EVOLUTION OF EVAR AS THE TREATMENT OF CHOICE FOR RUPTURED AAAs

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Disclosure

Speaker name:

.......................................................................................... I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
IN APRIL 1994

BECAUSE WE HAD A SURGEON MADE AOR ENDOGRAFT STERILE & AVAILABLE FOR EMERGENCIES

WE DID THE FIRST EVAR FOR A RUPTURED AAA IN WORLD
Endovascular Repair of Ruptured Aortoiliac Aneurysms

Montefiore Endovascular Grafts (MEG)

MEGS

Completion
April 1994
FIRST EVAR
FOR RAAA
IN WORLD

Inoperable Patient
Hostile Abd
EF 16%
BP 60 mmHg
Severe Pain
SURGEON-MADE
EVG AO-UNIFEM
& FEM-FEM
MEGS VI GRAFT
FIRST EVAR FOR RAAA
APRIL 1994

PREOP

POSTOP

SURVIVED
>3 YEARS
IN 1994 & 1995
WE TREATED

12 Patients With CT Scan Rupture
And Prohibitive Risk For Open Operation

6 AAAs   6 AIAs

9 WERE HYPOTENSIONIVE
OUR RESULTS OF EVAR TREATMENT OF RUPTURED AAAs AND AIAstrs In 1994 & 95

12 Patients Treated

12 Aneurysms Excluded

2 Postoperative Deaths

17% Mortality
WE LEARNED

• Requirement For Rapid Control Which Mandated Laparotomy

JUST NOT SO!

Solutions: Hypotensive Hemostasis
EVAR INTUITIVELY BETTER

- MINIMIZES DISSECTION
- CUTS BLOOD LOSS
- AVOIDS HYPOTHERMIA
- AVOIDS VESSEL INJURY
- AVOIDS COAGULOPATHY
- REQUIRES DIF SKILLS & EQUIP
OUR HYPOTHESIS IN 1995

EVGs And Other Image-Guided Endovascular Techniques Should Be Employed For All Ruptured AAAs Even In Good Risk Patients
FROM 1994 - 2000
ALMOST NO ONE ELSE
IN THE WORLD
AGREED WITH US!
“OPEN REPAIR WAS
BEST Rx FOR RAAAs”
OUR RESULTS OF ENDOVASCULAR TREATMENT OF RUPTURED AAAs

57 Patients Treated (Endo If Poss)
45 With EVGs (25 SMGs; 20 IMGs)
12 Open Operations (21%)
7 Deaths – 12% Mortality
BY 2000-2005
OUR AND OTHERS’ RESULTS SUGGEST THAT EVAR IMPROVES Rx OUTCOMES FOR RAAAs
HOWEVER

SOME GROUPS HAVE HAD POOR RESULTS WITH EVAR FOR RAAAs
4 CONTROLLED STUDIES SHOWED EVAR NO BETTER THAN OPEN REPAIR

- PEPPELENBOSCH, BUTH ET AL. J VASC SURG 43:1111, 2006
- CHO – U PITTSBURG – JVS 2012
- GUNNARSSON, ET AL. SWEDISH REGISTRY DATA – EJVES 2015
IN 2009
EVAR FOR RUPT AAAs

- REMAINED CONTROVERSIAL
- MANY SAID WE NEED A RCT OF EVAR vs OR
COLLECTED WORLD EXPERIENCE WITH ENDOVASCULAR Rx (EVAR) FOR RUPT AAAs

FJ VEITH, M LACHAT, M MALINA E VERHOEVEN, G COPPI, T LARZON M MEHTA & RAAA INVESTIGATORS

ANN SURG -- NOV 2009; 250 : 818-824
KEY RESULTS

• FROM 13 CTRS – EVAR ON ALL ANAT POSS RAAA PTS
  680 RAAA PTS RxS BY EVAR
  763 RAAA PTS RxD BY OR

30-DAY MORTALITY

EVAR OR

19.7% VS 36.3% (P<.0001)
WHY CAN SOME GROUPS LIKE THE 13 CENTERS GET GOOD RESULTS & OTHERS NOT ???
WE BELIEVE TREATMENT STRATEGIES ADJUNCTS & TECHNIQUES MAKE A DIFFERENCE AND MAY ACCOUNT FOR BETTER RESULTS
SOME KEY ELEMENTS

VEITH, ET AL

ANN SURG 2009
TOP TIP

RESTRICT RESUSCITATION

“HYPOTENSIVE HEMOSTASIS”

IF MOVING & TALKING - OK
IF BP 50-70 mm Hg, IT’S OK
TOP TIP
WHEN HYPOTENSIVE HEMOSTASIS DOES NOT WORK & NEED SUPRACELIAC BALLOON TECHNIQUE IS KEY

MALINA, VEITH, IVANCEV JEVT 2005
VEITH ET AL, VIDEO 2010 SVS
BERLAND, VEITH, CAYNE JVS JAN 2013: 272-5
TOP TIP

• WATCH FOR & Rx ABD COMPARTMENT SYNDROME
• DECOMPRESS (OAT) PRN
• VAC DRESSING, ETC
• LACHAT, MAYER, VEITH

JVS - JULY 2009
DESPITE ALL THESE POINTS & OUR FIRM BELIEF THAT EVAR IS THE BEST Rx FOR RUPTURED AAAs
EVAR FOR RUPT AAAs

- REMAINED CONTROVERSIAL FROM 2005 - 2016
  - MANY STILL SAYING NEED RCT OF EVAR vs OR
    - 3 NOW COMPLETED !!!
THREE RECENTLY REPORTED RANDOMIZED CONTROLLED TRIALS

ECAR - FRENCH

AJAX – DUTCH

**IMPROVE** - UK
ALL 3 RCTs CLAIMED NO DIFFERENCE IN 30-DAY MORT BETW EVAR & OPEN REPAIR HOWEVER - SADLY THAT CONCLUSION OF ALL 3 RCTS IS FLAWED, MISLEADING & WRONG!!!
FLAWS AND ERRORS IN THE 3 RCTs MADE THEM MISLEADING & WRONG !!!

MOST RECENT RESULTS FROM IMPROVE RCT

FINALLY ALSO CONFIRM EVAR SUPERIORITY
- BETTER LONG TERM SURVIVAL WITH EVAR
- BETTER SHORT & LONG SURVIVAL IN WOMEN
CONCLUSION – Re RAAAs & EVAR TREATMENT

THE LOW MORTALITY (~ 20%) & MANY INOPERABLE CASES TREATED SUCCESSFULLY SHOW EVAR IS A BETTER WAY TO TREAT RUPTURED AAAs IN ANATOMICALLY SUITED PTS.
IF THE SKILLS & EQUIPMENT ARE AVAILABLE & ANATOMY IS SUITABLE, EVAR SHOULD BE THE TREATMENT OF CHOICE FOR RUPTURED AAAs IN 2021 & BEYOND
A 2\textsuperscript{ND} CONCLUSION

RCTs – LEVEL 1 EVIDENCE ARE NOT ALWAYS THE INFALLIBLE HOLY GRAIL THEY ARE THOUGHT TO BE
CONCLUSION III

AS WITH EVERYTHING ELSE IN THIS WORLD

• HOW YOU DO EVAR FOR RAAAs MATTERS -

- INCLUDING STRATEGIES & TECHNICAL TIPS WE HAVE ADVOCATED (ANN SURG 2009)
THANKS FOR YOUR ATTENTION