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The triple-checked criteria for drain management after pancreatectomy

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Introduction: Management of drains is important for the detection and treatment of clinically relevant postoperative pancreatic fistula (CR-POPF) after pancreatectomy. In 2016, we established the triple-checked criteria to remove drains after pancreatectomy: drain fluid amylase (DFA) <5,000 U/L on POD 1 and DFA <3,000 U/L on POD 3, or CRP <15 mg/dL on POD 3. The aim of this retrospective study was to validate the efficacy and safety of the triple-checked criteria.

Methods: Six hundred eighty-one patients who underwent pancreatectomy from 2012 to 2019 were included. Drains were removed following our previous criteria (sequentially-checked criteria: DFA <5,000 U/L on POD 1 and DFA <3,000 U/L on POD 3) from 2012 to 2016 (control group), and following the triple-checked criteria from 2017 to 2019 (intervention group).

Results: The control group included 406 patients (256 PD, 142 DP and 8 others), and the intervention group included 275 patients (177 PD, 93 DP and 5 others) ($p = 0.938$). Pancreatic texture was soft in 68.2% patients in the control group and 62.5% patients in the intervention group ($p = 0.125$). In the control group, 76.1% patients met the sequentially-checked criteria. On the other hand, significantly more patients (83.6%) met the triple-checked criteria in the intervention group ($p = 0.018$). There was no significant difference in the incidence of CR-POPF (11.1% vs. 14.2%, $p = 0.228$). False positive rate of the criteria was significantly lower in the intervention group (31.1%) than in the control group (64.9%, $p < 0.001$).

Conclusions: Triple-checked criteria contributed to safe drain removal after pancreatectomy without increasing CR-POPF.

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