

IVF Failures Highly Associated With BCL6 Presence

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RETROSPECTIVE ANALYSIS OF THE RELATIVE VALUE OF IVF FAILURES ON BCL6 RESULTS



Background

Moderate size studies demonstrate that BCL6 protein abundance is strikingly higher in the eutopic endometrium of women with endometriosis versus controls.^{1,2} Furthermore, testing positive for BCL6 overexpression (without further treatment) correlates with IVF failure, while suppression of endometriosis or surgical treatment improves outcomes providing a basis for the ReceptivaDx® test.^{3,4,5,6} Herein, we utilize our database of almost 4,000 results of ReceptivaDx® testing from 356 centers including 329 from the United States and 27 international to retrospectively learn more about the implications of high BCL6 results.

Objective

To evaluate the relationship between prior implantation failure and abnormal BCL6 testing results.

Materials and Methods

Clinical information was taken from input provided on the ReceptivaDx™ test requisition form, including number of failed IVFs, other diagnoses such as endometriosis, suspected hydrosalpinx, and PCOS. These were compared to BCL6 immunostaining results. Any samples with limited clinical history were not included. An adverse IVF outcome was defined by the center as a prior failure. The analysis examined the relationship of IVF failures (1-2 failures vs. 3-4 failures vs. 5 or more failures) and BCL6 results (positive vs negative) using a 2 x 3 Chi Square analysis and Goodman and Kruskal Tau test.

Results:

As shown in table 1, as the number of prior failures increases, the proportion of abnormal BCL6 tests increases. Using Chi Square and comparing all three failure groups, there was a significant relationship ($\alpha = .05$) between failure and test result: $\chi^2(2) = 33.6$, $p < .001$ with a small effect size (Cramer's $V = .092$)⁷. Within the groupings, only 1-2 failures showed no significance. When BCL6 was modeled as an outcome (i.e. IVF failure predicting BCL6 result) significance was obtained per the Goodman and Kruskal Tau test: $\text{Tau} = .003$, $p < .001$ indicating that failure disposition predicted the BCL6 outcome.

Table 1: BCL6 results by prior implantation failure history

	1-2 Failures	3-4 Failures	5 or more Failures
N	2963	808	200
BCL6 Positive	51% 1511	56% 452	71% 142
BCL6 Negative	(49%) 1452	44% 356	29% 58

Conclusions

We report by far, the largest number of samples evaluated for BCL6 immunostaining, providing further information on clinical correlates of a positive test. These data further support previous studies suggesting that increased BCL6 (untreated) is associated with worse IVF outcomes. Limitations of this study include all the following: a) the retrospective design, b) potential bias in clinician's expectation of abnormal result with prior failures, c) reliance on self-reported clinical characteristics – errors in clinical characteristics would likely lead to less effect of prior history on test outcome. However, the fact that we see a difference by number of prior failures enhances the likelihood that the test truly reflects abnormal endometrium and thus supports its clinical use. As outcomes data becomes available through our Shared Experience Program, additional analysis will be added.

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References:

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