Chapter 2. Acute and chronic inflammation(6):

1. In acute inflammation, which events occur in the correct chronological order? *(Remembered from 2000, 2004 exam.)* p50
(a) transient vasoconstriction, stasis of blood flow, increased permeability, vasodilation
(b) transient vasoconstriction, increased permeability, vasodilation, stasis of blood flow
(c) vasodilation, increased permeability, stasis of blood flow, neutrophil accumulation
(d) neutrophil accumulation, vasodilation, increased permeability, stasis of blood flow
(e) transient vasoconstriction, vasodilation, stasis of blood flow, endothelial gap formation in venules.

2. The first vascular response to injury is
(a) slowing of the circulation
(b) venular dilatation
(c) recruitment of the vascular beds
(d) capillary enlargement
(e) arteriolar vasoconstriction

3. The first event in acute inflammation is (2000, 2006)
(a) arteriolar vasodilation
(b) increased permeability
(c) diapedesis
(d) arteriolar vasoconstriction
(e) stasis

4. Leukocytes move into the tissues from the vasculature (extravasation)
(a) by the action of actin and myosin
(b) predominantly as monocytes on the first day post injury
(c) in response to C3b
(d) in response to the Fc fragment of IgG
(e) largely in the arterioles

5. Regarding the chemical mediators of inflammation
(a) histamine is derived from plasma
(b) C3b is within macrophages
(c) the kinin system is activated in platelets
(d) nitric oxide is preformed in leukocytes
(e) Serotonin is preformed in mast cells

6. Regarding the complement cascade which of the following statements is true? (2004, 2006)
(a) the alternative pathway is stimulated by antigen-antibody interaction
(b) C5a is split to C5b.
(c) C5a activates the lipooxygenase pathway of arachidonic acid metabolism in neutrophils.
(d) C3bBb inhibits the final common pathway
(e) Microbial surfaces initiate the classical pathway of the complement cascade.

7. Regarding the kinin cascade (2004)
(a) Kallikrein feeds back to activate factor XI, and amplifies the clotting cascade
(b) activates the complement cascade via the lectin pathway
(c) Kallikrein directly cleaves fibrin
(d) Bradykinin is formed from kallikrein acting on HMWK
(e) Bradykinin amplifies its own production by cleaving prekallikrein to active kallikrein

8. Bradykinin (2006)
(a) causes smooth muscle dilatation
(b) kallikrein causes prohormone degradation to produce bradykinin
(c) in inhibited by Hageman factor
(d) ameliorates pain
(e) is a potent vasoconstrictor
(x) is factor 12

9. Which of the following is involved in the initiation of the clotting cascade, complement and kinin systems? (2004)
(a) Hageman factor (XII)
(b) factor VII
(c) antigen-antibody complex
(d) Tissue factor
(e) Platelet activating factor

10. Which of the following immune cell is unable to phagocytose
(a) neutrophils
(b) eosinophils
(c) macrophages
(d) T-cells
(e) monocytes

11. The most common peripheral circulating lymphocyte is the (2006)
(a) B-cell
(b) T-cell
(c) Macrophage
(d) Natural killer cell
(e) Polymorphic nucleocyte

12. Macrophages are derived from
(a) monocytes
(b) T cells
(c) B cells
(d) Eosinophils
(e) Plasma cells

13. Macrophages may secrete
(a) histamine
(b) serotonin
(c) prostaglandins
(d) oxygen free radicals
(e) none of the above

14. Regarding Chronic inflammation, which is correct? (2006)
(a) it characterised by hyperaemia, oedema, and leukocyte infiltration
(b) monocytes use the same chemotactic pathways as neutrophils
(c) it is always preceded by acute inflammation
(d) most frequently results in resolution
(e) angiogenesis is not a feature

15. Regarding chronic inflammation, which is correct?
(a) Macrophages have a half-life of 5 days
(b) it is always preceded by acute inflammation
(c) unlike acute inflammation, lymphocytes do not play a major role
(d) prolonged exposure to toxins such as silica causes repeated bouts of acute inflammation, rather than the chronic type
(e) attempts at healing are evident

16. Regarding chronic inflammation which of the following is FALSE?
(a) It is associated with persistent infections
(b) It primarily involves tissue destruction
(c) It may contribute to the formation of atherosclerosis
(d) It can be caused by exposure to toxic agents
(e) It involves mononuclear inflammatory cells

Answers

note (*) denotes made up question to complete the whole format

1. In acute inflammation, which events occur in the correct chronological order? p50.

(c) (transient vasoconstriction), vasodilation, increased permeability, stasis of blood flow, neutrophil accumulation.

2. The first vascular response to injury is p50

(a) slowing of the circulation (4^{th})

(b) venular dilatation (2^{nd})

(c) recruitment of the vascular beds: ***not in the text***

(d) capillary enlargement 2^{nd}ary to arteriolar dilation ***∴ 2^{nd} event***

(e) arteriolar vasoconstriction (1^{st})

3. The first event in inflammation is p50 (2000 MCQ)

(a) vasodilation ***2^{nd}***

(b) increased permeability ***3^{rd}***

(c) diapedesis ***(later with leukocyte involvement)***

(d) vasoconstriction 1^{st}

(e) increased viscosity ***(4^{th})***, stasis ***(5^{th})***

4. Leukocytes move into the tissues from the vasculature (extravasation) (fig 2-8 p57)

(a) by the action of actin and myosin, in association with a number of actin-regulating proteins

(b) predominantly as ***neutrophils*** on the first day post injury, monocytes predominate on day two

(c) in response to chemical gradients (chemotaxis) ***endogenous: C5a, lipooxygenase pathway LTB_4, IL-8, exogenous: bacterial products*** and the actions of integrins (leukocytes) and selectins (endothelial cells)

(d) in response to the Fc fragment of IgG, C3 complement, cause ***activation***, and phagocytosis, ***NOT*** extravasation

(e) largely in the ***venules***

5. Regarding the chemical mediators of inflammation p64, 65, 127

(a) histamine is a widely distributed in tissues and is a ***biogenic amine*** derived from ***basophils and mast cells***

(b) C3b is an activated complement fragment, and is present in the plasma (p81)

(c) Platelets contain α granules contain fibrinogen, fibronectin, factor V, VIII, PDGF, TGF-β; δ granules contain ATP, ADP, serotonin, histamine, and adrenaline, and ***do not have a role in the kinin system.***

(d) nitric oxide is released on ***activation of leukocytes, by increases in intracellular calcium***

(e) Serotonin is preformed in platelets and the mast cells of *rodents, not of humans*

6. *(From 2004 paper and previous other papers)* p65-66

Regarding the complement cascade which of the following statements is true?

(a) Antigen-antibody complexes initiate the complement cascade through the ***classical*** pathway

(b) C5 is split to C5a and C5b.

(c) C5a activates the lipooxygenase pathway of arachidonic acid metabolism in neutrophils.
(d) C3bBb (known as C3 convertase) ***splits C3 to C3b***.
(e) Microbial surfaces initiate the alternative pathway of the complement cascade.

7. Regarding the kinin cascade p66-67 (2004)
(a) Kallikrein feeds back to activate factor ***XII,*** and amplifies the clotting cascade
(b) activates the complement cascade by cleaving C3 to C3a and C3b
(c) Kallikrein activates ***plasminogen to plasmin, which cleaves fibrin***
(d) Bradykinin is formed from kallikrein acting on HMWK (HMWK has factor XII activating action too)
(e) ***kinins acts in a similar way to histamine.*** They are primarily tissue hormones. They contract visceral smooth muscle, but relax vascular smooth muscle via NO, lowering BP. There is no evidence of a positive feedback loop

8. Bradykinin (p65-66)
(a) causes smooth muscle ***contraction, but interestingly, vasodilation!??***
(b) kallikrein causes prohormone degradation (of HMWK) to produce bradykinin
(c) in produced by ***Hageman factor, which activates prekallikrein to kallikrein, which then converts HMWK to bradykinin***
*(d) ***causes pain*** when injected into the skin
*(e) is a potent ***vasodilator***

9. Which of the following is involved in the initiation of the clotting cascade, complement and kinin systems? (2004) (p67, 1278)
(a) Hageman factor (XII): activates prekallikrein, kallikrein activates plasminogen to plasmin, which can then change C3 to C3a. XII activates the intrinsic clotting pathway.
(b) factor VII ***(extrinsic pathway)***
(c) antigen-antibody complex ***alternative pathway of complement only***
*(d) Tissue factor ***(extrinsic pathway)***
*(e) Platelet activating factor ***(stimulates broncho/vasodilation)***

10. Which of the following immune cell is unable to phagocytose
(a) neutrophils
(b) eosinophils
(c) macrophages
(d) T-cells
(e) monocytes, natural killer cells.

11. The most common peripheral circulating lymphocyte is the
(a) B-cell ***(25%)***
(b) T-cell: 75% in the peripheral circulation
(c) macrophage *(not a lymphocyte)*
(d) Natural killer cell *(not a lymphocyte)*
(e) polymorphic nucleocyte *(not a lymphocyte)*

12. Macrophages are derived from p621
(a) monocytes, which are non-activated, and circulating, whereas monocytes in tissues are macrophages
(b) T cells
(c) B cells
(d) Eosinophils
(e) Plasma cells

13. Macrophages may secrete p63 fig 2-12
(a) histamine ***(mast cells, basophils, platelets)***
(b) serotonin ***(platelets, mast cells in rodents)***
(c) prostaglandins (all leukocytes)
(d) oxygen free radicals (?only in phagolysosome)
(e) none of the above

14. Regarding chronic inflammation (2000)
(a) it characterised by hyperaemia, oedema, and leukocyte infiltration ***(acute)***
(b) monocytes use the same chemotactic pathways as neutrophils
(c) it is ***not always preceded by acute inflammation*** (rheumatoid)
(d) may result in resolution ***(not always)***
*(e) angiogenesis is a feature of ***wound healing and attempts at repair***

15. Regarding chronic inflammation, which is correct? (p79-82)
(a) ***Macrophages have a half-life of several months to years.***
(b) it is not always preceded by acute inflammation, ***can be insidious in onset***
*(c) unlike acute inflammation, ***lymphocytes play a role in cell-mediated reactions***, and the production of immunoglobulin. They also stimulate macrophages, and macrophages stimulate them back, propagating chronic inflammation
*(d) prolonged exposure to toxins such as silica causes ***chronic inflammation***
***(e) attempts at healing are evident**

16. Regarding chronic inflammation which of the following is FALSE? p79
(a) It is associated with persistent infections
(b) It involves attempts at repair, rather than just tissue destruction
(c) It may contribute to the formation of atherosclerosis
(d) It can be caused by exposure to toxic agents
(e) It involves mononuclear inflammatory cells