significant association ($P < 0.05$) between SECON and the number of abnormal blood pressure determinations. A person with no continuity had an average of 3.02 more abnormal blood pressure readings than a person with total continuity.

Comment

Results of this study indicate that the number of ambulatory care visits is increased with use of second-step antihypertensive agents. This increase is perhaps a result of further monitoring by physicians as the risk of side effects, the number of medical problems, and the difficulty of control are increased in these patients.

When age, sex, race, payment status, and the presence of other medical problems were controlled for, increased provider continuity was also found to be associated with a decreased number of abnormal blood pressure readings. In this study a difference of three abnormal readings during a 12-month period would have been predicted for those receiving total provider continuity compared with those receiving no continuity. In this and other studies, it cannot be determined which came first, the increased compliance (self-selection bias) or the continuity relationship (true cause and effect). In addition, there may be other demographic characteristics that are associated with better hypertension control (eg, education).

A prospective study in which patients are randomly assigned to groups receiving high and low provider continuity would be a fruitful area for further research into the relationship between continuity and outcome of care.

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Herpetic Whitlow in Family Practice

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Of the 100 species of herpes simplex virus, five are known to cause disease in humans: varicella zoster, Epstein-Barr virus, cytomegalovirus, and herpes simplex virus types 1 and 2. The latter two have been associated with acute gingivostomatitis,[1] keratoconjunctivitis,[2] encephalitis, neonatal infections, and cutaneous eruptions including genital herpes.[3] Herpetic nail-bed infections (whitlow) represent an often misdiagnosed manifestation of herpes simplex virus that must be differentiated

Continued on page 800

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Continued from page 797

from a bacterial felon or paronychia. Two brief case reports seen in a single residency practice are presented with a discussion of herpetic whitlow and its relevance to family medicine.

Case Reports

A married 19-year-old man presented to the Family Medical Center with a one-week history of a 5-mm area of vesicular lesions on the dorsal aspect of the distal right third finger. No associated cellulitis or lymphadenopathy was detected. The lesion was reported to be painful and to have recurred periodically in the same distribution since the finger had been traumatized two years previously. A vesicle was ruptured and clear serous fluid obtained. Bacterial cultures were negative, but viral cultures yielded herpes simplex virus type 2. The lesion healed uneventfully over the subsequent ten days. The man's wife was in the third trimester of pregnancy. No evidence of genital herpes in the wife was obtained by history or examination, including cervical cultures for herpes simplex virus in anticipation of delivery.

A 4-year-old girl who was a regular member of the practice presented to the emergency room with gingival ulcers associated with a history of general malaise, fever, and poor oral intake. The mother reported that the child had complained of mouth tenderness three days prior to the onset of the lesions. The presentation was felt to be consistent with viral stomatitis. Within 72 hours the symptoms and ulcers had resolved. Approximately 36 hours later a painful 8-mm vesicular lesion appeared on the right thumb adjacent to the nail bed. This lesion was followed by the appearance of two smaller but similar lesions proximally. The patient was seen the next day, and a distal lesion ruptured, from which the clear serous fluid was found to be culture positive for herpes simplex virus type 1. The parent was instructed to protect the wounds with dry sterile dressings.

Discussion

Although the incidence is unknown, herpetic whitlow may be confused with other frequently seen infections of the distal finger. The rising incidence of herpes infections in the community in turn increases the likelihood that herpetic whitlow will become more common in the future. Since it

is still an unusual presentation and likely to be unrecognized, careful clinical evaluation coupled with a high index of suspicion would increase case detection. As the first case report demonstrates, undetected herpes infection from a whitlow can present potential risk to a fetus.

Herpetic whitlow occurs in children most commonly following stomatitis. In adolescents these infections are associated with genital infections.[4] Populations at risk also include dental personnel, physicians, and nursing personnel.[5]

Herpetic whitlow may represent a primary infection or secondary recurrence or either herpes simplex virus type 1 or 2. The virus is introduced through a break in the epidermis with an incubation period of two to 20 days.[6] Clinical onset frequently follows three to four days of local erythema and pain which may radiate proximally. In the primary infection, whitlow is often associated with regional adenitis, fever, and malaise before the appearance of a vesicular lesion. The typical whitlow occurs distal to the metacarpophalangeal joint but may appear more proximally.

Vesicular fluid is characteristically clear and should suggest herpetic whitlow, although bacterial superinfection may cause purulence. After 10 to 14 days the lesion and pain usually resolve without scarring. Once the epidermis has healed, viral shedding is believed to cease. Hypersensitivity and numbness may persist between recurrent episodes, which occur in 30 to 50 percent of individuals. These episodes may be mild relative to the primary infection, although some have been associated with debilitating illnesses.

Clinical diagnosis can be assisted by history or symptoms of keratoconjunctivitis, stomatitis, or genital herpes. Confirmation by laboratory diagnosis, if necessary, may include a Tzanck preparation of vesicular fluid that reveals multinucleated giant cells in 50 to 60 percent of cases.[7] Flocculent antibody techniques can aid in the rapid detection of herpes simplex virus. Final diagnosis and typing currently requires culture results. Serologic studies may demonstrate a rise in anti-herpes simplex virus titers but generally are not warranted.

Although numerous therapeutic preparations have been utilized, none has proven effective. Recently, topical acyclovir (Zovirax) has been suggested to shorten the clinical course,[8] although its efficacy remains to be experimentally verified. Debridement or deep incision may lead to secondary bacterial infection and has been associated with systemic dissemination of herpes simplex virus with devastating consequences. In the specific case of subungual lesion with extreme pain, relief may be obtained by removing the overlying nail.[9] Currently it appears that dry sterile dressings, analgesics as needed, and instructions to monitor for associated herpetic infection make up a rational approach to this problem.

Transmission from ophthalmologic, oral, genital, and cutaneous sites can be avoided by proper warning and protection. If herpetic manifestation is suspected, the health care provider should wear gloves and minimize contact with infected tissue. Infected health care workers should avoid contact with immunocompromised or severely debilitated individuals. Genital herpes, when present during the perinatal period, can be associated with neonatal infections. The presence of herpetic whitlow during this period may represent a risk to the newborn, necessitating serial genital cultures and cesarean section when indicated.

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