Calculation Skills: Venous Leg Ulcer Management

NICE (2016) define a leg ulcer as a loss of skin on the foot or the leg (below the knee), which has not healed within two weeks and are considered chronic if not healed within 4 weeks. The cause of venous leg ulcers is prolonged venous hypertension consequential of an insufficient calf muscle pump and/or chronic venous insufficiency (NICE, 2016). Symptoms of venous leg ulceration include swelling, pain and itching, sometimes accompanied by foul-smelling discharge and hardening of the skin around the skin-loss (NHS, 2016).

Question 1

It is estimated that between 0.1% and 0.3% of the UK population have a leg ulcer at any given time NICE, 2016).

(i) Based on a UK population size of 64.1 million, what is the minimum number of people with a venous leg ulcer?

(ii) What is the maximum number of people with a venous leg ulcer?

Question 2

SIGN (2010) identified that a study of 600 patients with leg ulcers found that 76% were venous.

(i) How many of the 600 patients had leg ulcers which were NOT venous?

Question 3

The key objective to managing leg ulcers is to achieve healing. However, according to NICE (2016), between 26% and 69% recur within 12 months. Local community nursing team A have 5 patients on their caseload whose chronic venous leg ulcers have been successfully treated and healed within the last month.

(i) What is the **average** recurrence rate?

(ii) Based on the average recurrence rate, how many of Team A's 5 patients are likely to experience a recurrence in their leg ulcer within the next year? Round your answer up or down to the nearest whole number.

Question 4

Stephanie, a 53 year old hairdresser has been diagnosed with a venous leg ulcer. Compression therapy was initiated but the ulcer has become infected. In accordance with JFC (2016), Stephanie is prescribed 500mg capsules of flucloxacillin, one to be taken four times daily, for seven days.

(i) How many 500mg capsules will need to be prescribed for Stephanie's course of treatment?

(ii) The cost of flucloxacillin is £10.50 for 28 capsules. What is the cost of each dose (assuming 500mg capsules are used)?

Question 5

Once Stephanie's infection is successfully treated, the compression therapy is resumed but it is determined that, in accordance with SIGN (2010) guidelines, pentoxifylline should be prescribed as an unlicensed indication, in combination with the compression therapy. The dose of pentoxifylline is 400mg 3 times daily. Pentoxifylline is available as 400mg tablets at a cost of £ 19.39 for 90 tablets. It can be prescribed for up to 6 months.

(i) How many tablets will need to be prescribed for Stephanie for the period of 3rd March to 5th May inclusive?

(ii) What will the daily cost of this treatment be? (Round the cost of the daily dose up or down to the nearest pence).

(iii) If Stephanie requires treatment for 6 months (calculating one month as 30 days), how many tablets will Stephanie take in total.

Answers

Question 1

It is estimated that between 0.1% and 0.3% of the UK population have a leg ulcer at any given time NICE, 2016).

(i) 100% = 64100000

0.1% = 64100000 ÷ 1000 = 64100

Minimum number of people with a venous leg ulcer is 64100

(ii) 0.3% = 64100 x 3 = 192300

Maximum number of people with a venous leg ulcer is 192300

Question 2

(i) 100% = 600

1% = 600 ÷ 100 = 6

24% = 24 x 6 = **144**

Question 3

(i) Recurrence rate = 26 – 69 %

Average = (26 + 69) ÷ 2 = 47.5%

(ii) 100% = 5

1% = 5 ÷ 100 = 0.05

47.5 x 0.05 = 2.375

Rounded down = 2

Question 4

(i) Daily dose = 4 x 1 capsule = 4 capsules
Total course = 4 x 7 = 28 capsules

(ii) 28 capsules = £10.50
1 capsule = 1050 ÷ 28 = 37.5p

Question 5

Once Stephanie's infection is successfully treated, the compression therapy is resumed but it is determined that, in accordance with SIGN (2010) guidelines, pentoxifylline should be prescribed as an unlicensed indication, in combination with the compression therapy. The dose of pentoxifylline is 400mg 3 times daily. Pentoxifylline is available as 400mg tablets at a cost of £ 19.39 for 90 tablets. It can be prescribed for up to 6 months.

(i) Number of days 3rd March to 5th May inclusive = 64
Tablets daily = 3
Tablets needed = 64 x 3 = 192

(ii) 90 tablets = £19.39
Daily = (£19.39 ÷ 90) x 3 = 64.63333p (65p rounded up)

(iii) 6 months = 30 x 6 = 180 days
3 tablets x 180 days = 540 tablets

References

Joint Formulary Committee (2016) *British National Formulary 72.* London: BMA & RPSGB

NHS Choices (2016) *Venous leg ulcer.* Online available at: http://www.nhs.uk/Conditions/Leg-ulcer-venous/Pages/Introduction.aspx

NICE (2016) *Clinical knowledge summaries: Leg ulcers – venous.* Online available at: https://cks.nice.org.uk/leg-ulcer-venous

SIGN (2010) *Management of chronic venous leg ulcers: A national guideline 120.* Edinburgh: SIGN