

4 膀胱留置カテーテルの代替方法

- 4.1 患者や状況に応じて間欠導尿を検討する[22]。(IIA)
- 4.2 間欠導尿を行う時には無菌操作は必要ないが清潔に行う[23]。(IIA)
- 4.3 患者や状況に応じて膀胱ろうでのカテーテル管理を検討する[24, 25]。(IIA)
- 4.4 患者や状況に応じてコンドームカテーテルの使用を検討する[26-29]。(IIA)

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人工呼吸器関連肺炎対策

1 教育・サーベイランス

- 1.1 人工呼吸器関連肺炎防止に関する標準化された教育・研修を実施する [1, 2]。(IIB)
- 1.2 全国的なサーベイランスを参考にし、自施設の人工呼吸器関連肺炎対策の有効性を客観的に評価する [3, 4]。(IIB)

2 器具の消毒

- 2.1 目に見える汚染がない限り、人工呼吸器の本体表面は除染・消毒を行う必要はない。(IIIA)
- 2.2 汚染があった場合は使用説明書にしたがって除染・消毒を行う。(IIIA)
- 2.3 人工呼吸器関連肺炎の原因が人工呼吸器内部の汚染であることが疑われる時は、人工呼吸器内部の回路の除染・消毒を行なう [5]。(IA)
- 2.4 人工呼吸器に関連した単回使用製品の再使用は行なわない。(IIIA)
- 2.5 製造者によって再使用が認められている人工呼吸器回路を新規患者に使用する場合は、滅菌もしくは回路が耐熱性であれば熱水消毒を行う。(IIIA)
- 2.6 人工呼吸器回路内の結露は患者側へ流入しないように除去する [6]。(IIA)

3 人工呼吸器回路の交換

- 3.1 人工呼吸器回路を同一患者に使用する場合は、特別の汚染や破損がない限り 1 週間以内に定期的に交換する必要はない [7]。(IA)
- 3.2 バクテリアフィルター付き人工鼻を使用している患者では、汚染や閉塞が明らかでない限り、人工呼吸器回路の交換はしない [8]。(IA)

4 バクテリアフィルター付きの人工鼻

- 4.1 人工呼吸器関連肺炎予防の目的で人工鼻を使用すべきかどうかは不明である。(IC)
- 4.2 結核、新型インフルエンザ、SARS など空気感染を起こす可能性のある患者に人工呼吸管理を行う場合は、呼気の室内排出側に、バクテリアフィルターを装着する。(IIIB)

5 周辺機器や手技・操作の管理

- 5.1 ネブライザーの薬液注入部は熱水消毒または低温滅菌を行う [9, 10]。(IA)
- 5.2 吸入薬剤の調製は無菌的に行う [11]。(IA)
- 5.3 加温加湿器には滅菌水を使う [12]。(IA)
- 5.4 加温加湿器の給水は閉鎖式を用いる。(IIIB)
- 5.5 回路に結露した水を抜く場合は一方弁付きのトラップを使用する。(IIIB)

6 吸引操作、気管内吸引カテーテル（閉鎖／開放）の管理

- 6.1 気管内吸引前後には手指消毒を行う。(IIIA)
- 6.2 気管内吸引操作に用いる手袋は清潔な未滅菌のものを使用する。(IIIB)
- 6.3 単回使用の吸引チューブは 1 回ごとの使い捨てにする。(IIA)
- 6.4 人工呼吸器関連肺炎予防の目的で閉鎖式吸引システムを使用すべきかどうかは不明である [13]。(IC)
- 6.5 開放式気管内吸引操作は清潔操作とする。(IIIA)
- 6.6 気管内吸引操作は必要最小限に留める [14]。(IIIA)
- 6.7 吸引チューブの洗浄には滅菌水を使用する [15]。(IIIA)
- 6.8 気管内吸引と口腔内吸引が終わった吸引チューブは廃棄し、薬液に浸して再利用しない。(IIIA)
- 6.9 吸引回路および吸引瓶は当該患者専用とする。(IIIA)
- 6.10 蘇生用バッグやジャクソンリースは汚染がなくても患者ごとに交換する [16-20]。(IIIA)

7 気管切開

- 7.1 気管切開を行なう場合は高度バリアアプリケーション（滅菌手袋、長い袖の滅菌ガウン、マスク、帽子と大きな滅菌覆布）で行なう。(IIIA)
- 7.2 気管切開チューブを交換するときは手指消毒を行い、清潔な（未滅菌で良い）手袋を用いる。(IIIB)

8 気管チューブの選択と経路 [19-22]

- 8.1 特に禁忌でない限り経口挿管を選択する。(IB)
- 8.2 カフ上部の貯留物を吸引するための側孔付きの気管チューブを使用する。(IB)

8.3 カフ内圧はカフ圧計で一定時間ごとに測定することとし、脱気して一定量を再注入する手技は避ける [21]。(IIB)

8.4 カフ圧は 20～30 cmH₂O の範囲で維持する [21, 22]。(IIB)

8.5 気管チューブの抜管時、または気管チューブを動かす前には、カフ上の分泌物を吸引・除去する。(IIIB)

9 ストレス潰瘍予防薬

9.1 胃液の pH の上昇により人工呼吸器関連肺炎の発症率が増加するため、ストレス潰瘍の危険性が少ない患者に対して H₂ 受容体拮抗薬を投与しない [26]。(IB)

9.2 ストレス潰瘍の危険性の高い患者に対して抗潰瘍薬を投与する場合、人工呼吸器関連肺炎予防の観点からはスクラルファートなど胃の pH を上げない薬剤を使う [27-29]。(IIB)

10 体位

10.1 人工呼吸器関連肺炎予防の観点からは患者の上半身を挙上した体位で人工呼吸管理を行う [30]。(IB)

11 口腔内清拭

11.1 定期的に口腔内清拭を行う [31]。(IIA)

12 予防的抗菌薬の投与

12.1 人工呼吸器関連肺炎予防の目的で抗菌薬の全身投与を行わない。(IIIA)

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手術部位感染対策

1 術前の患者管理

- 1.1 待機手術で手術部位から離れた部位に感染症がある場合は、感染症の治療後に手術を行う [1, 2]。(IIA)
- 1.2 血糖値を管理し、周術期の高血糖状態を避ける [3-5]。(IIB)
- 1.3 待機手術では少なくとも30日前に禁煙を行わせる [6, 7]。(IIB)
- 1.4 術前の入院期間は、適切な術前処置ができる範囲で短くする [7, 8]。(IIIB)
- 1.5 消毒薬を染み込ませたタオルで全身を清拭したり消毒薬によるシャワー浴を実施する [26] (IIB)
- 1.6 術前の一律的なMRSA 鼻腔保菌検査はしない (IIB)。
- 1.7 術前の一律的なムピロシン鼻腔塗布は不要である。(IC)

2 術前処置

- 2.1 除毛 (剃毛を含む)
 - 2.1.1 剃毛は行わない [9]。(IIA)
 - 2.1.2 除毛が必要な場合には医療用電気クリッパーを使用して手術直前に行う [10, 11]。(IIA)

3 術野の皮膚消毒

- 3.1 消毒を行う前に切開部位とその周囲を洗浄し、汚染を取り除く。(IIIA)
- 3.2 0.5%クロルヘキシジンアルコールまたは10%ポビドンヨードを用いる。(IIIA)
- 3.3 消毒は切開部位から外側に向かって同心円状に行う。消毒の範囲は追加切開や切開の延長に対応できるような範囲とする。(IIIA)

4 術者の手指衛生 (手術時手洗い)

- 4.1 爪は短く切る。(IIIA)
- 4.2 手や腕に装身具を付けない。(IIIA)
- 4.3 手から肘の上まで石けんと流水で手洗いを行い、その後肘の上まで擦式手指消毒薬を用いて手指消毒を行う [12-14]。(IIB)

5 手術室医療従事者の管理

- 5.1 皮膚から排膿のある手術室の医療従事者は、感染が治癒するまで就業を制限する [15]。(IIIA)
- 5.2 黄色ブドウ球菌やA群連鎖球菌を保菌している手術室の医療従事者であっても、伝播に関与していない限り、業務から外す必要はない [15]。(IIIA)

6 手術室の換気

- 6.1 手術室内は廊下その他の区域に対して陽圧を維持する [16, 17]。(IV)
- 6.2 1時間あたり15回以上の換気を行う。そのうち3回以上は外気を導入する [16, 18]。(IIIA)
- 6.3 再循環した空気であっても外気であっても、空気はHEPA フィルターまたは高性能フィルターを通過させる [16]。(IIIA)
- 6.4 空気は天井から床の方向に流れるようにする。(IIIA)
- 6.5 整形外科的な人工物の植え込み術を行う場合は、HEPA フィルターを通過した空気が供給される手術室で行う [19]。(IIA)

7 手術時の服装と覆布

- 7.1 手術中の手術室、もしくは滅菌器械が展開されている部屋に入室する全ての医療従事者は、口と鼻を完全に覆うサージカルマスクと頭髪を完全に覆う帽子を着用する。(IIIA)
- 7.2 手術用ガウンや覆布は撥水性のものを使用する。(IIIA)

8 ドレーン

- 8.1 ドレーンは手術創とは異なる切開部位から、個別に留置する。(IIIA)
- 8.2 ドレーンは可能な限り早期に抜去する [20]。(IIIA)
- 8.3 閉鎖式のドレーンを使用しても良い [21-23]。(IIC)

9 手術創管理

- 9.1 一次閉鎖された手術創は、ガーゼで被覆するよりも、適切な保温、湿潤環境が維持できるフィルムドレッシング材を用いる [24]。(IIIA)

- 9.1.1 手術創はドレッシング材で、術後 48 時間は保護する。(IIB)
- 9.2 ドレッシング材の交換を行う場合や手術部位に接触する場合には、処置の前後に手指消毒を行い清潔な（未滅菌で良い）手袋を使用する。(IIIA)
- 9.3 閉鎖されていない切開創のドレッシング材を交換する場合には、無菌操作で行う。(IIIA)
- 9.4 術創内に死腔を作らず、壊死組織や異物を残存させない。

10 手術環境の清潔保持

- 10.1 手術部位感染を防止する目的で紫外線照射を用いない。(IIIA)
- 10.2 必要時以外は手術室の扉を閉めておく。(IIIA)
- 10.4 手術室に入るスタッフは最小限に制限する。(IIIA)
- 10.5 手術室の機材や環境表面が血液や体液で汚染した場合は、消毒薬等を用いて除染する。
- 10.6 手術終了後、目に見える汚染が無い場合は、次の手術のために、手術室の消毒は不要である。
- 10.7 MRSA や多剤耐性緑膿菌などについての一律的な環境検査は不要である。
- 10.8 不潔手術や汚染手術の後であっても、手術室の一律的な閉鎖と特殊な清浄化処理は不要である。

11 手術部位感染サーベイランス

- 11.1 全国的なサーベイランスに参加して手術部位感染の発生率の施設間比較を行うことにより、自施設における手術部位感染対策の有効性を客観的に評価する [25]。(IIB)

12 手術用機具や器具、手術用具の洗浄と滅菌

- 12.1 再利用が原則の手術用機材や用具は、付着した有機物を確実に洗浄除去してから滅菌する。(IIIA)
- 12.2 滅菌は、熟練した担当者が行う。(IIB)
- 12.3 滅菌装置は定期的に点検をし、滅菌性能を確認する。(IIIA)
- 12.4 滅菌法は、手術用機材や用具の材質や熱や化学物質に対する特性を考慮して適した方法を選択する。(IIIA)
- 12.6 滅菌済みの手術用機材や用具は、滅菌保証期限内に用いる。(IIIA)
- 12.7 単回使用が原則の手術用器具や用具は、洗浄・滅菌して再生利用しない。(IIB)

13 周術期の抗菌薬の予防投与

「院内感染対策のための抗菌薬の適正使用」の項目を参照のこと。

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カテーテル関連血流感染対策

1 中心静脈カテーテルの衛生管理

- 1.1 中心静脈栄養法の適応
 - 1.1.1 栄養療法が必要な場合は可能な限り経腸栄養を用いる[1~19]。(ⅡA)
 - 1.1.2 静脈栄養は、経腸栄養または経口摂取が不可能または不十分な場合に用いる[20]。(ⅢA)
 - 1.1.3 中心静脈栄養法は静脈栄養の長期化が予想される場合に用いる。[21~26] (ⅢA)
- 1.2 中心静脈カテーテルの選択基準
 - 1.2.1 必要最小限の内腔数のカテーテルを選択する。[27~37] (ⅠA)
 - 1.2.2 使用目的および使用予定期間を考慮してカテーテルを選択する。[38~44] (ⅡA)
- 1.3 カテーテル挿入部位
 - 1.3.1 感染防止のためには鎖骨下静脈穿刺を第一選択とする。[45~48] (ⅡA)
 - 1.3.2 感染防止のためには大腿静脈からのカテーテル挿入は避ける。[49~52] (ⅡA)
 - 1.3.3 穿刺時の安全性の面からは PICC(peripherally inserted central catheter:末梢挿入式中心静脈カテーテル)の使用が推奨される。[53~61] (ⅢB)
- 1.4 中心静脈カテーテルの抜去、入れ換え
 - 1.4.1 必要がなくなれば、カテーテルは抜去する。[62~64] (ⅠA)
 - 1.4.2 定期的にカテーテルを入れ換える必要はない。[65~70] (ⅡA)
 - 1.4.3 無菌的方法が実施できない状況で挿入された CVC は、できるだけ早く無菌的方法で入れ換える。(ⅢB)
- 1.5 皮下トンネルの作成
 - 1.5.1 短期間の留置では、皮下トンネルを作成する必要はない。[71~76] (ⅡA)
 - 1.5.2 長期留置用カテーテルでは、管理が容易な部位まで皮下トンネルを作成する。[71~76] (ⅡA)
- 1.6 カテーテル挿入部位の剃毛
 - 1.6.1 穿刺に先立って局所の剃毛はしない。除毛が必要であれば、医療用電気クリッパーなどを用いる。[77~80] (ⅠA)
- 1.7 抗菌薬の予防投与
 - 1.7.1 短期用中心静脈カテーテル挿入に伴う抗菌薬の予防投与は行わない。[81~86] (ⅡA)
- 1.8 中心静脈カテーテル挿入時の皮膚の消毒薬
 - 1.8.1 カテーテル挿入時の皮膚消毒には、クロルヘキシジンアルコールまたはポビドンヨードを用いる。[87~93] (ⅠA)
- 1.9 高度バリアプレコーション
 - 1.9.1 中心静脈カテーテル挿入時は高度バリアプレコーション(滅菌手袋、長い袖の滅菌ガウン、マスク、帽子と広い滅菌覆布)を行う。[94~98] (ⅠA)
- 1.10 カテーテル留置期間中の皮膚の消毒薬
 - 1.10.1 カテーテル挿入部皮膚の処置で用いる消毒薬としては、クロルヘキシジンアルコールまたはポビドンヨードを用いる。[99~103] (ⅡA)
- 1.11 カテーテル挿入部の抗菌薬含有軟膏やポビドンヨードゲルの塗布
 - 1.11.1 抗菌薬含有軟膏は使用しない。[104~108, 112~114] (ⅡA)
 - 1.11.2 ポビドンヨードゲルは使用しない。[109~111] (ⅢB)
- 1.12 ドレッシング
 - 1.12.1 滅菌されたパッド型ドレッシングまたはフィルム型ドレッシングを使用する。[115~122] (ⅠA)
 - 1.12.2 ドレッシング交換は週1~2回、曜日を決めて定期的に行う。(ⅢA)
 - 1.12.3 カテーテル挿入部の発赤、圧痛、汚染、ドレッシングの剥れなどを毎日観察する。[132] (ⅢB)
- 1.13 輸液ライン
 - 1.13.1 一体型輸液ラインを用いる。[133~136] (ⅢB)
 - 1.13.2 三方活栓は手術室やICU以外では、輸液ラインに組み込まない。[137~140] (ⅡA)
 - 1.13.3 三方活栓から側注する場合の活栓口の消毒には消毒用アルコールを使用する。[141~144] (ⅡA)
 - 1.13.4 ニードルレスシステムの血流感染防止効果は明らかでないことを理解して使用する。[145~167] (ⅡA)
 - 1.13.5 ニードルレスシステムを使用する場合は、器具表面を厳重に消毒する。[168~169] (ⅡA)
 - 1.13.6 インラインフィルターを使用する。[170~174] (ⅢA)
- 1.14 輸液ラインの管理
 - 1.14.1 輸液ラインとカテーテルの接続部の消毒には消毒用アルコールを用いる。[175~176] (ⅡA)
 - 1.14.2 輸液バッグに輸液ラインを接続する場合は、輸液バッグのゴム栓を消毒用アルコールで消毒する。

[176] (ⅢA)

1. 14. 3 輸液ラインは曜日を決めて週 1~2 回定期的に交換する。[177~184] (ⅡB)
1. 14. 4 脂肪乳剤の投与に使用する輸液ラインは、24 時間以内に交換する。[185~188] (ⅢA)
1. 14. 5 作り置きしたヘパリン生理食塩水によるカテーテルロックは行わない。[189~193] (ⅢA)
1. 15 輸液・薬剤の管理
 1. 15. 1 高カロリー輸液製剤への薬剤の混合は、薬剤の数量を最小化し、薬剤師の管理下に無菌環境下で行う。[194~195] (ⅢA)
 1. 15. 2 輸液の汚染を避けるため、可能な限り高カロリー輸液用キット製剤を使用する。(ⅢB)
 1. 15. 3 スリーインワンバッグ製剤では微量元素製剤と高カロリー輸液用総合ビタミン剤以外は混注しない。投与ラインは完全閉鎖ルートとし、その製剤の輸液ルートからの側注は禁止する。[196] (ⅢA)
 1. 15. 4 高カロリー輸液にアルブミン製剤を加えない。脂肪乳剤を混合しない。[197~200] (ⅡA)
 1. 15. 5 高カロリー輸液製剤は、混合時間を含め 28 時間以内に投与が完了するように計画する。保存する必要がある場合には無菌環境下で調製し、冷蔵庫保存とする。(ⅢA)
1. 16 CRBSI が疑われる場合の対応
 1. 16. 1 カテーテル関連血流感染が疑われる場合は血液培養を行う。(ⅢA)
 1. 16. 2 他に感染源が考えられない場合にはカテーテルを抜去する。(ⅢA)
 1. 16. 3 カテーテル抜去時には、血液培養とともにカテーテルの先端培養を行う。(ⅢA)
 1. 16. 4 真菌が原因である場合には、真菌性眼内炎に留意して眼科的診察を行う。[201~203] (ⅢA)
1. 17 教育およびサーベイランスの役割
 1. 17. 1 医療スタッフに対し、カテーテル関連血流感染防止に関する標準化された教育・研修を実施する。[204~208] (ⅠA)
 1. 17. 2 全国的なサーベイランスを参考にし、自施設のカテーテル関連血流感染防止能力を客観的に評価する。[209] (ⅢB)
1. 18 システムとしてのカテーテル管理
 1. 18. 1 専門チームによる管理を行う。[210~219] (ⅡB)
 1. 18. 2 ICU では看護師-患者比を適正に保つ。[220~221] (ⅡB)

2 末梢静脈カテーテルの衛生管理

2. 1 留置部位
 2. 1. 1 上肢の静脈を使用する。[222~223] (ⅢB)
2. 2 カテーテルの選択
 2. 2. 1 静脈炎予防のためには、可能な限り細径のカテーテルを使用する。[224~226] (ⅢB) [
2. 3 カテーテルの留置期間、輸液ライン、ドレッシング、輸液の管理
 2. 3. 1 末梢静脈カテーテルは 96 時間以上留置しない。[227~238] (ⅢB)
 2. 3. 2 末梢静脈カテーテルの輸液ラインは、カテーテル入れ換え時に交換する。(ⅢB)
 2. 3. 3 末梢静脈カテーテル挿入部はフィルム型ドレッシングで被覆し、発赤や疼痛・腫脹の有無を毎日観察する。(ⅢB)
 2. 3. 4 アミノ酸加糖電解質製剤を投与する場合は、可能な限り薬剤混合・側注を避けるなどの厳密な衛生管理を実施する。(ⅢA)
2. 4 カテーテルロック
 2. 4. 1 治療終了後のカテーテルは速やかに抜去する。[239] (ⅢB)
 2. 4. 2 カテーテルロックを実施する場合は、作り置きしたヘパリン加生理食塩水は使用しない。[240] (ⅢA)

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