SELECTED ABSTRACTS

Low intensity pulsed ultrasound for bone healing
Systematic review of literature

Schandelmaier S, Kaushal A, Lytvyn L, et al.
BMJ 2017 ;356:l656
http;//dx.doi.org./10.1136/bmj.656

Question

Does low intensity pulsed ultrasound (LIPUS) improve bone healing?

Methods

Systematic review and meta analysis of randomised control trials comparing LIPUS with sham device or no device was compared with patients with fracture or osteotomy. All medical databases and trial registries compared until November 2016. Two reviewers identified the studies and BMJ parallel guidelines committee advised the design and interpretation of the review GRADE used to assess quality of evidence

The results and limitations:

26 randomised control trials with median sample size of 30 (Range 8-501) were included. Compared with control LIPUS did not reduce time to return to work or the number of subsequent operations.Effects for the outcomes of full weight bearing, pain, and days to radiographic healing varied substantially between studies.Main evidence applied directly to fresh fractures. The applicability of other types of fracture or osteotomy is opened to debate

Conclusion

Based on moderate to high quality evidence mainly from studies in patients with fresh fracture LIPUS does not improve outcomes patients and fresh with fresh fracture has no effect on radiographic bone healing.

Commentary

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In modern society with high energy injuries and extreme sports injuries complex fracture patterns are common. In sportsman it seem too long once fracture is fixed to await a natural healing cycle as demand to return to sport quickly is high. Therefore various treatment modalities have been tried to enhance fracture healing and LIPUS (Low Intensity Pulsed Ultrasound) has been performed as one of the modalities. But does it really work? If so what is the evidence?

To answer the question Schandelmaier S, Kaushal A, Lytvyn L, et al performed a systematic review of literature as many articles have been published in this topic recently. After analysing over 26 randomised control trials the authors found no evidence of any significant benefit of LIPUS versus control mainly over treatment of fresh fractures.

Since this article was published over a year ago a modified search update was done by the commentator with a limited Google search and did not find any new evidence to show otherwise. It seems that we have found an answer to the question Does LIPUS improve bone healing? The answer appears to be “No” it doesn't.

TA randomized controlled trial comparing autologous cranioplasty with custom-made titanium cranioplasty

S Honeybul, D A Morrison, K M Ho, C R P Lind and E Geelhoed Journal Of Neurosurgery
Apr 2018/Vol. 128/No. Suppl1/pages 81-90

Objective

Autologous bone is usually used to reconstruct skull defects following decompressive surgery. However, it is associated with a high failure rate due to infection and resorption. The aim of this study was to see whether it would be cost-effective to use titanium as a primary reconstructive material.

Methods

Sixty-four patients were enrolled and randomized to receive either their own bone or a primary titanium cranioplasty. All surgical procedures were performed by the senior surgeon. Primary and secondary outcome measures were assessed at 1 year after cranioplasty.

Results

There were no primary infections in either arm of the trial. There was one secondary infection of a titanium cranioplasty that had replaced a resorbed autologous cranioplasty. In the titanium group, no patient was considered to have partial or complete cranioplasty failure at 12 months of follow-up ($p = 0.002$) and none needed revision ($p = 0.053$). There were 2 deaths unrelated to the cranioplasty, one in each arm of the trial. Among the 31 patients who had an autologous

cranioplasty, 7 patients (22%) had complete resorption of the autologous bone such that it was deemed a complete failure. Partial or complete autologous bone resorption appeared to be more common among young patients than older patients (32 vs 45 years old, p = 0.013). The total cumulative cost between the 2 groups was not significantly different (mean difference A$3281, 95% CI $-9869 to $3308; p = 0.327).

Conclusions

Primary titanium cranioplasty should be seriously considered for young patients who require reconstruction of the skull vault following decompressive craniectomy.

Commentary

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This is an important study especially in its relevance to developing countries where resources and funding for Titanium cranioplasties is scarce. The traditional method of storing the removed bone in the patient subcutaneous fat in the abdomen maybe making a comeback as it appears that there isant a significant increase in the infection rate and failure comparing the two. But it is highlighted that as the resorption rate is 22% which is a significant factor that needs to be taken into consideration and therefore a titanium cranioplasty should be seriously considered the first line for younger patients. As the storage facilities have improved we are now able to preserve autologous bone grafts for a longer period of time.

Characterization and Optimal Management of High-risk Pancreatic Anastomoses During Pancreatoduodenectomy

Ecker, Brett, L., MD; McMillan, Matthew, T., BA; Asbun, Horacio et al.

Annals of Surgery: –April 2018 - Volume 267 - Issue 4 -
p 608616
doi: 10.1097/SLA.0000000000002327

Objective

The aim of this study was to identify the optimal fistula mitigation strategy following pancreaticoduodenectomy.

Background

The utility of technical strategies to prevent clinically relevant postoperative pancreatic fistula (CR-POPF) following pancreatoduodenectomy (PD) may vary by the circumstances of the anastomosis. The Fistula Risk Score (FRS) identifies a distinct high-risk cohort (FRS 7 to 10) that demonstrates substantially worse clinical outcomes. The value of various fistula mitigation strategies in these particular high-stakes cases has not been previously explored.

Methods

This multinational study included 5323 PDs performed by 62 surgeons at 17 institutions. Mitigation strategies, including both technique related (ie, pancreatogastrostomy reconstruction; dunking; tissue patches) and the use of adjuvant strategies (ie, intraperitoneal drains; anastomotic stents; prophylactic octreotide; tissue sealants), were evaluated using multivariable regression analysis and propensity score matching.

Results

A total of 522 (9.8%) PDs met high-risk FRS criteria, with an observed CR-POPF rate of 29.1%. Pancreatogastrostomy, prophylactic octreotide, and omission of externalized stents were each associated with an increased rate of CR-POPF (all P < 0.001). In a multivariable model accounting for patient, surgeon, and institutional characteristics, the use of external stents [odds ratio (OR) 0.45, 95% confidence interval (95% CI) 0.25–0.81] and the omission of prophylactic octreotide (OR 0.49, 95% CI 0.30–0.78) were independently associated with decreased CR-POPF occurrence. In the propensity score matched cohort, an "optimal" mitigation strategy (ie, externalized stent and no prophylactic octreotide) was associated with a reduced rate of CR-POPF(13.2% vs 33.5%, P < 0.001).

Conclusions

The scenarios identified by the high-risk FRS zone represent challenging anastomoses associated with markedly elevated rates of fistula. Externalized stents and omission of prophylactic octreotide, in the setting of intraperitoneal drainage and pancreaticojejunostomy reconstruction, provides optimal outcomes.

Commentary

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This feature aims to address optimal care of those patients at high risk of clinically relevant postoperative pancreatic fistulae (CR-POPF), the proverbial Achilles heel of the Whipple procedure. It uses the Fistula Risk Score (FRS), a ten point validated score predicting risk of developing ISGPF (grades B/C) CR-POPF following pancreatoduodenectomy. The FRS further validates previous literature on risk factors

for pancreatic anastomotic leaks including a soft gland and narrow duct.

The almost 1/3 CR-POPF rates indicated in this study, even for this high risk cohort, is high compared to rates observed in local tertiary HPB centres. Interestingly, this study appears to indicate that conventional measures used to mitigate a CR-POPF in high risk patients, such as the administration of octreotide may in fact paradoxically have a detrimental effect. It also recommends that the use of externalised stents to reduce leak rates in this subset of patients. This certainly adds new information on the management of this challenging group of patients but warrants further investigation.

Hand Infections

John C. Koshy, Bryce Bell
DOI: https://doi.org/10.1016/j.jhsa.2018.05.027
Publication stage: In Press Corrected Proof
Published online: July 15, 2018

Abstract

Infections are common in hand surgery and proper management is important to achieve optimal outcomes. Although most cases are not urgent, less common, severe infections such as flexor tenosynovitis and necrotizing fasciitis require urgent identification with both medical and surgical management. It is common for diagnoses to be missed or delayed because clinical and laboratory indicators are often variably present. Delayed identification and management can result in poor outcomes with permanent deficits. This article will provide a review of hand infections with a focus on identifying serious hand infections requiring urgent or emergent treatment, and distinguishing these from less urgent scenarios.

Commentary

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Hand infections in Sri Lanka largely goes unnoticed. This article in the journal of hand surgery gives guidance how to identify and select the cases that needs urgent care. Serious infections can be identified with clinical and laboratory indicators. However, interpretation of these findings needs critical evaluation to provide appropriate weightage.

Tenosynovitis is one of the common deep infections that need urgent decompression and irrigation to prevent loss of flexor tendons. Similar can be told about necrotizing fasciitis which generally ascends along fascial planes. The latter can lead to devastating consequences to future hand function

Although there no single laboratory test capable of detecting hand infection using a combination of tests can lead to better clinical prediction of the need to intervene early.

Erratum

Abstract (Poster) No. 56- Retrospective histopathological analysis of thyroidectomy: a single unit experience

Sri Lanka Journal of Surgery 2018; 36, Issue Supplement S1: 47

The authors' names should be corrected as:

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