PROTOCOLO

MANEJO DE SANGRAMENTO
SEM TRANSFUSÃO DE SANGUE ALOGÊNICO

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HEMOSTASIA SISTÊMICA
E HEMOSTASIA TÓPICA

EXAMES LABORATORIAIS

- **Hemograma / Plaquetas**
- **Tempo e Atividade de Protombina** (TAP) ou **Relação Normatizada Internacional** (RNI)
- **Tempo de Tromboplastina Parcial Ativada** (TTPa)
- **Fibrinogênio**
- **Tempo de Coagulação Ativada** (se uso prévio de Heparina)
- **Cálcio**
- **Gasometria arterial**
- **Tromboelastografia ou Tromboelastometria Rotacional** (quando disponível)
- **Teste de função plaquetária** (agregação plaquetária)

IMPORTANTE

CHECAR SEMPRE

Tem > 35°C
pH > 7,2
Ca > 1,0 mmol/L
Fibrinogênio > 3 g/L
RNI < 1,3
Plaquetas > 80.000/mm³

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HEMOSTÁTICOS SISTÊMICOS

EM 3 ETAPAS

SANGRAMENTO EM CURSO

AUMENTAR O PODER DE **FORMAÇÃO DO COÁGULO**

AUMENTAR O PODER DE **FORMAÇÃO DO COÁGULO**

ETAPA 1

TCA > 130 seg → **PROTAMINA** 30UI /kg

RNI > 1,4 ou **TTPA** > 50 seg →
- **CONCENTRADO DE COMPLEXO PROTROMBÍNICO** 25 UI/ kg (dose inicial)
- **VITAMINA K (FITOMENADIONA)** 10-20mg máximo 50 mg/dia

HIPERFIBRINÓLISE (trauma: ISS > 25) → **ÁCIDO TRANEXÂMICO*** 50mg /kg (dose inicial)

FIBRINOGÊNIO < 1,5 g/L → **FIBRINOGÊNIO** 25mg/ kg (dose inicial)

DISFUNÇÃO PLAQUETÁRIA com ou sem uso de antiagregantes plaquetários → **DDAVP** 0,3 mcg/kg

PLAQUETAS < 80.000/mm³

OPÇÕES:
- **Eltrombopag:** 50–100mg /dia
- **Romiplostim:** 2-7 mcg/kg/semana
- **Imunoglobulina humana:** 200-400 mg/kg/dia por 2 a 5 dias
- **Oprelvecina:** 50mcg /kg/dia

A CADA ETAPA CONSIDERAR: **HEMOSTASIA CIRÚRGICA** E/OU **MÁQUINA DE AUTO-TRANSFUSÃO**

ETAPA 2

APÓS 1ª ETAPA

- **ÁCIDO TRANEXÂMICO** 100 mg/kg (dose adicional)
- **CONCENTRADO DE COMPLEXO PROTROMBÍNICO** 25UI/ kg (dose adicional)
- **FIBRINOGÊNIO** 25mg/kg (dose adicional)

A CADA ETAPA CONSIDERAR: **HEMOSTASIA CIRÚRGICA** E/OU **MÁQUINA DE AUTO-TRANSFUSÃO**

ETAPA 3

APÓS 1ª E 2ª ETAPAS

- **FATOR VII RECOMBINANTE ATIVADO** 40-90 mcg/kg
- **CONCENTRADO DE FATOR VIII/FVW** 25-50 UI/kg
- **CONCENTRADO DE FATOR XIII** 20-35 UI/kg

NOTAS ❶ **Varizes de esôfago:** Somatostatina - 250 mcg (dose inicial); 250-500 mcg/h (infusão contínua) ❷ **Sangramento uterino:** Estrogênio conjugados 20-120 mg/dia. ❸ **Ácido tranexâmico** 1-6 g EV de 6/6 horas; a infusão não deve exceder 100 mg/min. Pode-se usar o Ácido aminocaproico 4 g EV de 4/4 horas como opção ao ácido tranexâmico. ❹ **Fator VIIa recombinante ativado** (rFVIIa) 90 mcg/kg EV bolus a cada 2-3 horas. Uma vez alcançada a hemostasia, intervalo pode ser aumentado sucessivamente para 4, 6, 8 ou 12 horas. ❺ **Sangramento menstrual** (cessar menstruação): Medroxiprogesterona 10 mg via oral diariamente.

HEMOSTÁTICOS TÓPICOS

1 AGENTES ABSORVÍVEIS

- Celulose oxidada regenerada
- Gelatinas
- Colágeno Microfibrelar

2 AGENTES BIOLÓGICOS

- Selante de Fibrina
- Trombina Tópica
- Gelatina + Trombina

3 AGENTES SINTÉTICOS

- Adesivo de Glutaraldeído e Albumina Bovina
- Adesivos de cianoacrilato
- Polietilenoglicol

PROTOCOLO OU DIRETRIZ TERAPÊUTICA PARA USO DE **MÁQUINA DE RECUPERAÇÃO INTRAOPERATÓRIA DE SANGUE (AUTOTRANSFUSÃO)**

DEFINIÇÃO

Máquina de autotransfusão (mais conhecida como "cell-saver") que coleta o sangue do campo cirúrgico no intraoperatório e/ou pós-operatório. O sangue recuperado é lavado, filtrado e reinfundido no paciente em até 8 horas. Este é o melhor sangue para se receber através de uma transfusão por conter o mesmo DNA do paciente, portanto sem riscos de reações alérgicas, inflamatórias e imunológicas.

VANTAGENS

- Permite recuperar até 90% das hemácias perdidas durante a cirurgia;
- Custo-efetivo e seguro para o paciente, reduzindo tempo de hospitalização e evitando os riscos da transfusão de sangue alogênico, tais como: infecções, acidente vascular encefálico, arritmia, câncer, falência renal e morte;
- Elimina a doença Enxerto X Hospedeiro;
- Imediata disponibilidade de sangue fresco (autólogo);
- Diminui a demanda por sangue alogênico (doado);
- As hemácias recuperadas têm maior capacidade de transporte de oxigênio do que aquelas contidas nas bolsas estocadas nos bancos de sangue.

CONSIDERAR USO

- Procedimentos cirúrgicos em que a perda estimada de sangue possa exceder 500 ml (ou > 10% do volume total de sangue calculado) em pacientes adultos, ou > 8 ml/kg (> 10% do volume total de sangue calculado) em crianças com peso > 10 kg;
- Anemia durante o pré-operatório e/ou fatores de risco aumentados para sangramento;
- Pacientes com grupo sanguíneo raro ou anticorpos (pacientes sensibilizados por politransfusões anteriores);
- Pacientes que recusam a utilização de sangue alogênico por qualquer natureza;
- Gestante com anemia significativa antes da cirurgia e quando se prevê alto risco de hemorragia, ou se algum sangramento imprevisto ocorrer durante a cirurgia.

NOTA: Em cirurgia oncológica (câncer) ou quando o sangue for coletado de um campo cirúrgico infectado, considerar o uso de filtros de leucoredução ou da irradiação gama do sangue recuperado antes da infusão. Em pacientes com hemoglobinopatias (anemia falciforme ou talassemia) há o risco teórico aumentado de hemólise desencadeado pela hipóxia no reservatório coletor. Essas situações não contraindica de forma absoluta o uso dessa técnica, devendo-se avaliar caso a caso e pesar sempre os riscos e benefícios.

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