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ORTHOPAEDIC SURGEON

Surgeons' assessment of outcome parameters,
evaluated through decision analysis, supports
unicompartmental knee replacement (UKR) as treatment
for medial
compartment gonarthrosis.

Introduction

Evidence based surgical decision making:

- Multiple variables and parameters
- Ranges of reported outcomes
- Various sources of evidence



Individual surgeon belief system

- Belief system continuously updated and modified
- Multiple permutations: intuitive assessment difficult

Methods

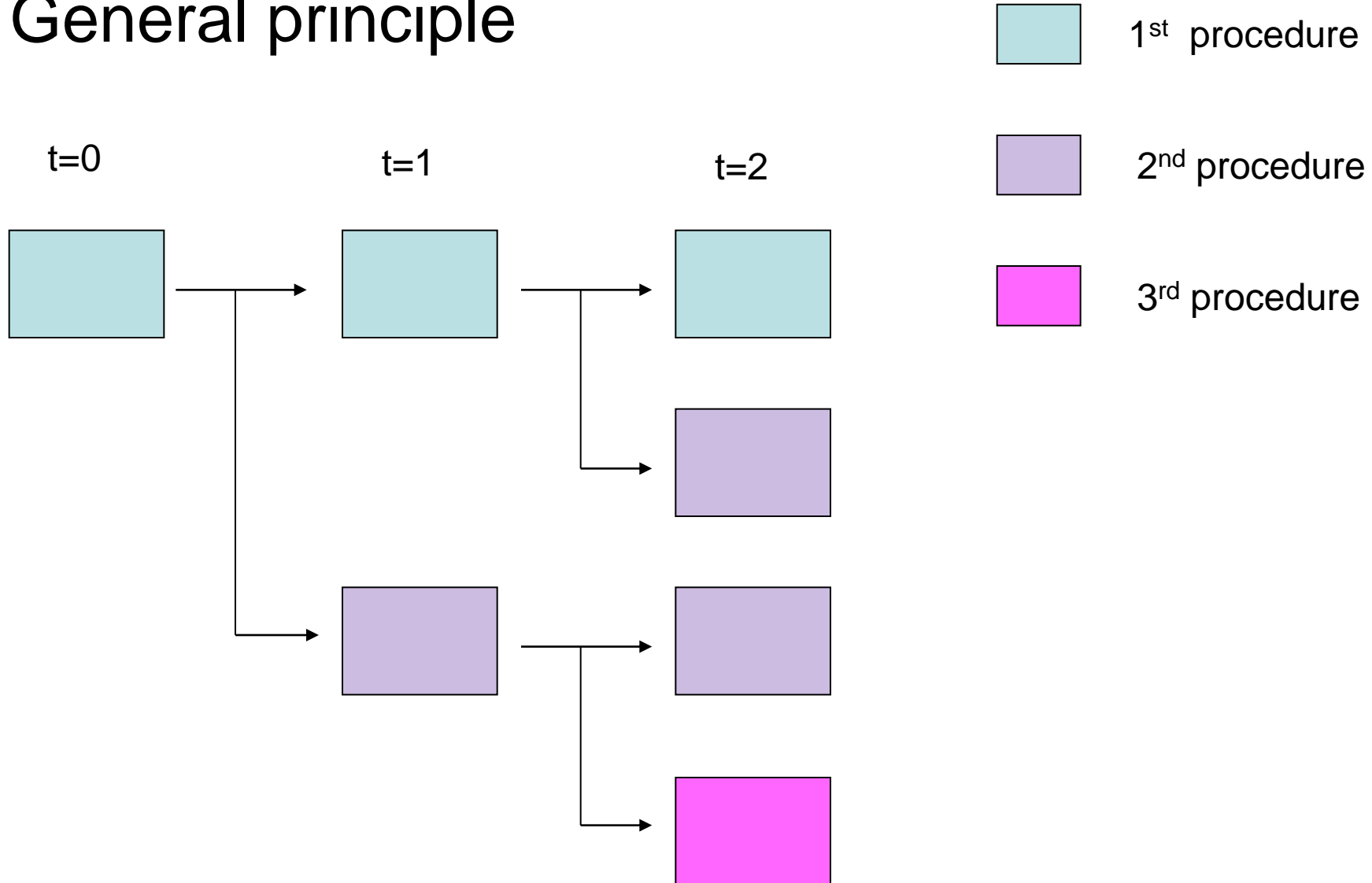
- Cohort decision analysis
 - assume 100 patients
 - age 60 y
 - end-stage anteromedial gonarthrosis
 - define initial and subsequent procedures
 - quantify procedure related parameters
 - assume linear procedure attrition rate
 - assume mortality of 2.5 % per year

Methods

- each revision creates a new sub-cohort
- each sub-cohort has a linear attrition rate
- tabulate various procedures:
 - determine total cohort morbidity
 - determine cohort resource utilization

Methods

- General principle



Methods

- Initial model:
 - 20 y period - 5 year intervals
 - sub-cohorts introduced sequentially
 - allowance made for interim failure
- Current model:
 - interval shortened to 1 year
 - user defined cap on revision number
 - 'salvage'
 - allows more flexibility

Methods

- Group of 8 orthopaedic surgeons
- Decision analysis model discussed
- Consensus:
 - linear attrition rate was realistic.
 - revision of UKR -> TKA is similar to primary TKA.
 - 2nd and higher total knee revisions could be lumped together.
 - outcomes & resource utilization defined

Results: surgeons' consensus

	<i>10 y attrition(%)</i>	<i>cost(\$)</i>	<i>hosp (days)</i>	<i>infection</i>
• <i>UKR</i>	10%	\$11,000	1	0.5%
• <i>TKR</i>	5%	\$13,400	3	1%
• <i>U ->TKR</i>	5%	\$13,400	3	1%
• <i>TKA R1</i>	15%	\$17,500	4	3%
• <i>TKA R>1</i>	25%	\$20,000	7	5%

Results: cohort decision analysis

	<i>Primary procedure UKA</i>	<i>Primary procedure TKA</i>
<i>Procedures</i>	115	108
<i>Cost, excl infections</i>	\$ 1,299,558	\$ 1,492,763
<i>Hospital days</i>	145	336
<i>Infections</i>	0.66	1.27

Discussion

UKR is a valid option for treatment of medial compartment gonarthrosis, as assessed by this group of BC surgeons, based on consideration of reduced cost, hospitalization and total infection burden, despite a higher re-operation rate.

Conclusion

- Decision analysis/ cohort modelling allows assessment of implications of surgeon's perception of relevant outcome parameters
- Results of cohort modelling after consensus seeking confirm that UKA as primary treatment for medial OA of the knee can reduce cost, cohort infection and hospital utilization, despite a higher number of total procedures.